

## Original Research Article

# Prevalence and patterns of self-medication for skin diseases among medical undergraduate students

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## ABSTRACT

**Background:** Medical students are more prone to self-medication because of background knowledge and easy availability of medication. Dermatological disorders are affecting quality of life in adolescent and can motivate self-medication behaviour. The objective of the study was to study the prevalence and patterns of self-medication for skin conditions in among medical students.

**Methods:** A cross-sectional questionnaire based study was carried out in medical students in western India. A self-administered questionnaire included information on socio-demographic details, general aspects of self-medication behaviour like used for which disease, drugs used, source of knowledge, reason for use etc. and analyzed.

**Results:** Self-medication was prevalent in 90.09% participants for skin conditions. Mean age of participants was 20.35±1.23 years with male predominance. Most common skin conditions/symptoms for self-medication were acne (82.46%), sun tan (52.11%) followed by superficial fungal infections while common hair conditions were hair fall (80.10%) and dandruff (57.07%). The most commonly used drugs for self-medication were topical antifungal drugs (96.07%), sunscreen lotions (91.10%) and topical antimicrobials (80.10%). Most common source of information for self-medication was medical staff and seniors (92.67%) followed by internet (81.15%). Most common reasons for favoring self-medication were perceived the illness as minor/non-serious (62.83%) and time constraint (26.70%). 3.14% participants reported to have some adverse events with the drugs used by self-medication.

**Conclusions:** Prevalence of self-medication for dermatological disorders was alarming high. Self-medication practices are highest for acne, superficial fungal infections, hair fall and dandruff. Proper training of medical undergraduates in diagnosis and treatment of dermatological problems with special emphasis on drug usage aspects are needed.

**Keywords:** Self-medication, Medical undergraduate students, Dermatological disorders, Prevalence and patterns of self-medication

## INTRODUCTION

Self-medication can be defined as obtaining and consuming one (or more) drug (s) without the advice of a physician either for diagnosis, prescription or surveillance of treatment.<sup>1</sup> It is usually a habit of the patients to use drugs prescribed to other family members

or friends for the same type of illness to avoid doctors' consultation.<sup>2</sup> Many drugs are available as over-the-counter (OTC) drugs in India which are meant for self-medication. Usually OTC drugs have proven efficacy and safety but patients do have proper knowledge of their correct dose, side effects, duration of use, drug interactions in detail especially their use in pediatric or

geriatric patients and also in special situation like pregnancy and lactation.<sup>3,4</sup> Use of self-medication is highly prevalent in both urban and rural community varying from 32.5% to 81.5%.<sup>5-7</sup> Moreover, there is always a risk of interaction between OTC drugs and prescribed drugs and food materials. Also if not used properly, there is risk of worsening of disease. Combination preparations containing 'hidden' classes of drugs and food supplements or tonics of doubtful value were also found to be commonly used in India.<sup>8</sup>

The dermatological health problems that can motivate self-medication are numerous and highly prevalent in community. According to the survey conducted in Brazil, 49% of patients seeking specialized care in dermatology department were in the age group between 20 and 49 years and the ten most prevalent dermatoses detected were acne and superficial mycoses, followed in descending order by pigmentation disorders, actinic keratosis, contact dermatitis, seborrheic dermatitis, warts, melanocytic nevi, dermatitis such as eczema, dyshidrosis and pityriasis alba and psoriasis.<sup>9</sup> Patients can perceive some skin problems as irrelevant and self-limited, often engaging in self-medication before they seek medical care. In these situations the use of topical drugs is frequent, often without knowledge about their adverse events such as bacterial resistance and masking of skin diseases.<sup>10</sup> Various researchers have found that the self medication practices are more prevalent in medical and nursing students because of their proximity to health set up, knowledge and easy availability of drugs and this behaviour is increasing alarmingly in recent years.<sup>11</sup> Therefore the present study is designed to identify the prevalence and patterns of self-medication for skin conditions in among medical students.

## METHODS

A cross-sectional study was carried out in Gandhi Nagar district to the prevalence, knowledge, awareness and perception of self-medication practices among medical students during the period of May to July 2017. This study was a questionnaire-based study approved by the Institutional Ethical Committee. A briefing was given about the nature of study, and the procedure of completing the questionnaire was explained. A written informed consent was obtained from all participants before enrolling them into the study.

### *Study population*

The study population comprised of college going medical students and interns (age 18-25 years) of both gender. Non-cooperative (those who are not ready to give consent) participants were excluded from the study.

