IJPSR (2025), Volume 16, Issue 1 **(Research Article)**

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 12 August 2024; received in revised form, 13 September 2024; accepted, 25 October 2024; published 01 January 2025

PREVALENCE AND FACTORS ASSOCIATED WITH KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS SELF-MEDICATION AMONG UNDERGRADUATE MEDICAL STUDENTS IN GOVERNMENT MEDICAL COLLEGE, ALMORA, UTTARAKHAND

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Keywords:

Self- medication, Almora, Undergraduate medical students

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ABSTRACT: Background: The rapid development of new technology, and especially the Internet and other related communication systems, has provided new possibilities for searching any information that can be used for self-medication, also it seems that medical students having proper knowledge of medicine are very much involve in self-medication. This study therefore, intended to evaluate the knowledge, attitude, practice, and associated factors on SM among the medical students at government medical college, Almora. **Methods:** A cross sectional study was conducted on the students of phase II and phase 3 part I in the government medical college, Almora from 27th May 2024 to 7th June 2024. The data was collected through questionnaire circulated to concerned batch students via Google link. **Results:** A total 197 students were enrolled in the study, out of them, 101 were males while 96 were females. It was found that 78.7% of them, utilised self-medication in past 6 month. It was found that they had good knowledge regarding self- medication and its adverse effect. It was found that 59.2% of them used pain killer in self-medication practice. **Conclusion:** Given the high prevalence of self-medication among the health sciences students, training courses about the self-medication risks, more supervision over prohibition of over-the-counter drugs and adequate facilities for students' access to medical services are suggested to be provided.

INTRODUCTION: According to WHO, self-medication that seems to be an integral component of self-care, is defined as "selection and use of medicines/medicinal products including herbal and traditional products by individuals to treat self-recognized illness or symptoms, or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms" [1].

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.16(1).201-07

This article can be accessed online on www.ijpsr.com

DOI link: https://doi.org/10.13040/IJPSR.0975-8232.16(1).201-07

The term "over- the-counter (OTC) medicines" is widely used to describe this class of product. The packing, package size, labelling and product information i.e., package insert, leaflet, directions folder or other accompanying text will generally be designed and written to ensure appropriate self-medication [2].

There are various factors responsible for self-care and self- medication as socio economic status, lifestyle, accessibility of medicine and health care facilities, *etc* [1]. There are various critical issues that need to be explored before promoting the potential benefits of self-medication as any self-medication product should be safe for use. So, it would avoid any delay in diagnosis and treatment of diseases that are not suitable for self-medication.

Furthermore, drugs used in self- medication drugs are also known to interact with many prescription-only drugs, alcohol and foods. This should also be kept in mind during self-medication. Thus, self-medication can facilitate access to medicines and reduce health care costs but more specific studies are needed to evaluate the impact and role of self-medication in the diversity of settings of different health care sectors. Also, high ethical standards should be applied to the provision of information, promotional practices and advertising [3]. Self-medication has benefits as well as risks [4]. Inappropriate self-medication can lead to a number of potential risks for example delay in seeking appropriate medical advice; failure to recognize or self-diagnose contraindications, risk of dependence and abuse *etc* [2].

Medical undergraduate students during their course of education got the knowledge of different drugs and their use and side effects and related information to prescribe medicines. So, they are in a situation of self-medication effectively. In India, there is fewer data regarding self- medication among medical students. Thus, this study would provide as insight regarding the prevalence, pattern and knowledge, attitude and practice of self-medication among medical undergraduates in Government Medical College, Almora.

MATERIAL AND METHODS: A cross-sectional survey was carried out among Phase II and Phase 3 part I MBBS students of Government Medical College, Almora among those who were willing to participate. These students were included in this study as they had got knowledge regarding the self-medication like anti- pyretics, non-steroidal anti-inflammatory drugs (NSAIDs), anti-histaminic (anti-allergic) agents, antibiotics, *etc*.

The study was carried out from the last week of May to the first week of June 2024 using a questionnaire. The questionnaire consisted of three parts. The first part obtained demographic data of the respondents e.g. age, gender, batch in which they were enrolled and having any known illness. The second part of the questionnaire contained 5 statements to measure respondents' knowledge about self-medication. The third part of the questionnaire contained 5 statements to measure respondents' attitude about self-medication.

The students were asked to provide response to their degree of agreement with the statements according disagree, neutral, and agree. The fourth part of the questionnaire included 6 questions to study the practice of self-medication. The questionnaire was developed by the first author after an extensive review of literature.

The questionnaire was tested for ease of comprehension and readability among 10intern students (FMG) of the institution. The data obtained from them was not included in the final analysis. Cronbach's alpha was calculated as a measure of internal validity of the questionnaire.

