

A self-medicating scale and questionnaire based drug use survey and the effect of educational intervention among healthcare professional students

Radhika M. S.¹, Mayur S. S.^{2*}, Kavleen Kaur Bindra³, Sushmita G. Hittalmani⁴

¹Department of Pharmacology,
²Department of Community
Medicine, ³Intern, ⁴MBBS
Student, SDM College of
Medical Sciences and Hospital,
Dharwad, Karnataka, India

Received: 03 April 2019

Revised: 20 April 2019

Accepted: 03 May 2019

***Correspondence to:**

Dr. Mayur S. S.,

Email: drradhika78@gmail.com

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ABSTRACT

Background: Due to an array of reasons like easy accessibility and awareness about the available drugs, self-medication has steeply increased the already existent drug misuse. As the health professional students are exposed to all the information of drugs, it would be worthwhile to survey if this knowledge is misused to self-medicate. The present study was aimed at determining the impact of educational intervention on the prevalent attitudes and pattern of self-medication among medical, dental and nursing students as they constitute a vulnerable group for such practices.

Methods: A total of 360 health professional students participated in the study. A validated questionnaire and self-medication scale (SMS) were used for the survey, before and after the educational workshop.

Results: Of the 360 students 70% were females. 93.89% reported practicing self-medication, which reduced to 78.63% after the educational workshops. Average number of self-medication encounters before the workshop was 4.03 ± 0.30 . Analgesics were most commonly used. The modified SMS scores were significantly reduced ($p < 0.0001$) after interventional workshops indicating that the enhanced knowledge, increased the reluctance to self-medicate and make students think twice before self-medicating so as to reduce such harmful, casual drug use habits. Educational workshops statistically ($p < 0.0001$) enhanced the participants knowledge of ADRs, OTC drugs, expiry date, package inserts etc. 77.78% nursing students were habituated to at least one drug which was significantly higher ($\chi^2 = 20.45$, $p < 0.0001$) than that of medical and dental students taken together.

Conclusions: Educational intervention reduces the evil of self-medication and enhances safe drug use habits among healthcare professional students.

Keywords: Health care students, Non-prescription drugs, OTC drugs, Self-medication

INTRODUCTION

Non-prescription drug therapy and self-medication have become an integral part of health care system in India. Self-medication involves the use of medicinal products by the individuals to treat self-recognized disorders or symptoms, or the intermittent or continuous use of a medication prescribed by a physician for chronic or recurring diseases or symptoms.¹ Self-medication involves acquiring medicines without a prescription, resubmitting

old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home.² Self-medication thus forms an integral part of self-care, which can be defined as the primary public health resource in the health care system.

The youth are highly influenced by the media and the internet which promote self-medication behaviour. The increased advertising of pharmaceuticals poses a larger

threat of self-medication to the younger population in general. Especially the students of health professional courses like medical, dental, nursing, physiotherapy, pharmacy etc. are exposed to all the drug use related information in their academics. However, the students are not completely aware of diagnosis, adverse drug reactions and are yet not trained professionals to be able to treat a health condition. This raises concerns of incorrect self-diagnosis, drug interaction, and use of drugs other than for the original indication. Moreover, though self-medication can be of benefit due to the ease and affordability it has to be safely practiced.

The increase in the quantities and varieties of pharmaceuticals worldwide eases the accessibility of medicine to such consumers, thereby giving options for its misuse. In fact many studies have reported such rampant practices among students of health professional courses.^{3,4} Though a large pool of information about self-medication practices among students, doctors, pharmacists and lay public is available from previous studies, measures suggested to curb down such practices have not been explored.⁵⁻¹⁰ Thus, the present study aims at evaluating the pattern, attitudes, factors modulating and frequency of self-medication among medical, dental and nursing students and to study the impact of interventional educational workshops on their self-medication practices.

METHODS

A prospective interventional study was conducted for a period of four months from June 2018 to September 2018, after obtaining the approval by the Institutional Ethics Committee. Second year medical, dental and nursing students of SDM College of Medical Sciences and Hospital, Dharwad, Karnataka participated in study.

