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Original Research Article

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# Study of Knowledge Attitude and Practices of Self-Medications Among Medical and Nursing Students in A Medical College Puducherry

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**Abstract**: Self-medication is very common in both urban and rural communities. The frequency of self-administered drugs among medical scholars in Puducherry was not known. Hence, this design was accepted to assess the frequency of self-administered drugs among undergraduate MBBS and nursing students. Our study aims to evaluate the knowledge, attitude, and practice of self-medication among medical and nursing students, to compare the self-medication between medical and nursing students, and to evaluate the factors that influence self-medication. A prospective, observational, questionnaire-based study was conducted in which two groups of students were interviewed using a semi-structured pre-validated questionnaire. Ethical approval was obtained from the institutional ethics committee before the initiation of the study. In this study, we found there is a high prevalence of using antibiotics and analgesics as self-medication among medical students when compared to nursing students. This study paves the way for medical students to come forward to understand and reduce the practice of self-medication.

**Keywords**: Pharmacology, clinical pharmacology, self-medication, Medical Nursing, antibiotics.

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## 1. INTRODUCTION

Self-care is the primary public health resource in a healthcare system. As per the WHO, Self-medication is the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms.[1] Use of self-medication is very common in both urban and rural communities. Self-medication involves acquiring medicines without a prescription, using old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle, or using leftover medicines stored at home[2]. Low socioeconomic status, education, exposure to advertisements, law and availability of drugs, etc, are contributing factors for self-medication. In recent days' the practice of self-medication in the general population in the form of drugs without prescription has increased. A well-educated community is more aware of the danger of self-medication than ordinary people[3]. Self-medication is necessary when there is a medical personnel shortage, especially in rural areas. Self-medication has both benefits and risks. Self-medication reduces the burden on healthcare facilities and decreases the cost and time people spend visiting healthcare facilities for minor symptoms[4].The use of analgesics is very common worldwide. Some of the analgesics now available are without prescription[5].Inappropriate choice of antibiotics, use of insufficient dosage, inadequate treatment duration, or unnecessary therapy increases the risk of antibiotic resistance[6]. Self-medication among healthcare professionals has severe implications, which might include legal issues, ethical issues, negative effects on patients, and poor quality of healthcare delivery. In underdeveloped nations, the percentage of people who self-medicate can range from 12.7% to 95%, while in Western nations, the percentage has been as low as 3%. Self-medication has grown popular among various pharmaceutical companies, particularly in underdeveloped nations. Based on the study by Sahal et al., studies among the urban population found 16% to 81% of self-prescriptions and 26.7% of self-medication with antibiotics. Self-medication is made easier by easy accessibility, a lack of knowledge about adverse effects, lax regulation, and inconsistent rules for the use of prescription and over-the-counter medications. People frequently learn about self-medication via friends, relatives, and, most importantly, the Internet without knowing anything about the adverse effects and other implications of the medications they use for this purpose. Because of the irrational use of antibiotics, including self-medication and incomplete dosage, antibiotic resistance has emerged as a major global public health concern. For this reason, a population-level assessment of self-medication is required[7].Jain et.al reported that Self-medication is very common in India, and it's one of the main reasons why antibiotic resistance has developed there as well as other major health risks like unpleasant reactions and protracted pain. The incidence in south Indian coastal regions was 71%, while in Delhi it was 92.8%. Risks associated with self-medication include misdiagnosis, overdosing on drugs, combining medications that shouldn't be combined, which could lead to legal issues or health problems, abuse risk, the potential for addiction, concealing symptoms of serious conditions, postponing medical advice, long-term use, drug interactions, and polypharmacy. In India, fever (51.8%) and common cold (61.6%) were the most frequent causes of self-medication[8-10]. The frequency of self-administered drugs among medical scholars in Puducherry wasnot known. Hence, this design was accepted to assess the frequency of self-administered drugs among the undergraduate MBBS scholars and nurses in the private college 'Aarupadai Veedu Medical College' to determine the pattern of self-drug administration and to assess their knowledge and practices of self-medication. The present study was designed to study self-medication with antibiotics and analgesic among undergraduate medical and nursing students in a medical college. The primary aim of this study was to evaluate the knowledge, attitudes, and practices of self-medication among medical and nursing students, with an additional objective of comparing these behaviors between the two groups. The study also included a secondary objective to explore and analyze the various factors influencing self-medication practices among the students. By addressing both primary and secondary objectives, the research aimed to provide a comprehensive understanding of self-medication trends and the underlying reasons behind them in the context of medical and nursing education.

