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Original Research Article

Self-medication practice among undergraduate medical students in government medical college of Andhra Pradesh

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ABSTRACT

Background: Self-medication involves using medicines without professional advice, a common global practice due to limited healthcare access, over-the-counter drug availability, and widespread internet use. Medical students, despite lacking prescription authority, often self-medicate due to their drug knowledge.
Methods: This cross-sectional study was conducted in June 2024 among undergraduate medical students at Government Medical College, Srikakulam. Data on socio-demographics and knowledge, attitudes, and practices (KAP) regarding self-medication were collected through a validated online questionnaire, with 520 completed responses from 623 students.
Results: The prevalence of self-medication was 67%. Most respondents were male (61%) and 2nd-year students (32.5%). Self-medication was common for minor illnesses (76%), with antacids (83%) and analgesics (74%) being the most used drugs. Although 70.2% acknowledged the risks of self-medication, its prevalence increased with semester progression, peaking at 96% among 4th-year students.
Conclusions: Self-medication is widespread among medical students, driven by easy drug access and textbook knowledge. The study underscores the need for better education on the risks and stricter drug dispensing regulations to mitigate health risks.

Keywords: Antibiotics, Attitudes, Drug resistance, Healthcare access, Knowledge, Medical students, Over-the-counter drugs, Practices

INTRODUCTION

Self-medication involves the practice of individuals taking medicines on their own or with assistance from a pharmacist, without proper advice or prescription from a medical professional to treat self-diagnosed conditions.[1] According to the World Health Organization (WHO), self-medication is an essential aspect of self-care, which is a crucial component of the primary healthcare system.[2] This practice is prevalent globally due to various factors, including limited access to healthcare services, easy availability of over-the-counter drugs, weak drug dispensing regulations, and widespread internet access.[1]

Various socio-demographic factors also influence the practice of self-medication. Higher educational levels can increase the propensity to self-treat due to overconfidence, while lower socio-economic status may drive individuals to purchase over-the-counter medicines directly to save money, thus avoiding professional medical fees.[2,3]

Irrational self-medication poses significant health risks, such as adverse drug reactions, antimicrobial resistance, and resource wastage.[4] Incorrect dosages can result in organ damage or incomplete cures. Additionally, repeated self-medication can lead to drug dependence and complicate professional diagnosis, as symptoms may be temporarily masked.[5]

Medical students, despite lacking legal authorization to prescribe medications, often exhibit a strong inclination towards self-medication for themselves and others. This tendency arises as they gain knowledge about various drugs and their appropriate use throughout their medical education.[4,6] As they advance to their final semesters, their practice of self-medication increases with their enhanced ability to diagnose clinical conditions and their knowledge of pharmacology.[7]

Numerous studies have previously addressed this issue in both India and abroad.[1,3,4,7] However, the pattern of self-medication has not been thoroughly explored among medical students in Andhra Pradesh. With this in mind, the current study aims to estimate the prevalence of self-medication and to assess the existing knowledge, attitudes, and practices regarding self-medication among undergraduate medical students in Government medical college, Srikakulam, Andhra Pradesh.

METHODS

A cross-sectional observational study was conducted among undergraduate medical students in June 2024 at Government medical college, Srikakulam, Andhra Pradesh. Informed consent was obtained from every participant before the study began. All students in the existing 1st, 2nd, 3rd, and 4th years of MBBS were included in the study population, provided they consented. Seriously ill, chronically absent, and unwilling subjects were excluded from the study.

The study tool consisted of a questionnaire prepared in English, as all participants could understand the language well. The questionnaire had two parts: the first part recorded socio-demographic characteristics, and the second part assessed the knowledge, attitude, and practice (KAP) of self-medication among the students. The face validity of each item was verified using previous research and expert opinion. Experts also determined the content validity of each domain. Reliability was checked using the test-retest method (r=0.89). Pretesting followed by pilot testing was conducted, and necessary corrections and modifications were made accordingly.

An online survey was conducted to collect responses from the subjects. Participants were contacted with the digital questionnaire through various social networking systems using a complete enumeration method. Out of a total of 623 registered students, 520 responses were obtained, resulting in a non-response rate of 16.3%. Data were entered into Microsoft Excel and subsequently analyzed using SPSS version 29.0.

RESULTS

Out of a total of 520 respondents, the majority were male (61%), belonged to the 2nd Year MBBS Students (32.5%), with permanent residence in an urban area (75%), and hostelite (64%). The mean age of the respondents was 20.95±1.884, with a minimum age of 18 years and a maximum of 30 years.

