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SELF-MEDICATION AMONG DENTAL UNDERGRADUATE STUDENTS: A GROWING CONCERN

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ABSTRACT:

Background: Self-medication is an important component of self-care. Though it is widely practiced globally, very few studies have evaluated its pattern and prevalence in dental students.

Aim: The study was conducted to compare pattern of self-medication practices between junior and senior dental undergraduate students.

Methods: This was a cross-sectional, anonymous, descriptive study with a six month illness recall that evaluated two groups of dental students- Group I: second year BDS students who were unexposed to pharmacology subject; Group 2: students pursuing internship (interns) having a sound knowledge of pharmacology. A questionnaire consisting of both open and close ended questions related to various aspects of self-medication was handed to the students. Consenting students anonymously filled the questionnaire. Comparison between the two groups was done by two- tailed Chi-square test. P values<0.05 were considered as statistically significant.

Results: A total of 167 students participated in the study.90% respondents in group 1 (second year) and 94% respondents in group 2 (interns) practiced self-medication. Illnesses for which self-medication was practiced included fever (76% vs. 78%) and pain (46% vs.67%; p<0.05) followed by common cold and cough (37% vs. 47%). Lack of time (61% vs.72%) and simplicity of illness (63% vs. 72%) were two major factors resulting in self-medication. Parents (71% vs.54%), previous prescription records (21% vs.38%) and pharmacists (24% vs.15%) were the main guiding source of self-medication. Non-steroidal anti-inflammatory drugs (NSAIDs) were the most commonly used drug group followed by antihistamines (28% vs.38%) and antibiotics (12%vs. 27%).

Conclusion: Self-medication is widely practiced among dental students. Prevalence of self-medication was more in senior dental students than their juniors. However, practice of self-medication was inappropriate in both the groups. Therefore, there is a pressing need to create awareness about risks and adverse consequences of self-medication in order to ensure rational and safe use of drugs.

INTRODUCTION: Self-medication encompasses the spectrum of health activities adopted to treat oneself with drugs using information obtained from past health experience, books, advices, software, websites, health advertising, radio or television programs [1]. Medicines for self-medication are often called non-prescription medicines or over the counter (OTC) drugs and are available without a doctor's prescription through pharmacies.

Self-medication amongst students is a global problem [2-7]. Studies in India report a rising incidence [8, 9, 10]. Medical students differ from general population because they are exposed to knowledge about disease and drugs. In a study in south India, self-medication was reported among 92% of the medical students in contrast to 59% of the non-medical population surveyed. The recent rise in incidence of self-medication can be attributed to socioeconomic factors, lifestyle, ready access to drugs, the increased potential to manage certain illnesses through self-care, and greater availability of medicinal products [11].

Responsible self-medication can help to prevent and treat symptoms and ailments that do not require a doctor; reduce the pressure on medical services where healthcare personnel are insufficient and increase the availability of healthcare to people living in rural or remote areas. These benefits translate into patient and consumers' wellness and productivity, economic gain for employees and cost-savings to healthcare budgets through reduced medicine budget cost and reduced physician visits [9]. However, potential risks of self-medication practice include incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug-interactions, incorrect manner of administration of either dose or choice of therapy, masking of a severe disease and risk of dependence and abuse [12, 13]. Moreover, self-medication practitioners are potential providers of potent and unsafe drugs to friends and relatives.

Self-prescription represents serious issues for both students as well as their patients as it can influence their future professional practice [14]. A doctor's own health habits and attitudes can influence the counseling and care he provides to patients; a medical practitioner with poor health practices is less likely to counsel his patients about good healthcare habits.

The present study was undertaken to assess the magnitude and factors of self-medication among undergraduate dental students and evaluate the changes in self-medication pattern between junior and senior students.

MATERIAL AND METHODS: This cross-sectional, descriptive study was conducted at a teaching dental hospital in North India. A pre-tested, self-administered questionnaire consisting of both open-ended and close-ended questions was distributed among students after explaining the purpose of the study and obtaining oral informed consent.

The questionnaire consisted of five parts: demographic data, indications for self-medication, types of medications used for self-medications, reasons for adopting self-medication and guiding source of information.

Group 1: second-year BDS students (N=84); Group 2: students undergoing internship training (interns) (N=83). The pattern of drug use over a 6-month period preceding the study was noted.

Operational definition: Self-medication is the use of medicines by a person to treat self-recognized illnesses or symptoms, without consulting a doctor.