RESULT: In the present study, a total of 197 students participated, out of them 101 were males while 96 were females. The mean age was found to be 21.8 ± 1.73 years, among 197 students, 24 had known history of illness **Table 1.** The prevalence of self-medication was found to be 78.7%. In terms of knowledge regarding the term self-medication, they had good knowledge as 85% of them responded correctly about the definition of self-medication **Fig. 1.**

In the present study, the study participants had good knowledge regarding self- medication and its adverse effect and how it could impact on masking of other disease symptoms. The overall description regarding students' knowledge of self – medication is tabularized in **Table 2.**

In the present study, the study participants had a positive attitude towards self- medication. Though they disagree for self- medication to others **Table 3.**

In the present study, regarding the practice of self-medication among the study participants was approximately a quarter had utilised medicine for self-medication once. Approximately half used pain killer in self-medication practice. Approximately half used their previous prescription for self-medication and most of them had not seen any adverse effects after self-medication **Table 4**, **Fig. 2**.

In the present study, there was significant association of gender with self- medication **Table 5.**

TABLE 1: SOCIO-DEMOGRAPHIC FEATURES OF THE RESPONDENTS (N = 197)

Variables		Frequency (No. %)
Age	≤21 years	94 (47.7)
	>21 years	103 (52.3)
Gender	Male	101 (51.3)
	Female	96 (48.7)
Batch	2021	99 (50.3)
	2022	98 (49.7)
Known Illness	Yes	24 (12.2)
	No	173 (87.8)

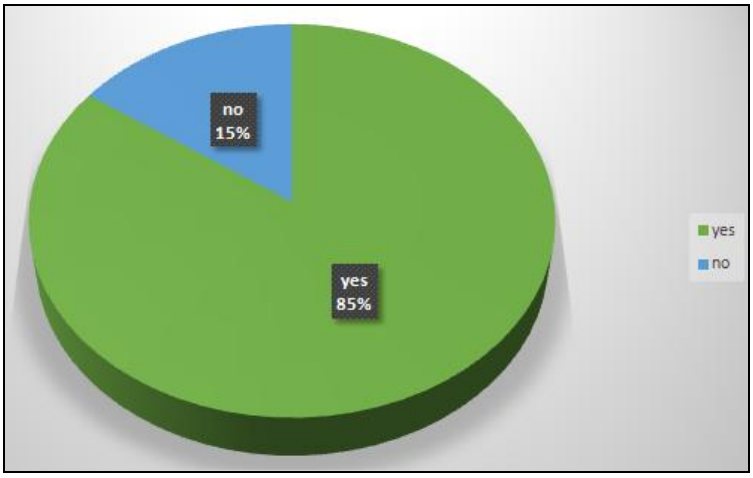

FIG. 1: KNOWLEDGE OF RESPONDENTS TOWARDS THE TERM SELF – MEDICATION

TABLE 2: PARTICIPANT STUDENT'S KNOWLEDGE TOWARDS SELF-MEDICATION (N = 197)

Knowledge Related Questions		Frequency (No. %)
Do you believe self-medication may not always be safe and effective?	Yes	156 (79.2)
	No	34 (17.3)
	Don't know	07 (3.6)
Do you think all medication (prescription, OTC and herbal) may have adverse effects?	Yes	129 (65.5)
	No	45 (22.8)
	Don't know	23 (11.7)
Do you think increasing or decreasing medication dose without a doctor consultation can be dangerous?	Yes	185 (93.9)
	No	07 (3.6)
	Don't know	05 (2.5)
Do you think using medication with unknown substances in patients with known disease is dangerous?	Yes	182 (92.4)
	No	08 (4.1)
	Don't know	07 (3.6)
Do you think self-medication can mask signs and symptoms of some disease?	Yes	175 (88.8)
	No	12 (6.1)
	Don't know	10 (5.1)

TABLE 3: PARTICIPANT STUDENT'S ATTITUDE TOWARDS SELF-MEDICATION (N = 197)

Attitude Related Questions		Frequency (No. %)
Do you think self-medication is part of self-care?	Agree	90 (45.7)
	Neutral	54 (27.4)
	Disagree	53 (26.9)
Do you think medical students are able to diagnose different diseases?	Agree	118 (59.9)
	Neutral	61 (31.0)
	Disagree	18 (9.1)
Do you think medical students are able to treat different diseases?	Agree	109 (55.3)
	Neutral	43 (21.8)
	Disagree	45 (22.8)
Do you recommend self-medication to others?	Agree	69 (35.0)
	Neutral	23 (11.7)
	Disagree	105 (53.3)