The most common hazards of changing the timing of antibiotics mentioned by the participants were the development of drug resistance, followed by drug toxicity and loss of drug effectiveness, whereas the recurrence of infection followed by drug resistance were common responses regarding the hazards of not completing the dose of antibiotics. Major sources of information about self-medication were textbooks or teachers (76%), followed by the internet (58%), previous prescriptions (27%), seniors (25%), pharmacists (25%), and advertisements in different media (16%).

Regarding attitudes about self-medication, the majority of the participants agreed with the statements that self-medication is acceptable for medical students (50%), they have a good ability to diagnose (52%) and treat (43%) their symptoms, they are likely to bother their doctors with minor problems always (32%), they should procure over-the-counter drugs without prescriptions from a recognized doctor (29%), they can advise over-the-counter drugs for their friends or relatives or others (43%), and a pharmacist is a good source of advice or information about minor problems always (36%). However, a significant proportion of students did not show a clear idea about the facts that medical students are likely to bother their doctors with minor problems always (31%) and should procure over-the-counter drugs without prescriptions from a recognized doctor (27%). The majority of the subjects strongly agreed that a medical license is essential for better administration of drugs (56%) and that self-medication is harmful if taken without proper knowledge of drugs and disease (70%). Nearly half of them (47%) strongly disagreed with not completing the course of medicines if the symptoms subside (Table 1).

Regarding knowledge of self-medication, the majority of the respondents had some knowledge about the actual definition of self-medication (76%), hazards due to changes in the time schedule of antibiotics (61.5%), hazards due to an increase in dose of antibiotics (66%), adverse drug reactions of different antibiotics (67%), and the importance of completing the dosage schedule of antibiotics (58.5%) (Table 2).

Table 1: Attitude regarding self-medication.

Attitude regarding self-medication	Strongly disagree (%)	Disagree (%)	Don't know (%)	Agree (%)	Strongly agree (%)
Self-medication is acceptable for medical students	27 (5.2)	85 (16.3)	96 (18.4)	255 (49)	57 (10.9)
Medical students have good ability to diagnose the symptom	33 (6.3)	76 (14.6)	90 (17.3)	268 (51.5)	53 (10.2)
Medical students have good ability to treat symptoms	40 (7.7)	95 (18.3)	110 (21.2)	217 (41.7)	58 (11.1)
Medical license is essential for better administration	8 (1.5)	25 (4.8)	59 (11.3)	139 (26.7)	289 (55.6)
Self-medication is harmful if taken without proper knowledge	13 (2.5)	14 (2.7)	44 (8.5)	84 (16.2)	365 (70.2)
The course of medicines should not be completed if symptoms	236 (45.4)	49 (9.4)	80 (15.4)	74 (14.2)	81 (15.6)
Pharmacist - good source of advice/information	74 (14.2)	107 (20.6)	104 (20)	187 (36)	48 (9.2)
Medical students likely to bother doctors with minor problems	41 (7.9)	114 (21.9)	156 (30)	159 (30.6)	50 (9.6)
Medical students should procure OTC drugs without prescription	86 (16.5)	91 (17.5)	140 (27)	187 (36)	54 (10.4)
Medical students can advise OTC drugs for friends/others	69 (13.3)	90 (17.3)	104 (20)	217 (41.7)	40 (7.7)

Table 2: Knowledge regarding self-medication.

Knowledge regarding self-medication	Not at all No (%)	Some No (%)	Very much No (%)
Definition of self-medication	50 (9.6)	395 (76)	75 (14.4)
Hazards due to change of time schedule of antibiotics	67 (12.9)	320 (61.5)	133 (25.6)
Hazards due to increase in dose of antibiotics	53 (10.2)	343 (66)	124 (23.8)
Adverse drug reaction of antibiotics	56 (10.8)	348 (67)	116 (22.3)
Importance of completing the dosage schedule of antibiotics	40 (7.7)	304 (58.5)	176 (33.8)

Regarding the practice, the prevalence of self-medication (ever-use) among medical students in Government Medical College Srikakulam was found to be 67%, whereas the prevalence in the last year was 64%. Most of the students preferred self-medication (72%) when they fell sick; while 47% used to consult a doctor, 34% waited till symptoms subsided, 24% asked for suggestions from seniors, and 10% used to consult the internet during sickness. The majority of the students practiced self-medication 1-2 times in the last year (42%), followed by 3-4 times (39%), and more than 4 times (23%). The most common indications for practicing self-medication were fever (81%), followed by cough and cold (76%), pain (63%), indigestion (53%), diarrhea (45%), nausea and vomiting (26%), anxiety and tension (7%), dysmenorrhea (5%), and asthma (3%). The most common drugs used in self-medication were antacids (83%), analgesics (74%), antipyretics (55%), antibiotics (45%), vitamins (36%), anti-allergic (26%), herbals (14%), antispasmodic (6%), sedatives (6%), and antidepressants (5%).