Statistical analysis was done using the two tailed Chi-square test of significance, p value less than 0.05 was considered statistically significant. Some of the questions had multiple options to choose from; therefore sum total of percentages was more than 100%.

RESULTS: A total of 167 students participated in the study. 84 and 83 students in group 1 and 2 successfully completed the questionnaire. 78% in group 1 and 82% students in group 2 were females. Group 1 had participants in age ranging from 18-21 years while group 2 had age ranging between 22-26 years.

90% (n=76) students in group 1 and 94 %(n=78) students in group 2 reported using drugs for self – medication in the past six months. Most of the students (80% in both groups) reported practicing self-medication up to six times in the preceding six months.

Fever (76% vs. 78%) and pain (49% vs. 67%) were the most common indications for which self-medication was practiced **[Table 1]**. Students in group 2 (interns) showed significantly increased medication use for pain (p<0.05). The spectrum of pain included headache, stomachache and toothache. Cough/common cold (37% vs. 47%) and gastrointestinal diseases were the other illnesses for which self-medication was high.

TABLE 1: DISEASES FOR WHICH SELF MEDICATION IS PRACTICED

S. no.	Indications	Group 1 N (%)	Group 2 N (%)	P value
1.	Fever	58 (76)	61 (78)	NS
2.	Cold-cough	28 (37)	38 (47)	NS
3.	GI diseases.	18 (24)	23 (29)	NS
4.	Pain	37 (49)	52 (67)	S
5.	Skin diseases.	4 (5)	6 (8)	NS
6.	Oral diseases.	5 (6)	6 (8)	NS

S=statistically significant (p<0.05), NS=not significant

Drug classes commonly used for self-medication were analgesics (37 %vs.67%) and antipyretics (58% vs. 61%). NSAIDs, namely paracetamol and ibuprofen, were the most frequently used drugs followed by antihistamines (28% vs. 38%). There was significant difference in the use of analgesic drugs (p<0.05). Though use of antibiotics was higher in group 2 (12% vs. 27%), the difference was not statistically significant. Other drugs used for self-medication were antacids (12% vs.14%) and antispasmodics (7% vs. 12%) **[Figure 1].**
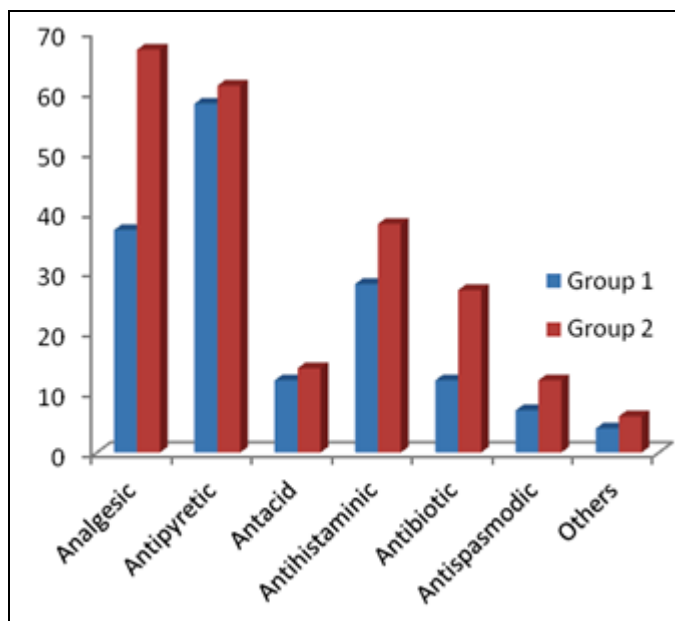
FIG. 1: DRUGS USED FOR SELF-MEDICATION

The major reasons given by both groups for adopting self-medication behavior was the lack of time (61% vs.72%) and simplicity of illness (63% vs.67%), for which they felt a doctor's advice was not needed **[Table 2]**.

TABLE 2: SOURCES OF ADVICE FOR SELF-MEDICATION

S. no.	Sources	Group 1 N (%)	Group 2 N (%)	P value
1.	Parents	54 (71)	42(54)	S
2.	Pharmacists	18 (24)	12(15)	NS
3.	Previous prescription	16 (21)	30 (38)	S
4.	Media	4 (5)	8 (10)	NS
5.	Other	2 (3)	4 (5)	NS

S=statistically significant (p<0.05), NS=not significant

For group 1, parents were the main guiding source of information (71%) whereas group 2 students relied on parents and a previous prescription (38%) as a guide. Other sources were media (5% vs. 10%) and friends (3% vs. 5%) **[Table 3]**.