Inclusion criteria

- All second year students consenting to fill up the study questionnaire before and after the educational intervention.
- Students who would not miss attending any educational workshop meant for the study participants during the study period.
- Questionnaire of the students complete in all aspects would only be included for analysis.

Exclusion criteria

- Student participants who missed attending even one of the educational workshops.
- Incomplete questionnaires of student participants.

A structured, pre-validated questionnaire and modified 9 item Self-Medication Scale (SMS) tool was used to inquire about self-medicating pattern, attitudes among the participants towards self-care.¹¹ The questionnaire included questions pertaining to demographic details, frequency of self-medication during study period,

indications for self-medication, details of the pattern of drug usage, sources of drug information, use of addictive substances as self-medication, reasons for self-medication and knowledge of adverse effects, drug interactions, drug dosage, expiry date and package inserts of drugs used. The 9 item SMS tool was used to define the analgesic self-medication behaviour into three broad classes as 'reluctance', 'don't think twice to self-medicate' or 'allow the painful state to run its course'.

After the first set of data was collected from students, interventional educational workshops were organized at six separate sessions during the study period. The workshops consisted of interactive lecture, role plays, onsite hospital visit, interviews with the patients, visit to pharmacovigilance unit and cinemeducation, to create awareness and highlight ill effects of unsafe drug use behaviour among the students. After the completion of the said workshops the same questionnaire and the SMS tool was filled up by the students to evaluate the impact of the educational workshops.

Statistical analysis

The data was analysed using descriptive statistics and Chi square test wherever applicable using Graph pad Prism 7.05 (Windows) version. $p < 0.05$ was considered as significant.

RESULTS

A total of 393 students consented to participate in the study and filled up the study questionnaire. However, 33 of them either missed attending one or the other session of the workshops or inadequately filled up the forms. Thus, only 360 completed questionnaires and SMS tools were analysed (91.60%).

The mean age of the respondents was 19.36 ± 1.5 years. Female students 352 (70%) predominated the study group. The demographic details of the respondents are tabulated in Table 1. A total of 338 (93.89%) students reported practicing self-medication (Table 1).

Table 1: Demographic details of the student participants of II year.

Health professional courses			Total
Medical (n=156)	Dental (n=102)	BSc Nursing (n=102)	360
Gender of the students (F:M)			70:30
Self-medication practice			93.89 %
Average number of self-medication encounters			4.03 ± 0.30

Antipyretics and analgesics (NSAIDs) were the most common class of drugs self-medicated by the majority of the participants, followed by sympathomimetic drugs for cold and cough. It was also observed that the participants

self-medicated themselves with Antimicrobial agents (AMAs) (Figure 1).

Beta lactam group (59.6%) was the most common class of antibiotics frequently self-medicated. The NSAIDs, sympathomimetics cold remedies and AMAs were more

commonly used drugs for self-medication among medical students compared to dental and nursing students.

There were 77.78% nursing students who were habituated to at least one drug which was significantly higher ($\chi^2=20.45$, $p<0.0001$) than that of medical and dental students taken together.