## 2. MATERIALS AND METHODS

### *2.1. Study Design*

The study was initiated after obtaining approval from the institutional ethics committee. A prospective, observational, questionnaire-based study was conducted in which two groups of students were interviewed using a semi-structured pre-validated questionnaire. The first group comprised students from MBBS while the second group consisted of students of B.Sc Nursing. Details of the questions and purpose of the study were explained to the students before starting the study. The questionnaire comprised sections: section one consisted of demographic data of the students, section two consisted of a questionnaire for self-medication of antibiotics, and section three was a questionnaire of analgesics. Questions regarding the knowledge, attitude, and practice of self-medication of antibiotics and analgesics. The sample size was calculated as 200 based on the previous study[11].

### *2.2. Inclusion and Exclusion Criteria*

The study's inclusion criteria are individuals aged over 18, both male and female, including medical and nursing students, who voluntarily agree to participate. The exclusion criteria include individuals under 18 or those who are unwilling to participate.

### *2.3. Ethical Consideration*

The Institutional Ethics Committee approved the study before it started (IEC NO: AVMC/IEC2019/53). Before participating, each participant was given a verbal explanation of the study's purpose and rationale. Following this, they were asked for their written consent which was attached along with the questionnaire form. The information on the study was kept confidential.

### *2.4. Data Collection*

A pretested and validated questionnaire, structured into three sections, was administered to participants through Google Forms. The questionnaire was carefully designed to ensure clarity and reliability, allowing for accurate data collection**.** Responses were securely recorded and analyzed for descriptive cross-sectional insights.

### 2.5. *Data Analysis*

The collected data were compiled into a master sheet using MS Excel and analyzed with SPSS Version 27.0 with a p-value of <0.05 considered statistically significant. Descriptive statistics were presented as percentages and proportions for categorical variables, while mean and standard deviation were used to summarize continuous variables.

Table 1 provides sociodemographic details, showing the sociodemographic distribution among the study participants. The medical group had a high prevalence of male participants, and the nursing group had a high prevalence of female participants. Both groups had the majority of participants between 18 and 20 years old.

## 3. RESULTS

**Table 1: Sociodemographic**

| Socio-Demographic Character | Participants | |
|---|---|---|
| | Medical | Nursing |
| Gender: | | |
| Male | 64 | 14 |
| Female | 36 | 86 |
| Age: | | |
| 18 – 20 years | 68 | 93 |
| 21 – 23 years | 30 | 6 |
| >24 years | 2 | 1 |
| Residual status: | | |
| Hostler | 82 | 30 |
| Day scholar | 18 | 70 |
| Parent occupation: | | |
| Medico | 9 | 2 |
| Non-medico | 91 | 98 |

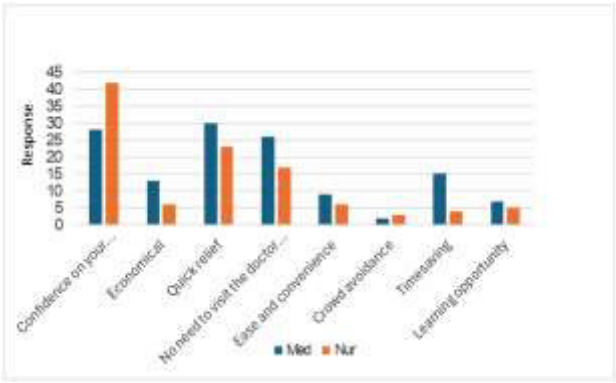


**Fig 1: The reasons in favor of self-medication showed that medical exhibited higher preferences for confidence and time-saving. In contrast, nursing students leaned more towards economic reasons and quick relief.**