The common antibiotics used in self-medication were azithromycin (29%) followed by co-amoxiclav (24%), norfloxacin (15%), amoxicillin (15%), ciprofloxacin (10%), cefixime (9%), levofloxacin (9%), ofloxacin (9%), erythromycin (7%), metronidazole (5%), doxycycline (4%), ampicillin (4%), and clindamycin (3%). More than half of the subjects (83%) advised antibiotics to others in the last year. The common antibiotics advised were azithromycin, co-amoxiclav, norfloxacin, ofloxacin, and cefixime.

Most of the participants (85%) had practiced self-medication on themselves, while 38% on family members and 23% on friends. Out of 520 respondents, the majority mentioned the common causes of self-medication practice were minor illness (76%), followed by prior experience (50%), quick relief (40%), emergency use (26%), lack of time to visit a doctor (20%), cost-effectiveness (13%), and drug dependence (4%); while out of 208 respondents, the majority mentioned the common causes of not practicing self-medication were the risk of wrong diagnosis (62%), followed by the risk of missing the

actual diagnosis (48%), the risk of adverse reactions (40%), and the risk of drug dependence (17%).

Regarding the pattern of practice, the majority (65%) reused prescriptions when they experienced similar symptoms, while 35% did not. More than half of the subjects (61%) discontinued the prescribed medicines when the symptoms were relieved; while 39% completed the course. Most of them (84%) claimed that they did not increase the drug dose when symptoms were not relieved; whereas 83% said that they did not have any adverse reactions during self-medication and 17% said that they had experienced the same. The majority (81%) were not habituated to any drug due to self-medication, while 19% were habituated to some drugs due to self-medication. Most of them (71%) gave their prescription to someone who had similar symptoms; while 29% did not have this practice (Table 3).

Table 3: Pattern of practice.

Pattern of practice	Yes frequency (%)	No frequency (%)
Do you reuse the prescription when experienced with similar symptoms?	347 (66.7)	173 (33.3)
Do you discontinue the prescribed medicines by yourself when symptoms are relieved?	311 (59.8)	209 (40.2)
Do you increase the drug dose on yourself when symptoms are not relieved?	92 (17.7)	428 (82.3)
Do you experience adverse reactions during self-medication?	94 (18.1)	426 (81.9)
Are you habituated to any drug due to self-medication?	414 (79.6)	106 (20.4)
Do you give your prescription to someone who is having similar symptoms as yours?	361 (69.4)	159 (30.6)

The prevalence of ever-use of self-medication was found to be highest among the 4th Year MBBS students (96%) and least among the 1st Year MBBS (42%). A pattern of increase in prevalence was seen from lower to higher semesters. The prevalence of self-medication during the last year was found to be highest among the Final year students (93%) and least among the 1st Year MBBS (42%). A pattern of increase in prevalence was also seen from lower to higher semesters in this case, whereas the prevalence of self-medication with antibiotics was found to be highest among the 3rd Year MBBS students (47%) of Government Medical College Srikakulam (Figure 1).

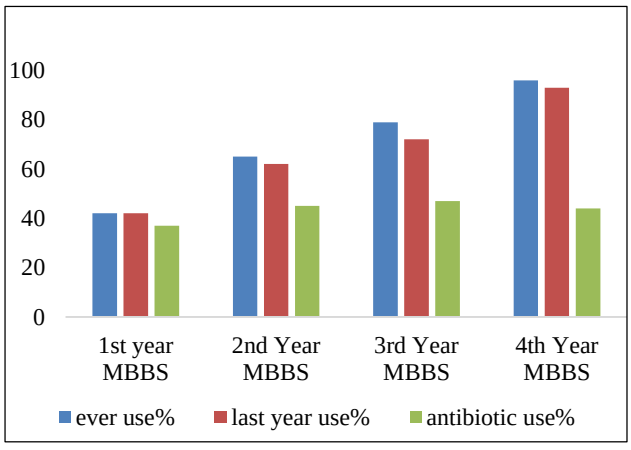

Figure 1: Multiple bar diagram showing year wise pattern of self-medication practices.