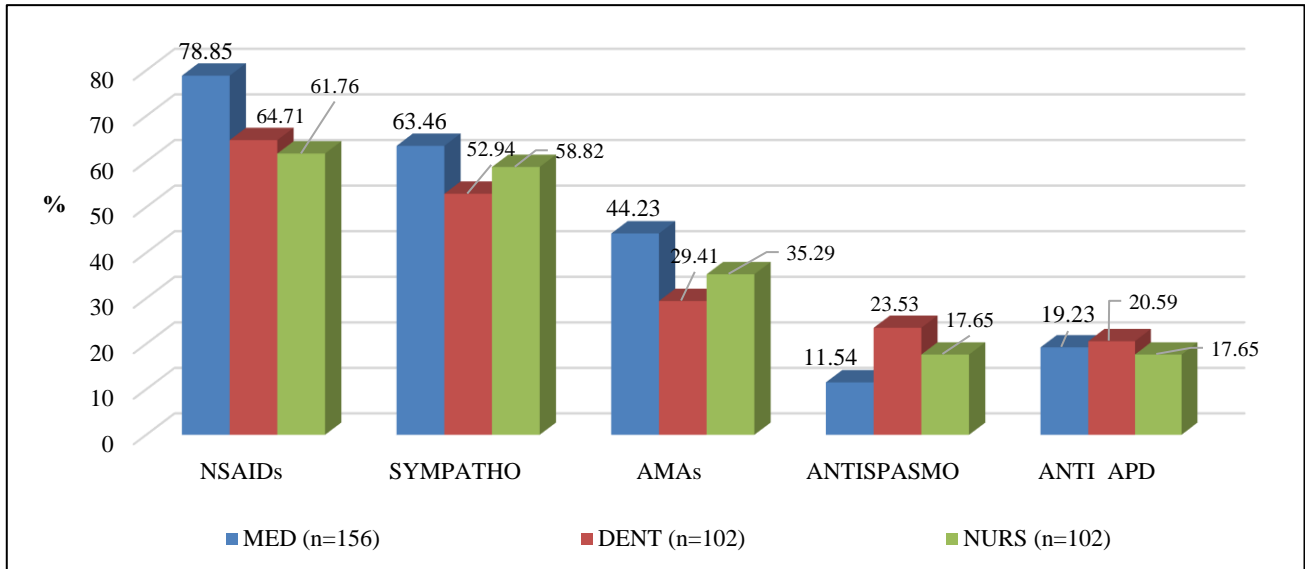


Figure 1: Drug categories used for self medication.