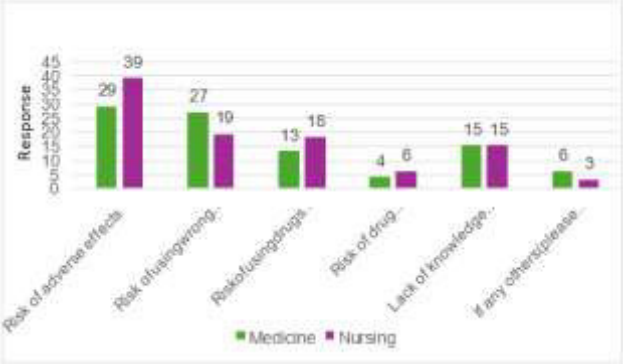


**Fig 2: The reasons for not taking self-medication, which shows that nursing students reported a higher concern for the risk of using the wrong medication (39%) compared to medical students (29%), while risks like adverse effects and drug misuse showed closer percentages**

**Table 2 Knowledge towards self-medication among medical and nursing students(n=100+100)**

| Do you know what the meaning of antibiotics? | Med (%) | Nur(%) | Total | χ2 | p p-value |
|---|---|---|---|---|---|
| Yes | 99 | 96 | 195 | 1.84 | 0.17 |

| No | | | | | | |
|---|---|---|---|---|---|---|
| **What are antibiotics used for** | | | | | | |
| Viral infection | 2 | | 20 | 22 | | 0. |
| Bacterial infection | 97 | | 78 | 175 | 17.1 | 0.0001* |
| Other | 1 | | 2 | 3 | | |
| **Do you know what is the infection?** | | | | | | |
| Yes | 91 | 91 | 12 | 103 | | |
| No | 9 | 9 | 88 | 97 | 124.9 | 0.00001* |
| **Which of the following statement(s)about antibiotics is(are)correct?(True/False)** | | | | | | |
| Broad-spectrum antibiotics are Always better | False -26 True -70 | | False -24 True -76 | False 50 True -146 | 0.245 | 0.620 |
| Side effects depend on the dose of drugs | False- 14 True - 84 83 | | False-12 True-88 | False-26 True-172 | 0.254 | 0.613 |
| Switching antibiotics reduces adverse reactions | False- 44 True- 66 56 | | False-45 True-55 | False-89 True-121 | 0.254 | 0.613 |
| Intravenous is better than oral medication | False- 12 True- 81 | | False-29 True-71 | False-41 Truse-152 | 7.46 | 0.006* |
| **What is (are)the common adverse reaction(s) of antibiotics?** | | | | | | |
| Nausea | 15 | 15 | 20 | 35 | 3.37 | 0.497 |
| Vomiting | 9 | 9 | 14 | 23 | | |
| Diarrhea | 10 | 10 | 11 | 21 | | |
| Rash | 8 | 8 | 8 | 16 | | |
| All | 53 | 53 | 41 | 94 | | |
| **What is(are) the common adverse reaction(s)of analgesics?** | | | | | | |
| Nausea | 28 | 28 | 24 | 52 | 30.3 | 0.00001* |
| Vomiting | 5 | 5 | 34 | 39 | | |
| Diarrhea | 4 | 4 | 12 | 16 | | |
| Rash | 9 | 9 | 4 | 13 | | |
| All | 42 | 42 | 27 | 69 | | |
| **Analgesics may cause interaction with other drugs** | | | | | | |
| Yes | 84 | 84 | 57 | 141 | 16.11 | 0.00006* |
| No | 16 | 16 | 41 | 57 | | |