### *Sample size and sampling*

Sample size of 420 was calculated on hypothesis testing method considering following assumption: 95%

confidence interval, assuming prevalence of risk behavior among college going students 50%, error 5% and 10% non-response rate. To get 420 participants, sample were collected by prorata basis considering total batch strength from each batch of undergraduate and intern medical students.

### *Study tool*

The questionnaire is developed by the authors after an extensive review of literature and using studies by Estève et al and Corrêa-Fissmer et al as reference.<sup>11,12</sup> The questionnaire was circulated among four subject experts for their inputs regarding validity of the statements and their ease of comprehension. The questionnaire was tested for ease of comprehension and readability among 5 staff members of the department and necessary modifications carried out. Their data were not included in the final analysis. Cronbach's alpha was calculated as a measure of internal validity of the questionnaire. Questionnaire was divided in two parts. First part included socio-demographic details. Second part included general aspects of self-medication behaviour like frequency of self-medication, used for which disease, drugs used, source of knowledge etc. Questionnaire was designed for self-administration but assistance was provided by the investigator, if needed by the participants. To test feasibility of the instruments pilot study was carried out on 20 participants. It took approximately about 10 minutes to collect data by one participant (consent, history, questionnaire for self-medication behaviour).

### *Data collection and analysis*

Data collection was done with the self-filled questionnaire. Participants were counseled to fill correct information with the assurance that their data will not be disclosed to anyone and anonymity will be maintained. Data was analyzed using MS Excel 2007. The study was descriptive and data was summarized as counts and percentages. The sum of percentage is not always 100% as some of the questions had multiple options to choose from. Descriptive analysis was done by mean, standard deviation and percentages. For inferential statistics chi square and t test were applied accordingly. P value less than 0.05 was considered as statistically significant.

## RESULTS

Out of total 480 students screened and enrolled for the study, only 424 responded. Rest 56 (nonresponse rate - 11.67%) could not return the filled questionnaire on time or not willing to participate in the study, so excluded from the study. Out of total 424 participants, self-medication was prevalent in 382 (90.09%) participants within last one year time period for the skin conditions. Mean age of participants was 20.35±1.23 years. The socio-demographic characteristics of study participants are shown in Table 1. The prevalence of self-medication

in the study population was more common in males (41.51%) as compared to females (34.91%) and it was more common in persons with 21-23 years of age

(43.87%). Self-medication was more common in those students living in hostel (78.77%).

**Table 1: Socio-demographic parameters of study participants (n=424).**

Patient related factors	Categories with number of patients (n,%)	Total (n=424) (%)	Self-medication present n (%)	Self-medication not present n (%)	P value*
<b>Age in years</b>	18-20	190 (44.81)	168 (39.62)	22 (5.19)	0.395
	21-23	186 (43.87)	170 (40.09)	16 (3.77)	
	≥24	48 (11.32)	44 (10.38)	4 (0.94)	
<b>Gender</b>	Male	255 (60.14)	176 (41.51)	79 (18.63)	0.067
	Female	169 (39.86)	148 (34.91)	21 (4.95)	
<b>Literacy status</b>	1 <sup>st</sup> year MBBS	119 (28.07)	99 (23.35)	20 (4.72)	0.552
	2 <sup>nd</sup> year MBBS	100 (23.58)	92 (21.70)	8 (1.89)	
	3 <sup>rd</sup> year MBBS –part 1	74 (17.45)	67 (15.80)	7 (1.65)	
	3 <sup>rd</sup> year MBBS –part 2	71 (16.75)	67 (15.80)	4 (0.94)	
	Interns	60 (14.15)	57 (13.44)	3 (0.71)	
<b>Family status</b>	Living in hostel	364 (85.85)	334 (78.77)	30 (7.08)	0.466
	Living at home	60 (14.15)	48 (11.32)	12 (2.83)	

**Table 2: Type of medication/treatment for self-medication (n=382).**

Type of treatment	No. of participants (%)
<b>Allopathic drugs</b>	378 (98.95)
<b>Homeopathic drugs</b>	12 (3.14)
<b>Ayurvedic drugs</b>	21 (5.50)
<b>others</b>	2 (0.52)