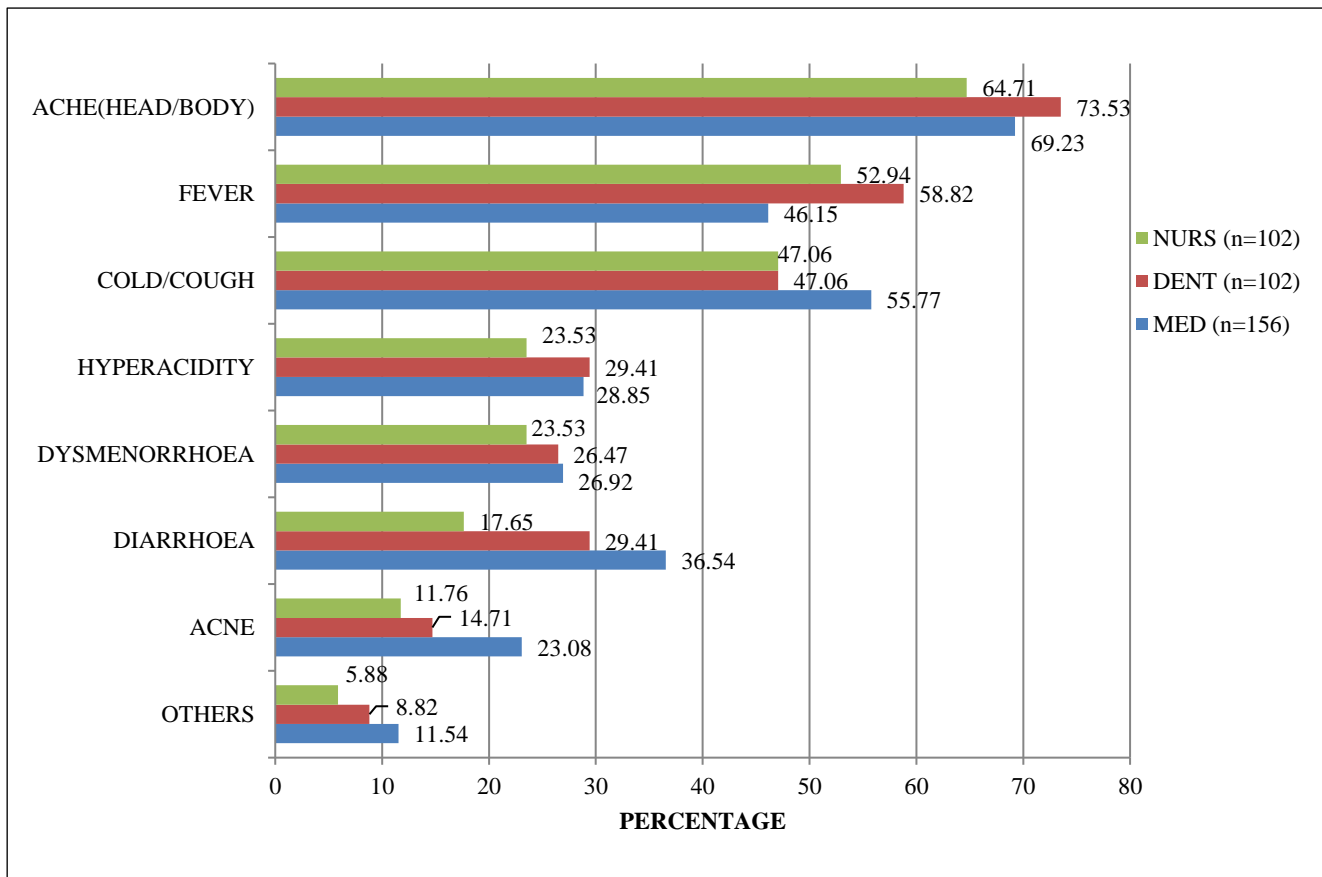


Figure 2: Disease conditions for self medication.

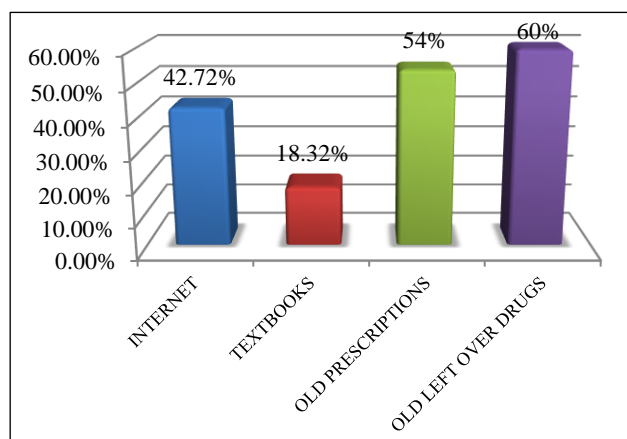


Figure 3: Resources for self medication among students of health care.

Among the various indications for self-medication reported by the students, majority were minor health conditions like headache (69.3%, 73.53%, 64.71%), followed by fever (46.15%, 58.82%, 52.94%) and cough/cold (55.77%, 47.06%, 47.06%) among medical, dental and nursing students (Figure 2). Sore throat was the most common indication for self-medication with AMAs. Other less common indications for self-medication included hyperacidity, diarrhoea, acne, dysmenorrhoea and some others like cuts, allergic itchy skin, mouth ulcers and dandruff (Figure 2).

Significant number of respondents mentioned the left over drugs (60%) and old prescriptions (54%) used by

roommates, friends, relatives and acquaintances as sources of drug information. Other sources reported by respondents were internet (42.72%) and textbooks (18.32%) (Figure 3).

The knowledge of the participants regarding over the counter drugs, adverse drug reactions, package inserts and drug interactions was inadequate (<50%) before the workshops. However, the participants were aware about expiry date, importance of correct dose and duration of the drug therapy (>50%) before the conduct of the educational workshops. The post workshop data indicates a significant ($p<0.0001$) enhancement in the knowledge of the participants in all these aspects of drug use (Table 2).