***Note: χ2 –Chi-square test. The comparison was done using the Chi-square test. *p<0.05 statistically significant***

Table 2 Knowledge towards self-medication among medical and nursing students (n=100+100), which highlights the knowledge and perceptions of medical (Med) and nursing (Nur) students regarding antibiotics and analgesics. A significant number of respondents believed that side effects depend on the drug dose and acknowledged the potential for drug interactions with analgesics. Upon analysis of the questionnaire (Figures 1 and 2), 99% of MBBS students and 96% of nursing students knew the meaning of antibiotics, which is not a significant difference. Still, when asked about antibiotic use, 97% of MBBS students answered for bacterial infections (Table 2), more than that of nursing students (78%). Before using antibiotics, 91% of MBBS students knew about the infection that they used antibiotics for, whereas only 12% of nursing students knew about the infection before taking medication; this tells us that MBBS students were more self-aware before taking the antibiotic (Table 2). MBBS students also better knew about the adverse drug reactions caused by antibiotics, and most answered for all [diarrhea, nausea, vomiting, rash] compared to nursing students who were less likely to know about all the adverse drug reactions of an antibiotic (Table 2). MBBS students provided a variety of arguments for and against self-medication. The most popular justifications for self-medication were quick relief (30%), confidence in knowledge (28%), no need to visit a doctor for minor illness (26%), time-saving (15%), economical (13%), etc (Figure 1). On the other hand, for nursing students, the most popular justifications for self-medication were quick relief (23%), confidence in knowledge (42%), no need to visit a doctor for minor illness (17%), time-saving (4%), economical (6%), etc. from which we can observe that MBBS students show more positive response than nursing students(Figure 1).Risk of adverse effects (29%), risk of using wrong drugs (27%), risk of using drugs wrongly (13%), and lack of knowledge about medicines (15%) were ranked as the top four grounds against self-medication among MBBS students. Meanwhile, in the nursing students, Risk of adverse effects (39%), risk of using wrong drugs (19%), risk of using drugs wrongly (18%), and lack of knowledge about medicines (15%) were ranked as the top four grounds against self-medication (Figure 2). This shows that MBBS students have better knowledge of self-medication, as the answers they chose were more appropriate than those of nursing students. When questions related to analgesics were asked, 42% of MBBS students answered all (nausea, vomiting, diarrhea, rash) as an adverse drug reaction of analgesics. Still, only 27% of nursing students knew all the adverse effects. MBBS students better knew about the adverse drug reactions of analgesics. In the case of drug interactions,84% of MBBS students gave yes as an answer for drug interactions, whereas only 57% of nursing students said yes for drug interactions. This shows that MBBS students had an overall better knowledge of analgesics and their drug interactions (Table 2).

| Table 3: Attitude toward self-medication among medical and nursing students (n=100+100) | | | |
|---|---|---|---|
| **What is the source of information of the drugs used for self-medication?** | **Med (%)** | **Nur (%)** | **Total** |
| Classroom teaching | 9 | 32 | 41 |
| textbook | 12 | 19 | 31 |
| advertisement | 4 | 44 | 8 |
| previous prescription | 63 | 45 | 108 |
| Other | 12 | 00 | 12 |
| **What was the source of the drugs used for self-medication** | | | |
| Medical store | 32 | 32 | 64 |
| Home | 11 | 11 | 22 |
| **According to you what were the indications for self-medication?** | | | |
| Doctor parents | 51 | 57 | 108 |
| Headache | 62 | 48 | 110 |
| Fever | 49 | 25 | 74 |
| Cough, cold, sore throat | 65 | 77 | 72 |
| Menstrual symptoms | 4 | 22 | 6 |
| Vomiting | 24 | 55 | 29 |
| Diarrhea | 24 | 20 | 44 |
| Ocular symptoms | 0 | 00 | 0 |
| If any others (please specify | 1 | 10 | 11 |
| **What did you consider when selecting antibiotics** | | | |
| Type | 39 | 30 | 69 |
| Brand | 16 | 32 | 48 |
| Price | 4 | 55 | 9 |
| Adverse reactions | 27 | 41 | 68 |
| Others | 14 | 555 | 19 |