TABLE 3: REASONS FOR SELF MEDICATION

S. no.	Factor	Group 1 N (%)	Group 2 N (%)	P value
1.	High cost	5 (7)	3 (4)	NS
2.	Lack of time	46 (61)	56 (72)	NS
3.	Poor quality of care	3 (4)	3 (4)	NS
4.	Doctor's advice not needed for simple illness	48 (63)	52 (67)	NS
5.	Other	2 (3)	4 (5)	NS

S=statistically significant (p<0.05), NS=not significant

For both the groups, the source of procurement of drugs, was home medicine chest (52% vs.44%) followed by drug store (20% vs.32 %).Few respondents(4% vs. 2%) reported other sources, such as friends and relatives **[Figure 2]**.
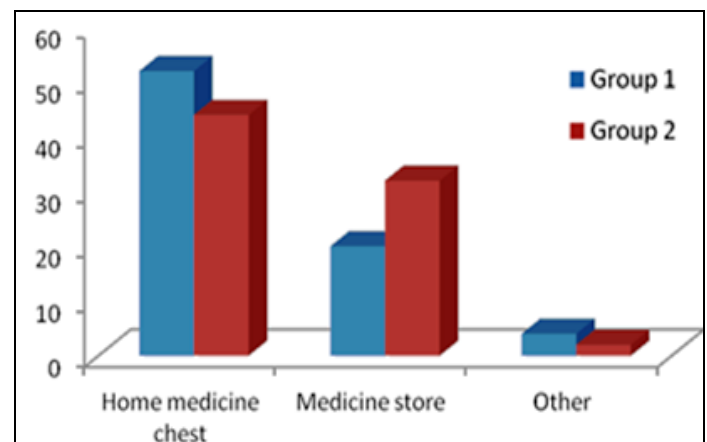
FIG. 2: SOURCES OF PROCUREMENT OF DRUGS BY RESPONDENTS

DISCUSSION: Our study shows a high prevalence of self–medication among dental students. Globally, the prevalence of self-medication is as low as 38.2% (Ethiopia) to as high as 98% (Palestine) [11, 2]. These differences can be attributed to regional differences in factors such as differences in demographic characteristics, socioeconomic conditions and drug availability. In congruence with other studies, prevalence of self-medication was more among senior students as compared to junior students, as they are exposed to knowledge about drugs and disease [5, 15]. In a study by Gutema *et al*, pharmacy students practiced self-medication more frequently than medical and paramedical students. [16] Many studies have found an association between academic year of study and self-medication practices [3, 8, 16]. In contrast, studies by da Silva and Sontakke *et al* found no difference in the prevalence of self-medication between junior and senior students [5, 10]. The extensive practice of self-medication could be explained in part, by the higher level of education and self-care orientation among the students, though studies argue that these attributes are an insignificant predictor of self-medication practices [17].

The most common morbidities which promoted the students to practice self- medication were pain (headache) and fever followed by cold and cough. In studies conducted in Bahrain and North India, headache was the most common indication followed by cough /common cold, stomachache and fever [3, 15]. Badiger *et al* found that medical students self-medicate for unusual reasons also such as sports injuries, hangovers and exam stress which are not common in general public [9].

In congruence with other studies, analgesic-antipyretic group (NSAIDs) was the most common drug class used for self-medication followed by antihistamines [2, 4, 7, 15, 18, 19]. Banerjee *et al* observed common use of antibiotics followed by analgesics, antipyretics and antiulcer medications. [8] In a study in Iran, 76.6% students used analgesics in previous three months where as 51.62% medical students in North India used analgesics [7, 15]. Our study reaffirms that self-medication is the dominant mode of health seeking behavior in pain [18]. However, awareness of the potential risks associated with long term use of analgesics such as nephropathy and gastric ulceration was low in group 1 compared to group 2 (18% vs.48 %; p<0.05).

Younger age, educational level, exposure to advertisements, legislation, importance attributed to a disease, and better social and economic background are documented risk factors for self-medication with antibiotics [5, 11, 20]. Possessing academic medical knowledge compounded by easy access to drugs results in high prevalence of self-medication. However, improper selection and sub-optimal duration promotes resistance. A significant number of students do not complete the recommended course of antibiotics and are unaware of the adverse effects of the medications that they themselves take and suggest to others. In a study by Sharma *et al*, only 32% had knowledge regarding dose of the drug [15]. Knowledge of drug profile, including important precautions and contraindications was found to be lacking among students in a study in North India [18].

