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Research Article

Self-medication practices with prescription-only medicines and associated factors among university students in healthcare disciplines in the Northern province of Sri Lanka

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ABSTRACT

Purpose: Self-medication refers to using medicines to treat self-diagnosed diseases. Self-medication with prescription-only medicines can lead to significant health risks if used irrationally. This study aimed to evaluate the practice of self-medication with prescription-only medications and associated factors among undergraduate students enrolled in pharmacy, nursing, and medical laboratory sciences degree programs at a state university in Northern Sri Lanka.

Methods: A cross-sectional study was conducted using a self-administered, pre-tested questionnaire. Data were analyzed using SPSS, and the chi-square test was used to examine associations between variables and self-medication at a 95% confidence level.

Results: A total of 538 students were invited to participate, with a response rate of 92.4% (n=498). The average age of participants was 24.39 ± 1.30 years, and 62.4% were female. Over half of the students (56.4%) reported practicing self-medication with prescription-only medications, primarily cetirizine, antibiotics, and omeprazole. Significant associations were observed between self-medication practices and gender ($p=0.012$), course of study ($p<0.001$), and year of study ($p=0.02$).

Conclusion: Self-medication with prescription-only medicines is common among undergraduate students enrolled in pharmacy, nursing, and medical laboratory sciences degree programs at a state university in Northern Sri Lanka. Awareness campaigns and strict regulatory measures are needed to mitigate this practice.

Keywords: self-medication; practice; allied health science students; northern Sri Lanka

INTRODUCTION

Self-medication can be defined as the "use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent diseases or symptoms". It is considered a form of self-care, which is becoming a global trend. Self-medication helps reduce healthcare costs, saves time,

and reduces the burden on healthcare facilities. Moreover, it may be necessary in developing countries with limited healthcare resources. (1)

Despite its benefits, the potential risks of self-medication practices are a significant health concern. These risks include incorrect self-diagnosis, delays in seeking medical advice when needed, severe but infrequent adverse reactions to medicines, potential medicine interactions, incorrect methods of administration, improper dosages, inappropriate choices of therapy, masking severe health conditions, and the risk of dependence and abuse. (2) One common issue associated with the self-medication of prescription-only medicines is the irrational use of antibiotics. (3) Irresponsible self-medication may result from incorrect diagnoses, inappropriate treatment durations, and inaccurate dosing regimens. (2)

The prevalence of self-medication has been reported to be 38.8% in low- and middle-income countries. (4) However, the rate of self-medication has increased in recent years, partly due to the COVID-19 pandemic. The abundance of information on COVID-19 led some people to self-medicate. (5) During the pandemic, the prevalence of self-medication in Asia rose to 53%, and among students, it was 54.5%. (6) Due to limited understanding of the risks associated with improper use of medicines, young adults are the most affected group when it comes to self-medication practices. (6-11)

Studies on rational medicine use have demonstrated that self-medication and irrational medicine use habits are linked to levels of education. Surprisingly, individuals with higher levels of education tend to engage more frequently in self-medication practices. (6-10) Both prescription medicines and over-the-counter medicines are commonly used in self-medication. While over-the-counter medicines can be obtained without a prescription, dispensing prescription-only medicines legally requires a valid medical prescription. (12)

In many developing countries, including Sri Lanka, prescription-only medicines are frequently dispensed by pharmacy staff without a valid prescription, despite this being an illegal practice. (13) Medicines for self-medication are often sourced through inappropriate means, such as using old prescriptions, sharing prescription medicines with friends or family members, or utilizing leftover medicines stored at home. (10)

Most studies on self-medication patterns include both over-the-counter medicines and prescription-only medicines. The availability of over-the-counter medicines varies from country to country. Sri Lanka, for example, has a limited range of over-the-counter medicines compared to Western countries. However, in countries like Sri Lanka, many medicines, including antibiotics, are obtainable without a prescription, even though this is an illegal practice. (12) Excluding the use of over-the-counter medicines in self-medication studies provides a clearer understanding of the misuse of prescription-only medicines among consumers.

Students enrolled in pharmacy, nursing, and medical laboratory sciences degree programs are expected to have greater knowledge about the proper use of medicines compared to those pursuing non-health sciences degrees and the general public. This study, therefore, aimd to assess the prevalence and practices of self-medication with prescription-only medicines among students in pharmacy, nursing, and medical laboratory sciences

programs at a state university in Northern Sri Lanka.