Table 3: Attitude towards self-medication among medical and nursing students (n=100+100).The table outlines the sources and considerations for self-medication among medical (Med) and nursing (Nur) students. Previous prescriptions were the most common source of information (108), followed by classroom teaching (41) and textbooks (31). Most drugs were obtained from medical stores (64), with a smaller proportion sourced from home (22). Common indications for self-medication included headache (110), fever (74), cough, cold, or sore throat (72). When selecting antibiotics, students primarily considered the type (69) and potential adverse reactions (68), with less emphasis on brand (48), price (9), or other factors (19). These findings reflect patterns in self-medication practices among the participants.

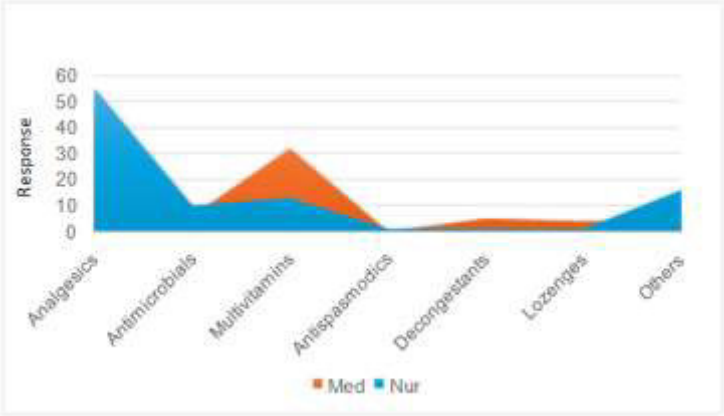


**Fig 3: Drugs were used for self-medication, illustrating the distribution of different types of medications prescribed or used by two groups.**

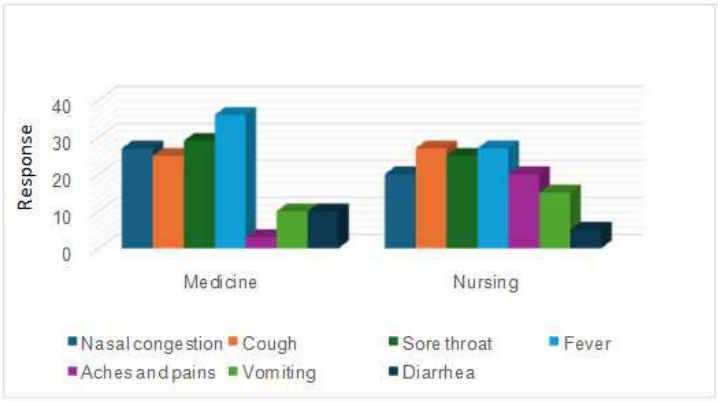


**Fig 4: Symptoms for self-medication, which shows the most prevalent symptom in both the groups, with slightly higher instances in the "Medicine" group. Nasal congestion, cough, and sore throat are moderately common, showing similar patterns across both groups. Vomiting and diarrhea are the least reported symptoms, with minimal variation between the groups.**