Studies show the prevalence of self-treatment with antibiotics to be 47.8 % in China [20], 19.9% in Palestine [2], 17.20% in Ethiopia [11] and 21.2% in North India [15]. In contrast, Abay and Amelo reported low use of antibiotics (4.8%) [11]. Use of antibiotics is high when there is lack of implementation of proper regulatory control over the OTC sale of these drugs. The high prevalence of self-medication with antibiotics, limited knowledge of appropriate antibiotic use and poor behaviors and attitudes towards self-medication with antibiotics could contribute to pressure on bacteria, leading to development of antibiotic resistance.

Mild nature of illness was most common (63% vs. 67%) reason which provoked students for self-medication. The criteria for considering health problems as a minor illness include its limited duration and its perception as non-threatening by the subjects [16]. This perception by the students has serious implications as many diseases may appear to be mild initially but misdiagnosis and wrong treatment many invite serious health hazards [8]. In concordance with other studies, lack of time was the other major factor that lead to self-medication [8].

These reasons are not strong enough to justify self-medication. Given their limited clinical experience and high levels of work stress, students may not be able to judge when to seek medical advice and are also unaware of the importance of correct choice of medication [21].

The predominant guiding sources of information for junior students were advice of parents (71%), pharmacist (24%) while for senior students, parents (54%) and previous prescription (38%) were the guiding source. Senior students tend to have greater knowledge of appropriate self-medication, have a more confident and concerned attitude towards self-medication, and tend to practice self-medication often and appropriately [3].

In a study in Palestine, self-decision (47%) and family/friends (41%) were the guiding source whereas in a study by Gutema *et al*, guiding sources were self-decision (64%), family/friends (31.25%), media and reading material (14.1%) and pharmacist (9.40%) [2, 16]. In contrast, reading material was the major information source (30.5%) in a study on Gondar university students [11]. The practice of self-medication must be based on authentic medical information otherwise irrational use of drugs can cause wastage of resources, increased resistance of pathogens and serious health hazards such as adverse drug reactions and prolonged morbidity [8]. Though the use of media (television and internet) for gaining information about drugs was low in our study (5% vs. 10% in group 1 and 2), strictness regarding pharmaceutical advertising that targets the youth is warranted.

Presence of home pharmacy is associated with self-medication as storage of medication at home with free access and easy visualization of the products is a risk factor for self-medication. Receiving advice about self-medication mainly from the family and the reuse of an old prescription contributes to the risk posed by home pharmacies [5]. The other major source of medications was drug retail outlets.72% students in the study by Abay and Amelo obtained drugs from drug shops [11]. In India, drugs which have been withdrawn as dangerous in the West as well as combination preparations containing hidden classes of drugs are available as OTC drugs; so there is always a risk of interaction between active ingredients of OTC drugs and that of prescription drugs, as well as increased risk of worsening of existing disease pathology [17].

This study emphasizes the need for focused educational intervention, through continued medical education and multimedia programs, to bridge knowledge gaps between students' perceptions and accurate drug information.

Further studies are warranted to estimate the magnitude of self-medication in the dental fraternity. This has ramifications for incorporating responsible self-medication as an intrinsic component in their curriculum.

In India, people use non-prescription drugs as well as prescription drugs such as antibiotics, without supervision. To successfully implement a rational self-medication program, policymakers, pharmacy councils need to design better strategies for preventing unsafe behaviors. Stricter governmental regulations regarding sale of OTC drugs in pharmacies is the need of the hour.

The present study has certain limitations. The data included a small sample size of a specific region, so generalization cannot be made. Self-reported data is prone to recall bias. Mutual influence between the students could not be ruled out. Moreover, data did not include students with chronic diseases, which are more often associated with self-medication.

CONCLUSION: Portraying good health by work attendance is deeply embedded in the medical culture. This descriptive study affirms the observation that self-medication is common among professional dental students, facilitated by knowledge and easy availability of OTC drugs. Practice of self-medication was more among interns compared to junior students and reflects increased confidence of senior students in their own medical skills and in making independent decisions. Non-seriousness of illness and previous prescription records were the most common reasons for practicing self-medication. However, practice of self-medication was inappropriate and there is need to sensitize undergraduate students about the potential serious effects of self-medication.

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