In order to ascertain the impact of educational workshops on the misuse of drug-use information, a SMS Tool was employed. This tool was chosen as analgesic drugs were the commonest drugs used for self-medication by the study participants. The 9 item SMS tool defined the analgesic self-medication behaviour into three broad classes as 'reluctance', 'don't think twice to self-medicate' or 'allow the painful state to run its course'. The results as depicted in Table 3, indicate that the interventional educational workshops significantly reduced the behaviour inclined towards self-medication ('reluctance' and 'don't think twice' attitude) of the participants and increased the responsible behaviour towards self-care (allowing the minor ailment to 'run its course'). This clearly indicates that the workshops enhanced the knowledge, increased the reluctance to self-medicate and made students think twice before self-medicating so as to reduce such harmful, casual drug use habits.

Table 2: Knowledge among the participants (n=360).

	% of respondents before and after the educational workshop		χ^2 and p value
	Pre workshop n(%)	Post workshop n(%)	
Over the counter (OTC) drugs	40.27 (n=145)	76.38 (n=275)	96.57, $p<0.0001$
Adverse drug reactions (ADRs)	43.88 (n=158)	77.77 (n=280)	86.76, $p<0.0001$
Expiry date of the drug	51.94(n=187)	88.88 (n=320)	117.9, $p<0.0001$
Package inserts	31.11(n=112)	63.88(n=230)	26.44, $p<0.0001$
Importance of correct dose and duration of use of the medicine	60.00 (n=216)	91.11(n=328)	94.33, $p<0.0001$
Awareness of drug interactions	49.16(n=177)	78.89 (n=284)	69.04, $p<0.0001$

Table 3. Number of respondents self-medicating with analgesics before and after educational workshop as assessed by the Self-medicating scale (SMS).

SMS scores	Items	PRE test [n (%)]	POST test [n (%)]
"Reluctance"	I take medication only when I'm in a lot of pain	324 (90)	159 (44.16)
	I only take something if it's really bad		
	I only take medication when it's absolutely necessary		
"Don't think twice"	I always take something if I'm in pain	331 (91.94)	137 (38.05)
	If I'm in pain I need medication to fix it		
	I don't hesitate to take painkillers		
"Run it's course"	I prefer to let my body fight it out	72 (20)	198 (55)
	I do nothing just let it pass		
	I try to ignore it and get on with it		

Table 4: Self-Medication Scale (SMS) Scores before and after educational workshop among healthcare students.

SMS scores	Medical		Dental		Nursing	
	pre	post	pre	post	Pre	Post
Mean±SD	40.05±1.53	10.38±0.86	40.65±03.22	10.50±0.97	40.39±01.36	12.07±01.89
p value	p<0.05		p<0.05		p<0.05	

Also, the educational workshops significantly ($p<0.05$) reduced the SMS Tool score indicating the reduction in the self-medication with analgesics by the study participants (Table 4).

The educational workshops were found to be very effective and reduced the practice of self-medication from 93.89% before the said workshops to 78.63% after the workshops.

DISCUSSION

WHO defines self-medication as “the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms.” Self-medication is considered an element of self-care.¹² Self-care, including self-medication, has been a feature of healthcare for many years and people have always been keen to accept more personal responsibility for their health status. Self-medication by itself has both pros and cons that depend on what and who choose to self-medicate. Many factors such as education, family, friends, advertisement etc. influence self-medication practices. Education plays a significant role in its prevalence. The present study therefore was conducted to determine the impact of educational intervention on the prevalent attitudes and pattern of self-medication among medical, dental and nursing students as they constitute a vulnerable group for such practices.