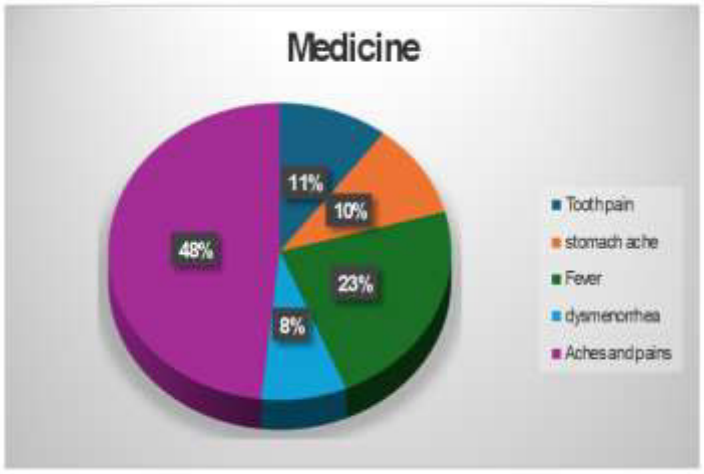


**Fig 5: Reason for using analgesics as self-medication by medical students, which illustrates the distribution of various health complaints in the medicine where aches and pains constitute 48% of the total.**

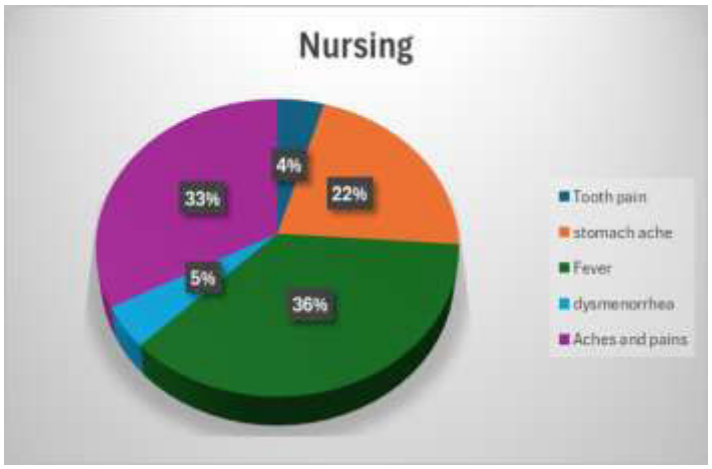


**Fig 6: Reason for using analgesics as self-medication by nursing students, which illustrates the distribution of various health complaints in the nursing group where fever constitutes 36% of the total.**

On analysis of the questionnaire, we observed that MBBS students chose classroom teaching (9%), textbook (12%), advertisement (4%), and previous prescription (63%) were the popular choices, whereas for nursing students, classroom teaching (32%), textbook (19%), advertisement (4%) and previous prescription (45%) indicating positive attitude towards self-medication even though the sources of information may differ. Both MBBS and Nursing students were observed using sources of drugs in equal numbers without any difference which medical stores (32%) and home (11%) on the other hand 51% of MBBS students relied on the source from their doctors or parents and 57% of Nursing students relied on their doctor parents(Table 3).Also, indications for self-medication, according to MBBS students, were headache (62%), fever (49%), and Cold cough/sore throat (65%). Vomiting and diarrhea (24%). On the other

hand, for nursing students, indications for self-medication, according to MBBS students, were headache (48%), Fever (25%), and Cold cough/sore throat (7%). Vomiting (5%) and diarrhea (20%)(Table 3).Analgesics were taken up more by Nursing students (55%), while 45% of MBBS students used analgesics, which shows the attitude towards taking analgesics. Multivitamins were in popular demand (32%) compared to Nursing students (13%). Antimicrobials in both do not show any significant difference in the number of students, MBBS (6%) and Nursing (10%)(Figure 3). When selecting antibiotics (39%) MBBS students showed consideration towards the type of antibiotic, whereas 30% of Nursing students showed consideration towards the type of Antibiotic. A greater number of Nursing students (32%) had considered the antibiotic brand while selecting one. In comparison, only 16% of MBBS students were concerned about the antibiotic brand. The price of antibiotics didn't involve significant differences in numbers among both the MBBS (4%) and Nursing students (5%). MBBS students took less consideration for adverse reactions (27%) compared to the nursing students, who were 41% concerned about adverse reactions(Table 3).When analgesics were questioned about when to use them among students in both fields, 48% of MBBS students reported using them for aches and pains. In comparison, only 33% of Nursing students reported aches and pain. Several Nursing students used analgesics for fever (36%) in comparison to MBBS students (23%), indicating the attitude towards the usage of analgesics(Figures 5 and 6).