**Table 3: Conditions for self-medication for skin disorders (n=382 participants practicing self-medication):**

Condition	No. of patients (%)
<b>Hair conditions</b>	
Hair fall	306 (80.10)
Dandruff	218 (57.07)
Split ends	124 (32.46)
Baldness	8 (2.09)
Depigmentation	16 (4.19)
<b>Skin and mucous membrane conditions</b>	
Acne	315 (82.46)
Tinea infection	40 (10.47)
Ring worm infection	21 (5.50)
Other superficial fungal infections	20 (5.24)
Sun tane	198 (52.11)
Candidiasis	7 (1.83)
Trichomoniasis	12 (3.14)
Crack feet	10 (2.62)
Insect bite	40 (10.47)
Urticaria	36 (9.42)

As shown in Table 2, majority of the respondents were taking Allopathic drugs (98.95%) followed by Ayurvedic

drugs (5.50%) and Homeopathic drugs (3.14%). Table 3 shows most common morbidities or symptoms for which self-medication was practiced in this study. Most common skin conditions/symptoms for self-medication were acne (82.46%) and sun tan (52.11%) followed by *Tinea* and other superficial fungal infections while most common hair conditions were hair fall (80.10%) followed by dandruff (57.07%).

**Table 4: Type of drug/drug class used for self-medication for skin conditions.**

Type of drug/drug class	No. of patients (%)
<b>Antimicrobials (topical)</b>	306 (80.10)
<b>Oral antimicrobials</b>	56 (14.66)
<b>Antifungal (topical)</b>	367 (96.07)
<b>Oral antifungal drugs</b>	36 (9.42)
<b>Sunscreen lotions</b>	348 (91.10)
<b>Benzyl peroxide (topical)</b>	109 (28.53)
<b>Retinoids (topical)</b>	84 (21.99)
<b>Oral antihistamines</b>	310 (81.15)
<b>Calamine lotion and other soothing agents</b>	289 (75.65)

The most commonly used drugs for self-medication were topical antifungal drugs (96.07%), followed by sunscreen lotions (91.10) and topical antimicrobial agents (80.10%) as shown in Table 4. Most common source of information for self-medication was medical staff (92.67%) followed by internet (81.15%), medical textbooks (78.53%) and drug advertisement on television/radio/other mass media (23.03%) (Table 5).

Out of total 382 participants practicing self-medication, majority procure the drug from the community pharmacy store (80.10%) and from unused drugs by the

friends/family members (11.32%). Very few participants (1.83%) used online portals for self-medication. Out of total 382 participants, 12 (3.14%) developed some or other adverse events with the drugs used by self-medication.

**Table 5: Most common sources for knowledge/information for self-medication (n=382).**

Source of information	No. of patients (%)
Previous prescription	56 (14.66)
family or friends	89 (23.30)
Community pharmacy store	78 (20.42)
Online through internet	310 (81.15)
Drug advertisement on TV/radio/mass-media	88 (23.03)
Medical staff	354 (92.67)
Using medical textbooks	300 (78.53)

**Table 6: Most common reasons for self-medications (n=382).**

Reason for self-medication	No. of patients (%)
Minor illness (simple/non-serious disease)	240 (62.83)
Previous experience with the condition	84 (21.99)
Time constraint	102 (26.70)
Convenient	68 (17.80)
Treatment cost	50 (13.09)
Lack of faith in health care system	1 (0.26)

In present study, most common reasons for favoring self-medication were perceived the illness as minor/non-serious (62.83%) followed by time constraint (26.70%) and previous experience with the condition (21.99%) (Table 6). On analyzing perceived outcome of the self-medication, it was found that 57.07% participants feel completely cured while 32.46% participants get only symptomatic relief, 9.42% get occasional relief and 1.05% patient feel occasional worsening of the condition.

## DISCUSSION

Skin disorders are one of the most frequently encountered and often neglected health care problems constituting a significant global burden of disease.<sup>13</sup> Dermatological disorders are causing large economic burden and easy visibility of dermatological illness has led to deterioration in the quality of life resulting in social handicap.<sup>13</sup> The practice of self-medication is widespread all over the world especially urban and educated population. Self-medication is widely practiced in many developing countries also.<sup>14</sup> Therefore, the patterns and prevalence of self-medication in community needs to be assessed. Medical and paramedical students and staff are more involved with the self-medication behaviour because of easy accessibility and knowledge of dermatological

conditions. Therefore, this study has been planned with the aim of evaluating patterns and prevalence of self-medication among medical students.