The present study reported 93.89% health professional students practicing self-medication which is slightly higher compared to studies conducted within India, where the prevalence of self-medication among the medical students was shown to be ranging between 57.1% and 92%.¹³⁻¹⁵

Female preponderance (70%) was observed in this study as has been reported in earlier studies may be due to the fact that the female students are more hesitant to go to the hospital or outpatient department for minor illness and for the menstruation related health problems faced by them.^{16,17}

Indications for self-medication were minor illnesses like fever, headache, body ache, common cold and cough etc. which also been reportedly similar to other studies in the past.^{13,15}

Analgesics and antipyretics were the most commonly self-medicated drug categories similar to the reports from

previous studies from India and other countries like Ethiopia.^{14,17,18}

Antibiotics formed the third commonest drug category used for self-medication the by the study participants. These results are higher than that reported in other studies from India.¹³⁻¹⁵

The use of analgesics, antipyretics, cold and cough remedies and antimicrobial agents were found to be more among medical students compared to dental and nursing students. This trend might be due to the students being prone to make unsupervised health-related decisions especially students of medical sciences who feel confident of their knowledge about the drugs owing to their sufficient clinical and pharmacological knowledge. Although it is believed that there is no treatment for common cold, students could not resist themselves from self-medicating to cure the symptoms of cold as early as possible.

Other drugs used for self-medication were H₂ blockers and proton pump inhibitors for acid peptic disease. These drugs also have been reported to be commonly self-medicated with in earlier studies.⁸

The left over drugs (60%) and old prescriptions (54%) used by roommates, friends, relatives and acquaintances formed the major source of drugs used for self-medication in this study. This finding is similar to a study but has not been a common finding in most studies.¹⁸ The reason for using left over drugs for self-medication could be due to stocking of medicines by the health care professional students as most of their parents are medical/paramedical professionals.

Internet resources were a common source of drug information for self-medication. Due to easy and affordable access to the internet the present youth is highly dependent on it even to treat their health related ailments. The youth are highly influenced by the media and the internet which promote self-medication behaviour. The increased advertising of pharmaceuticals poses a larger threat of self-medication to the younger population in general. This raises concerns of incorrect self-diagnosis, drug interaction, and use of drugs other than for the original indication. Textbook, classroom teaching, senior friends also served as an important resource of drug information to the healthcare professional students for self-medication practices similar to reported literature.^{3,8,20}

A study conducted on adolescents in the past has highlighted that misconceptions about medicines are frequent in young populations (i.e. adolescents and secondary school students) and that they trust in the usefulness of medicine consumption in keeping healthy. The educational intervention has been found to improve the students' knowledge of some aspects of rational drug use and decreased the frequency of misconceptions.²¹

Previous studies have revealed that educational intervention appeared to improve public knowledge of proper and safe antibiotics use, and also have highlighted the impact of tailored educational material targeting appropriate antibiotics use. Such studies suggest that such a strategy can be effective and feasible to improve patient awareness and knowledge.²² However, previous educational interventions to improve medicines use in the general population have been poorly documented.

The present study highlights the importance of educational interventions in reducing the menace of self-medication practices. The study participants knowledge regarding OTC drugs, ADRs, expiry date of the drug, package inserts, importance of correct dose and duration of use of the medicine, awareness of drug interactions significantly improved after the educational interventions.

The impact of educational workshops was demonstrably positive in reducing the self-medication practices in the same study group as seen by pre and post workshop SMS scores. The SMS Scoring tool was used in the present study as analgesics were the most common group of drugs used by the study group. After the educational workshops study participants were more reluctant to self-medicate and were more towards allowing the painful ailment to run its course.

Thus, strategic and well-planned educational interventions which compose of interactive lectures, role plays, onsite hospital visits, interviews with the patients, visit to pharmacovigilance unit and cinemeducation, would definitely create awareness and highlight ill effects of unsafe drug use behaviour among the students.

Thus, the results of this study paves way for introducing educational interventional workshops into the curriculum of health professional courses so as to aid a responsible and safe drug use behaviour among the health professionals.

ACKNOWLEDGEMENTS

Authors would like to thank the participant students for their sincere inputs during the study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of SDM College of Medical Sciences and Hospital, Dharwad, Karnataka, India

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Cite this article as: Radhika MS, Mayur SS, Bindra KK, Hittalmani SG. A self-medicating scale and questionnaire based drug use survey and the effect of educational intervention among healthcare professional students. *Int J Basic Clin Pharmacol* 2019;8:1336-42.