METHODS

A cross-sectional study was conducted among undergraduate students enrolled in pharmacy, nursing, and medical laboratory sciences degree programs at the University of Jaffna, Sri Lanka, from November 2020 to November 2021. All students enrolled in these degree programs at the University of Jaffna during the study period were included.

Sample size and participants

The sample size was calculated based on a previous study conducted at a Nigerian university, which reported a self-medication prevalence of 54.6% among students. (8) Using this prevalence of 0.546, a 95% confidence level (corresponding to a Z-value of 1.96), and a margin of error of 5%, the required sample size was estimated to be 381. The calculation followed the standard formula for sample size calculation for a single proportion. (14) To account for a potential 20% non-response rate, the total sample size was adjusted to 423. However, since the total population of students enrolled in pharmacy, nursing, and medical laboratory sciences degree programs at the University of Jaffna during the study period was 539, the entire student population was included in the study.

Study instrument

A pre-tested, self-administered questionnaire was used to assess students' self-medication practices. The questionnaire's content was validated by circulating it among three experts: a pharmacologist, a consultant physician, and a graduate pharmacist.

Data collection

Due to the COVID-19 pandemic, data collection was conducted remotely. Google Forms were used to distribute the questionnaire via email to all students. The email addresses of the students were obtained from the administration branch of the University of Jaffna. The purpose of the study and instructions for completing the questionnaire were explained to the participants. Written consent was obtained electronically through Google Forms. Ethics clearance for the study was obtained from the Ethics Review Committee, Faculty of Medicine, University of Jaffna, Sri Lanka.

Data analysis

The association between various factors and self-medication practices was assessed using the chi-square test. A p-value of less than 0.05 was considered statistically significant at a 95% confidence interval.

RESULTS

The study was conducted among students enrolled in the pharmacy, nursing, and medical laboratory sciences degree programs at the University of Jaffna. Out of a total of 539 students, 498 responded to the questionnaire, achieving a response rate of 92.39%.

Socio-demographic distribution among participants

According to Table 1, the majority of the participants (62.4%) were female, and the mean age of the respondents was 24.39 years (SD = 1.306). Most of the students (35.7%) were enrolled in the medical laboratory sciences program. Fourth-year students were fewer in number compared to students from other academic years.

Self-medication practice among students

A total of 273 students (54.8%) reported using prescription-only medicines for self-medication within the past three months. The self-medication practices recalled during the three months prior to data collection are presented in Table 2.

A majority of students reported using self-medication twice during this period. On average, students engaged in self-medication 3.19 times over the past three months. Over one-third of the students used self-medication to treat fever, followed by the common cold, aches and pains, runny nose, and gastritis. The most used medicines for self-medication included cetirizine, omeprazole and chlorpheniramine. .

Table 1. Socio-demographic characteristics of students who responded to the survey

Characteristic	Category	Number of students (n)	Percentage (%)
Age Group (Years)	21–24	261	52.4
	Above 24	237	47.6
Gender	Male	187	37.6
	Female	311	62.4
Field of Study	Pharmacy	170	34.1
	Nursing	150	30.1
	Medical Laboratory Sciences	178	35.8
Year of Study	First Year	146	29.3
	Second Year	134	26.9
	Third Year	151	30.3
	Fourth Year	67	13.5

Table 2. Pattern of self-medication practices among students in the past 3-months

Characteristic	Frequency (n)	Percentage (%)
Number of instances of self-medication (n=273)		
1	56	20.5
2	72	26.4
3	68	24.9
More than 3 times	77	25.7
The symptoms treated using self-medication		
Fever	107	39.2
Runny nose	106	38.8
Aches and pains	102	37.4
Gastritis	100	36.6
Cough	88	32.2
Sore throat	49	17.9
Nasal congestion	25	9.2
Vomiting	20	7.3
Diarrhoea	10	3.7
Other symptoms	17	6.2
Types of medicines used for self-medication		
Cetirizine	109	39.9
Omeprazole	81	29.7
Chlorpheniramine	55	20.1
Antibiotics	43	15.8
Domperidone	29	10.6
Antihistamines excluding ceterizine and chlorpheniramine	20	7.3
Analgesics excluding diclofenac sodium	11	4.0
Diclofenac sodium	6	2.2
Other medicines	25	9.2

Many students obtained medicines for self-medication from pharmacies without a valid prescription. Most medicines were selected based on previous experiences, old prescriptions, or pharmacist recommendations.