TABLE 4: PARTICIPANT STUDENT'S PRACTICE TOWARDS SELF-MEDICATION (N = 197)

Practice Related Questions		Frequency (No. %)
During the last six months, did you self-medicate yourself ?	Yes	155 (78.7)
	No	42 (21.3)
How frequently did you visit the chemist shop for self-medication in the last 6 Months?	Once	59 (29.9)
	Twice	46(23.4)
	3 times	27 (13.7)
	4 times	09 (4.5)
	5 times	07 (3.6)
	>5 times	07 (3.6)
Which of the following drugs have you taken for self-medication during the last 6 months?	Pain Killer	116(59.2)
	Antibiotics	99 (50.5)
	Multi vitamin	79 (40.3)
	Anti cough	64 (32.7)
	Antihistamine	46 (23.5)
	Anti diarrhea	43 (21.9)
	Topical	39 (19.9)
	Anti – parasitic	15 (7.7)
	Corticosteroids	6 (3.1)
For what indications have you taken self-medications without a prescription during the last 6 months?	Fever	115 (59)
	Cough and cold	102 (52.3)
	Headache	92 (47.2)
	Diarrhoea	50 (25.6)
	Allergic reaction	34 (17.4)
	Menstrual Symptoms	32 (16.4)
	Vomiting	26 (13.3)
	Stomach-ache	25 (12.8)
	Gastritis	10 (5.1)
	Ocular symptoms	07 (3.6)
What was your source of information for self-medication?	Previous prescription for oneself	113 (58.2)
	One's academic knowledge	87 (44.8)
	Friends and family	49 (25.3)
	Consultation with a pharmacist	31 (16)
	Previous prescription for others	26 (13.4)
	Internet	17 (8.8)
	Advertisements	07 (3.6)
From where do you receive self-medication drugs?	Chemist shop	173 (88.7)
	Friend	46 (23.6)
	Senior	20 (10.3)
	Relative	13 (6.7)
Why do you prefer self-medication	No need to visit the doctor for minor illness	105 (53.6)
	Quick relief	89 (45.4)
	Time saving	45 (23)
	Confidence on your knowledge about medicines	35 (17.9)
Have you ever experienced adverse effects after self-medication?	Yes	32 (16.2)
	No	165 (83.8)

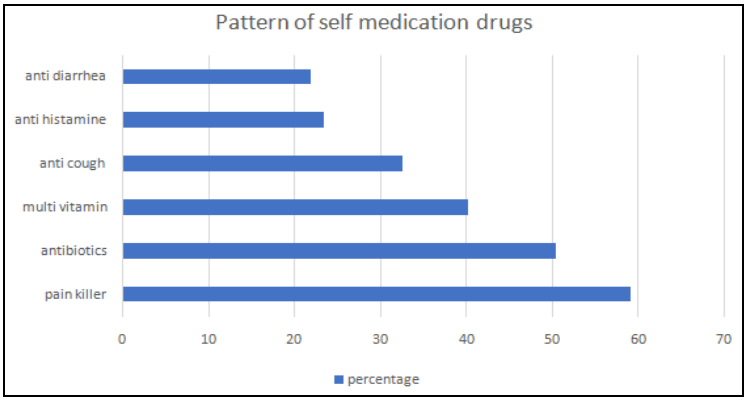

FIG. 2: PARTICIPANT STUDENT'S PATTERN OF SELF-MEDICATION (N=197)

TABLE 5: SELF-MEDICATION IN ASSOCIATION WITH SOCIO DEMOGRAPHIC PROFILE (N=197)

Variables		Self-medication		Chi square value P value
		Yes	No	
Age	≤21 years	79 (51)	15 (35.7)	3.08
	>21 years	76 (49)	27 (64.3)	0.07
Gender	Female	83 (53.5)	13 (31)	6.75
	Male	72 (46.5)	29 (69)	0.009
Batch	2021	77 (49.7)	22 (52.4)	0.097
	2022	78 (50.3)	20 (47.6)	0.75
Known Illness	Yes	18 (11.6)	06 (14.3)	0.221
	No	137 (88.4)	36 (85.7)	0.63

DISCUSSION: Self-medication (SM) has been associated with many negative consequences including inappropriate drug use, incorrect dosage, adverse drug reactions, drug interactions, delay in seeking medical advice and risk for drug dependence or abuse [5]. SM is widely practiced across several developing and developed countries worldwide [6, 7]. Nevertheless, little is known about individuals' practice and attitudes towards SM and the associated factors, which was the aim of the current study. In this study the proportion of males and females was equal as compared by the study conducted by Sankadia *et al* [8], where the pattern of self-medication was higher in females as compared to the males. This observation was similar that of two other studies in which females had self-medicated more commonly than males [9, 10]. The prevalence of self-medication was quite higher in this study as 78.7 % students have taken it as compared to the study conducted at other parts of India like 36% in Pondicherry and 77.89% in Nagpur, Maharashtra [11, 12].