In this study, the prevalence of self-medication was found to be 90.09% among medical students which is falling in range of 57% to 92% in other studies conducted in medical students.<sup>15</sup> Prevalence of self-medication has been found among 81.5% individuals in a rural area in Maharashtra but that was not specific for dermatological conditions.<sup>16</sup> More male patients used self-medication compared to females, contrary to data from Western reports.<sup>17,18</sup> This may be contributed to slightly more number of male students get admitted in medical undergraduate course every year in India. Also, prevalence of self-medication was highest in 1<sup>st</sup> year of studies and it reduces when the student progresses towards final year. Also a study carried out by Patil et al reported that self-medication was less common among the 3rd year medical students as compared to the 1st and 2nd year students.<sup>19</sup> This may be attributed to their enhancement of knowledge about diseases and drug use as they go towards final year of undergraduate studies. More self-medication was found in students living in hostel (78.77%) as compare to those living at their home.

Majority students used allopathic medicines for self-medication (98.95%) while 3-5% students used alternative system of medicines like Ayurvedic, Homeopathic etc. in this study. Most common skin conditions/symptoms for self-medication were acne (82.46%) and suntane (52.11%) followed by tinea and other superficial fungal infections in this study. Acne has been incriminated with sweating and hot weather, which is very compatible with the hot and humid climatic conditions prevailing in western India.<sup>20</sup> Studies carried out in other countries have found that acne is a disfiguring disease and it should not be looked at as trivial, as it may seriously affect the patient's life.<sup>20</sup> Because of the cosmetic and social aspects and also availability of the wide armamentarium of therapy for acne, it is one of the commonest condition for self-medication in adolescent and adults. Skin tanning is less likely to occur in darker skin type commonly prevalent in Indian people but being less aware of the tanning effect of sun light and not using personal protective measures while outdoors must have promoted tanning and darkening in these patients and affects the cosmetic appearance making students more prone to use self-medication for it.<sup>21</sup> Fungal infections were also among the highly reported conditions for the self-medication. High humidity and elevated temperatures reaching more than 35°C are prone for fungal infections. Hair problems like hair fall and dandruff can also occur in such climatic conditions as reported in our study for common disorders of hairs for self-medication. This high prevalence of diseases explains well drug groups used like antimicrobial for acne, antifungals for dandruff etc. in this study.



In this study, most common source of information was medical staff, friends and seniors (92.67%). A similar result was observed in a study conducted at South India where 38% of students described seniors/friends as a source of information.<sup>19</sup> This may be because students are under the influence of postgraduate students/interns during their undergraduate studies. Medical textbook and internet were other common causes for sources of information because of easy availability to students. Wide spread use of internet can help students to learn medical subjects but it can also contribute to self-medication. Students should be taught about how to use internet judiciously and effectively.

Most common reason for self-medication in present study was identifying illness as minor or non-serious problem by majority of medical students (62.83%) followed by time constraint (26.70%) by them. It is possible that few skin morbidities might have been diagnosed by medical students themselves without actually consulting a dermatologist leading to inaccurate self-reported misdiagnosis and inappropriate use of self-medication. Tight teaching schedule and easy availability of medications with students are also responsible in diverting them in practice of self-medication. Majority students knew that use of such medication lead to adverse drug reactions but none of them reported any event which is similar to findings by other studies.<sup>22,23</sup>

This study has evaluated the prevalence and patterns for self-medication among medical students and created baseline data. Few limitations of the study were as follows: This study was a cross-sectional survey design. Thus, association of factors, the direction of relationships and causal relationships cannot be determined. In addition, the use of a self-administered questionnaire on self-medication may produce subjective measurements that are less reliable than objective methods. Finally, this study was only performed among undergraduate medical students and thus would not be applicable to students in other disciplines.

## CONCLUSION

This study provides preliminary information and patterns of self-medication among medical students for dermatological problems. Prevalence of self-medication for dermatological disorders was as high as 90% which is alarming for the society. It is more prevalent in males, junior medical students and those living in hostel. The self-medication practices are highest for acne, superficial fungal infections, hair fall, dandruff and other hair problems and topical antibiotics and antifungals are most frequently used self-medications. It is necessary to educate the medical undergraduates for diagnosis and treatment of dermatological problems. Though Self-medication is difficult to eradicate, various measures can be taken to discourage such practices. If action is not taken, the danger of interactions and adverse effects could increase. Awareness programs can be conducted to

educate the students regarding various aspects of self-medication with focus on basics of pharmacology, adverse effects of drugs, prescription drugs and rational use of medication and its importance. In addition strengthening health education and practices among the doctors and awareness programs for general population can also improve the use of health services and reduce self-medication.

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