Only 17.6% of students reported experiencing side-effects from self-medication. Among those who experienced side-effects, most stopped taking the medicines immediately and consulted a doctor, as shown in Table 3.

Association of factors on self-medication practice

According to Table 4, gender, course of study, and year of study were significant factors associated with self-medication practices ($p<0.05$). However, age group was not significantly associated with self-medication practices.

Table 3. Sources of medicines, medicine selection methods, and side-efffects of self-medication

Characteristic	Frequency (n)	Percentage (%)
Sources of medicines*		
Pharmacy (without a prescription)	202	74.0
Leftover medicines at home	69	25.3
From friends or relatives	32	11.7
Pharmacy (Resubmission of the old prescription)	29	10.6
Other sources	6	2.2
Methods of selecting medicines for self-medication*		
Previous experience	190	69.6
Previous prescription	133	48.7
Recommendation by pharmacists	63	23.1
Opinions from family members	41	15.0
Through internet	35	12.8
Books/newspaper	23	8.4
Opinion from friends	21	7.7
Package inserts	6	2.2
Others	6	2.2
Occurrence of side-effects due to self-medication (n=273)		
Yes	48	17.6
No	225	82.4
Actions taken for side-effects of self-medication*		
Immediately stop using the medicines	39	51.3
Consult doctors	21	43.8
Take a low dose until side-effects subside	8	16.7
Change to other medicines	7	9.2
Consult pharmacist	1	2.1

*** Multiple responses**

Table 4. Association between self-medication practice and variables

Category	Self-medication		p-value
	Yes	No	
Age group (in years)			
21-24	140 (53.6)	121 (46.4)	0.579
Above 24	133 (56.1)	104 (43.9)	
Gender			
Male	89 (47.6)	98 (52.4)	0.012
Female	184 (59.2)	127 (40.8)	
Course of study			
Pharmacy	121 (71.2)	49 (28.8)	< 0.001
Nursing	60 (40.0)	90 (60.0)	
Medical laboratory science	92 (51.7)	86 (48.3)	
Year of Study			
First-year	95 (65.1)	51 (34.9)	0.020
Second year and above	265 (75.3)	87 (24.7)	

DISCUSSION

Self-medication is an aspect of self-care, where individuals manage and treat various ailments independently. (1, 15) The practice of self-medication has become widespread globally due to easy access to health-related information through the internet. While self-medication offers several benefits, such as reducing treatment costs, minimizing clinic visits, and saving time for physician consultations, irresponsible self-medication can have serious consequences. These include increased antimicrobial resistance, severe side-effects, medicine misuse and abuse, and a rise in medicine-related problems. (1, 13, 15-17)

This study was conducted to assess the practice of self-medication with prescription-only medicines and to analyze its association with socio-demographic factors among students enrolled in pharmacy, nursing, and medical laboratory sciences degree programs at the University of Jaffna. While several studies have explored self-medication patterns in various populations, most have included both over-the-counter and prescription-only medicines. (18) In contrast, this study focused specifically on the self-use of prescription-only medicines to highlight irrational medicine use among students. It also provides evidence of obtaining prescription-only medicines without a valid prescription among the study sample.

The prevalence of self-medication among students in this study was 54.8%, which is lower than the overall prevalence among university students (70.1%) reported in a systematic review and meta-analysis. (18) Higher prevalence rates were reported in Nepal (95.4%) (19), India (80.8%) (20), and Bangladesh (100%) (21). These variations may be due to differences in socio-demographic characteristics, regulatory laws, their enforcement, and the availability of medicines for self-medication in different countries.

In this study, students reported practicing self-medication an average of 3.19 times over the past three months. By comparison, a study conducted among university students in Iran reported self-medication 4.2 times per year. (22) Additionally, 25.7% of students in this study practiced self-medication more than three times in the past three months.