**Table 4: Practice towards self-medication among medical and nursing students (n=100+100)**

| 1. Whether taken Self-medication | Med (%) | Nur (%) | Total |
|---|---|---|---|
| YES | 66 | 38 | 104 |
| NO | 34 | 62 | 96 |
| **2. Whether practiced self-medication** | | | |
| Always | **3** | **9** | **12** |
| sometimes | **50** | **45** | **95** |
| Rarely | **47** | **46** | **93** |
| **3. whether visited to a qualified medical practitioner** | | | |
| Always | **39** | **25** | **64** |
| Sometimes | **51** | **45** | **96** |
| Rarely | **10** | **30** | **40** |
| **4. Have you ever taken antibiotics?** | | | |
| yes | **94** | **77** | **171** |
| no | **6** | **23** | **29** |
| **5. Did you ever check the instructions that come with the package insert of antibiotics for self-treatment** | | | |
| Yes always | **39** | **57** | **96** |
| Yes sometimes | **53** | **33** | **86** |
| never | **8** | **8** | **16** |
| **6. Have you ever had any adverse reaction when you took antibiotics for self-medication?** | | | |
| yes | **24** | **35** | **59** |
| no | **76** | **65** | **141** |
| **7. Have you ever taken analgesics** | | | |
| yes | **63** | **68** | **131** |
| no | **37** | **32** | **69** |
| **8. Did you ever check the instructions that come with the package insert of analgesic for self-treatment?** | | | |
| Yes sometimes | **54** | **43** | **97** |
| Yes always | **35** | **44** | **79** |
| Never | **11** | **13** | **24** |

Table 4: Practice towards self-medication among medical and nursing students (n=100+100), where the medicine group reported higher self-medication (66%). Antibiotic use was widespread in both groups. Analgesics (131 participants) were commonly used, with varying attention to package instructions, highlighting differences in self-medication habits and safety practices between the groups.Because of practice, the question was asked of both nursing and medical students whether they have taken self-medication. Medical students significantly had more experience with self-medication (66%) than nursing students (38%) (Table 4). Based on the research, medical and nursing students are not completely dependent on self-medication; they take it only in unfavorable situations, or sometimes they cannot consult the doctors. The ratio of medical students (39%)who always consult doctors is higher than that of nursing students(25%).94% of medical and 77% of nursing students have taken antibiotics without a doctor's advice. Both student groups consider antibiotics as a self-

medication (Table 4).Out of 100 medical students, only 33% have adequate knowledge to check the instructions for the package insert of antibiotics for self-treatment, whereas nursing students have 57%. More than 8% of students will never check the instructions. 35% of nursing students had experienced adverse drug reactions during self-medication. Almost all the medical and nursing students highly preferred analgesics as self-medication drugs when compared to other drugs, around 68%. Most students will check the instructions with the package insert of analgesic for self-treatment (Table 4).