DISCUSSION

The study found that the overall prevalence of self-medication among the students of Government Medical College, Srikakulam, Andhra Pradesh was 70.36%, which was consistent with other researches, like a study by Jagadeesh et al showed a prevalence of 66%, a study by Patil et al found it to be 88.18%, whereas a study in West Bengal revealed the prevalence of 57.05% and another in Magalore found it to be 78.6%.[8-11] Researches outside India found the prevalence of self-medication varying from 43.24% reported in Mekelle University, 50.9% in a study in Saudi Arabia and even higher in a study in Serbia (79.9%) and in a study conducted in Chitwan Medical College, Bharatpur, Nepal (84%).[12-14]

Regarding knowledge of self-medication, majority of the respondents had some knowledge about actual definition of self-medication (76%), hazards due to change of time schedule of antibiotics (61.5%), hazards due to increase in dose of antibiotics (66%), adverse drug reactions of different antibiotics (67%) and about importance of completing the dosage schedule of antibiotics (58.5%), whereas a study in Nepal revealed the proportions to be rather lower (28%, 28%, 38.7%, 36% and 17.3% respectively) indicating poorer knowledge level of the participants than the current study.[3] Concerning the source of information, the present study reported the common sources to be textbooks or teachers (76%), followed by the internet (58%), previous prescriptions (27%), seniors (25%), pharmacists (25%), and advertisements in different media (16%); while it was pharmacist (60.31% and 49.68%), followed by textbook (46.03% and 8.91%) in a study by Mehta et al and Wajantri et al respectively.[3,15]

Regarding attitude about self-medication, the findings of the current study was found to be more or less consistent with the results of a study by Mehta et al except the fact that self-medication would be harmful if taken without

proper knowledge of drugs and disease.[3] The current study showed that majority (70.2%) of the students had strongly agreed on the above statement, whereas the study by Mehta et al found that majority (62.7%) had strongly disagreed on it showing a more harmful attitude.[3]

Most common indications for practicing self-medication in the present study were fever (81%), followed by cough and cold (76%), pain (63%), indigestion (53%), diarrhoea (45%), which was consistent with other studies.[3,9,16] The most common drugs used in self- medication as found in this study were antacids (83%), analgesics (74%), antipyretics (55%), antibiotics (45%), vitamins (36%), anti-allergic (26%), which was also found to be consistent with other researches.[3,9,16]

Major reasons for practice of self-medication, as found in this study were minor illness (76%), followed by prior experience (50%), quick relief (40%). The findings were in congruence with other studies.[3,10] On the other hand, the major reasons against self-medication were reported to be risk of wrong diagnosis (62%), followed by risk of missing the actual diagnosis (46%), risk of adverse reactions (38%) in this study; while it was risk of adverse drug reaction (48%) and risk of wrong diagnosis (17%) as found by Mehta et al.[3]

The prevalence of self-medication was found to be 41.82%, 65.23%, 78.14% and 96.24% respectively among 1st, 2nd, 3rd and 4th Year MBBS students in the current study; while they were 86.33%, 89.34%, 85.37% and 91.75% respectively as found in a study by Patil et al.[9,17]

The current study had been hindered with some limitations. It was based on an online survey which had its own difficulties like misinterpretation of questions, missing data etc. Due to time and money constraints the study could not be extended to the other medical colleges of Andhra Pradesh. The results might have been slightly distorted due to willful falsification of statements by few participants. More over the study had been done only on medical students of a single medical college of Andhra Pradesh. With the perceptions of this study further community-based researches could be done to explore the unknown facts and prevalence of self-medication among other sub groups of the community.

CONCLUSION

This descriptive study had found that self-medication was quite common among undergraduate medical students of Government Medical College, Srikakulam, facilitated by the easy availability of drugs and information from textbook. The respondents showed inadequate knowledge and inappropriate attitude towards some points regarding self- medication which had been reflected in their easy and frequent practice of self-medication. The students harm themselves and also others by encouraging and helping them to form a habit of buying over the counter drugs without proper prescription from a doctor. Medical students being the future health professionals should take the responsibility to control this malpractice. The topic can also be included in the undergraduate course by emphasizing the potential risks of self-medication. There is also a great responsibility of drug regulatory authorities and faculties about the control of self-medication by explaining the students about its harmful effects.

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