The most common conditions for which students practiced self-medication were fever, runny nose, aches and pains, gastritis, and cough. Similarly, studies conducted in Serbia (23) and Iran (22) identified cold, cough, and pain as the primary reasons for self-medication. These findings highlight the prevalence of respiratory-related infections among students, which are significant drivers of self-medication practices. (24) Systematic reviews have also reported respiratory symptoms as a major reason for self-medication. Gastritis, the second most common condition for self-medication after cold symptoms, aches, and pains may be associated with the consumption of spicy food and examination-related stress. (25)

The commonly used medicines for self-medication in this study were cetirizine, omeprazole, chlorpheniramine, and antibiotics. Fever was the most common condition for self-medication and was primarily treated with paracetamol, an over-the-counter medicine not included in this study. Since runny nose, cough, and cold were among the most frequent conditions reported, cetirizine was the most commonly used medication. Although cetirizine and omeprazole are listed as over-the-counter medicines in some countries, they are classified as prescription-only medicines in Sri Lanka. (12) Improper use of chlorpheniramine, however, can cause adverse effects and is sometimes misused for inducing sleep or pleasurable sensations, leading to the risk of dependence. (26) A systematic review reported that antipyretics, analgesics, and antibiotics were the most common medicines used for self-medication among students in India. (18) In Nepal, analgesics, antipyretics, antiulcer medicines, and antibiotics were the most frequently used medicines for self-medication. (27)

The use of antibiotics for self-medication is a major concern due to its association with the development of antimicrobial resistance. In this study, 15.8% of students reported self-medication with antibiotics. By comparison, a community survey in Sri Lanka found a lower prevalence of 6.8% for self-antibiotic use. (28) The higher prevalence among students may reflect their increased access to and knowledge of medicines. A study involving university students in Sri Lanka, including both health science and non-health science students, reported a 38.8% prevalence of self-antibiotic use. (29) By contrast, our study revealed a lower prevalence, likely due to greater awareness among health science students compared to their non-health science counterparts. However, significantly higher prevalence rates, such as 81.23%, were reported among students in Pakistan. (30) Irrational self-use of antibiotics is often linked to poor practices in retail pharmacies. Antibiotics were commonly dispensed without valid prescriptions in Southeast Asia. (31)

In this study, medicines for self-medication were predominantly obtained from pharmacies. Poor pharmacy practices, including the illegal sale of prescription-only medicines, are prevalent in many low- and middle-income Asian countries. Profit-driven strategies by pharmacy staff further exacerbate this issue. (32) In Sri Lanka, obtaining medicines without valid prescriptions is a widespread problem. One in every three pharmacists dispensed antibiotics upon patient request without requiring a prescription. (12) Additionally, unlicensed pharmacists frequently supply medicines illegally. (33,34)

In this study, 17.6% of students reported experiencing side-effects due to self-medication. Most stopped using the medicines and subsequently consulted a physician. A similar study in Turkey found that participants consulted physicians for side-effects. (9) Another study in Sri Lanka reported that university students approached pharmacy staff for advice regarding side-effects. (29)

Statistically significant associations were found between self-medication practices and gender, course of study, and year of study. The age group was not significantly associated with self-medication. Female students, pharmacy students, and senior students were more likely to engage in self-medication practices than their counterparts. A systematic review and meta-analysis also reported higher self-medication prevalence among female students (18), consistent with our findings. Senior students had a higher prevalence of self-medication than first-year students, possibly due to their greater knowledge of medicines. Similarly, pharmacy students, who have greater pharmacological knowledge, reported higher self-medication practices. A study in Nigeria also found that female and senior students were more likely to self-medicate. (8)

Pharmacists should adhere to professional ethics and recognize their social responsibility. Authorities must strictly monitor dispensing practices in community pharmacies and address the involvement of unlicensed individuals in dispensing medicines. Moreover, pharmacy curricula should emphasize the consequences of irrational medicine use to promote responsible self-medication practices among students.

CONCLUSION

More than half of the students practiced self-medication with prescription-only medicines. Statistically significant associations were observed between self-medication practices and factors such as gender, course of study, and year of study. To address the irrational use of prescription-only medicines, it is essential to implement awareness programs targeting students about the risks of self-medication with prescription-only medicines. Additionally, regulatory authorities must strictly monitor community pharmacies to prevent the dispensing of medicines without valid prescriptions.

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AUTHOR'S DECLARATION:

The authors declare that all persons listed as authors have read and given approval for the submission of this manuscript.

CONFLICTS OF INTEREST:

The authors declare that they have no conflict of interest.

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