More than 85 % of the respondents in this survey had good levels of knowledge regarding SM. The overall knowledge score result is consistently lower like those investigations in India [13], Riyadh [14] and Taiwan [15]. This is similar to the studies in other academic institutions of Ethiopia such as Debre Markos University (80.6%) [16]. Similarly, it is significantly at a higher level compared with other global reports like Oman (72%) [17]. Based on the results of this study, 79.2% agreed that SM may not always be safe and effective. Additionally, more than half of the students (65.5%) knew that all medications, whether prescription, OTC, or herbal drugs can have adverse effects. The proportion of respondents who knew the danger of increasing or decreasing medication dose without a prescriber consultation and the dangerousness of using medications with unknown substances were also adequate (93.9 and 92.4% respectively). This finding was much higher with research done in Sudan where 54.7% of the participants have no information about the effects of medicines they used [18]. In another similar study, only 14.43% of students knew the side-effects of drugs they had taken as SM [19]. Similarly, in this study, being a medicine student, and not having a known illness are positively associated with a good level of knowledge about SM. In this study, only 45.5% of the students have positive attitudes. This is in-line with survey reports in Gondar [20] and Eritrea [21]. However, it is considerably lower than study reports of similar surveys in South Tamil Nadu [22] Riyadh [23] and Bahrain [24] as most of the respondents in these studies demonstrated a positive attitude towards practicing SM. According to the result of this research approximately half of the respondents agreed that SM is part of self-care. A similar study in Iran also reported that 41.2% of health science students believed that SM is part of self-care [25].

118 (59.9%) respondents agreed on the ability of health science students to self diagnose medical conditions, while only very few (9.1%) of the respondents disagreed on the ability of health science students to diagnose different diseases. This is nearly similar with the investigation in India, where 52.9% of undergraduate health science students in a tertiary care hospital confidently diagnosed and prescribed medicines on their own to themselves [26]. Similar result has also been reported by Mehta *et al* and Wajantri *et al* in their studes [27, 28]. Only 35 % of the respondents under our study recommend SM for others. This is similar than the case in Eritrea (35.9%) [29] but importantly lower than the reports in southern India (64%) [30]. The common reason behind taking self-medication was stated as, no need to visit the doctor for minor illness and quick relief, which was similar to study conducted by Sankadia *et al* [8]. In this study the

most common indication for which self-medication was taken were fever (59%)and cough and cold (52.3%), this may be due to cold climate of this Almora region, similar findings were also there in study conducted by Patil while study conducted by Sankadia *et al*, found headache as the common indication [8, 31].

The results of many studies showed that analgesics were the most commonly used self-medication followed by cough remedies and supplements [32, 33]. This study showed that analgesic and antibiotics were commonly used drugs followed by multivitamins, which is similar to study conducted by Patil SB, where vitamins were more commonly used than rest of the medications [34]. Conversely, SM using oral antibiotic outweighs those with oral analgesics agents and antipyretics among medical students in other parts of India [35] and Iran [36].

This study found the main source of information for self-medication was previous prescription (58.2%) which may be the reason for the increased prevalence of self-medication in this study as once the students had visited to the doctors for any illness they don't think it necessary to visit again for the similar kind of ailments. Other studies also comply with this result [29, 37]. In the current study, 88.7% of the students collected their medications from pharmacies. This is common that most self-medicated drugs are purchased from drug retail outlets. Survey reports from other study areas in Australia [38] and Bangladesh [39] also indicated that drug retailers are the primary sources of SM access. Some of the respondents with a history of SM experienced some adverse effect related to their medications. The prevalence in the current study is significantly lower than that of studies conducted in south India [40].

CONCLUSION: In the present study, the prevalence of SM was very high, and SM showed significant difference in terms of a gender among the study participants. Considering the risks associated with SM, the authorities of faculties have to provide students with the required trainings in this regard, because the awareness of medical sciences students about SM maybe will reduce its prevalence in general population. Further, more strict policies need to be adopted regarding the promotion and sale of the prescription drugs.

ACKNOWLEDGEMENT: Nil

CONFLICT OF INTEREST: Nil

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How to cite this article:
Dhapola VS, Preeti and Singh P: Prevalence and factors associated with knowledge, attitude and practice towards self-medication among undergraduate medical students in government medical college, Almora, Uttarakhand. Int J Pharm Sci & Res 2025; 16(1): 201-07. doi: 10.13040/IJPSR.0975-8232.16(1).201-07.