## 4. DISCUSSION

Self-medication is a major burden in developing nations. It can be convenient for students to receive quick relief from minor illnesses and save time and money. On the other hand, there are several health risks associated with self-medication, including masking symptoms, drug interactions, dependency, tolerance, and legal and ethical issues. Sometimes, the fatality of the subject was also inevitable. In recent days, self-medication is a common treatment modality, especially for medical and nursing students who are all connected with the health care system. The confidence level of students increased with the development of technology and social media. Previous research in Puducherry showed the prevalence as high as 71%. A study in urban Delhi showed that the prevalence of self-medication among those who had suffered some illness episode was 31.3%[12,13]. Most students have positive attitudes and good knowledge about self-medication. Students are found to conduct self-medication at a high rate. The primary causes of self-medication were lack of time and prior medical knowledge. The results overrule the prevalence of over-the-center (OTC) medication, self-medication among medical and health science students, and the necessity of focused educational initiatives aimed at improving non-prescription drug awareness and responsible usage within this population.The study provides a thorough insight into the factors influencing students' actions because it focuses on knowledge and attitude regarding over-the-counter medications.Almost all nursing and medical students know the meaning of antibiotics. There is no significant variation between them ($p < 0.05$) (Table 2). What are antibiotics used for viral or bacterial infection, and what are other causesShitind Let al. conducted the study; when asked if they had ever practiced SM, most participants had no significant difference between medical (92.3%) and nonmedical (91.6%) students. However, non-medical students (59.2%) self-medicated with antibiotics (SMA) more frequently than medical students (49.3%). Our study also gave similar results[14-16].Sinha et al mentioned in their scientific research several driving factors for self-medication. This included self-confidence and a well-informed awareness about medicines (62.3% among medical students and 15.3% among nursing students), time constraints preventing doctor visits, reluctance to incur expenses related to medical consultations and laboratory tests, and the desire for prompt relief [17].Our study shows similar concepts of the reason for self-medication, including confidence in your knowledge about medicines, economical, quick relief, no need to visit the doctor for minor illness, ease, and convenience; medical students and nursing students show almost similar results, no significant variation ($p > 0.56$) which is controversial to the previous research may be nursing students well improved as compared to medical students with various sources of knowledge (figure 1).The nursing students are less knowledgeable when compared to the medical students to understand the meaning of infection ($p<0.05$). Medical students are well-established to understand about the antibiotics ($p<0.05$) (Table 2).The present study identified that Nurse exhibited adequate knowledge regarding the adverse effect of antibiotic resistance($p>0.05$). Nourhan et al. conducted a similar study, and they observed that Nurse with less knowledge about antibiotic and analgesic adverse drug reactions, which is controversial to our research and may indicate the improvement of nursing students in this subject[18,19](Table 2). Based on our research, when we asked questions regarding the supportive reason for self-medication, most nursing students took self-medication based on classroom teaching compared to medical students. But, the reason for self-medication in medical students was based on the previous prescription. Almost all medical and nursing students have similar access to information about self-medication ($p<0.05$) (Table 3). Syahirah et al, recently conducted a research study that revealed that nursing students gain more knowledge through advertisements and textbooks[20,21]. The major source of purchasing the drug was from the pharmacy instead of using the expired or unlabeled drugs from the house. Medical students were found to be highly exposed to self-medications for the symptoms of common cold, sore throat, and headache when compared to nursing students. Also, it was found that medical parents were one of the additional reasons for supporting self-medication. Razan Khalid Alduraibi et. al conducted a similar study, concluding that most of the participants taking self-medication for flu-like symptoms donot require a medical prescription to receive the drug from the pharmacy favors our study[22,23].Drugs of choice for self-medication are analgesics for fibromyalgia and simple headaches and antimicrobials for the common cold, which was more prevalent among nursing students when compared to medical students ($p<0.05$). Unfortunately, the nursing students were unaware that the unsupervised frequent use of analgesics could lead to systemic side effects like renal as well as antimicrobials, leading to resistance, tolerance, and followed by therapeutic failure, which indirectly reflects in the increase of medical and economic burden. El eff nz et al, concluded that antibiotics followed by analgesics are the major group of drugs utilized by the students[24-26]. Even though the study was conducted a decade back, it favors our study, which shows the above-mentioned drugs were commonly used, which indicates repeated awareness about the danger of self-medication among medical and nursing students, which is one of the most informative parts of our study.Our study found that 66% of the medical students had repeated exposure to self-medications, especially analgesics, and antibiotics when compared to the nursing students ($p<0.05$) (Table 4). Even though medical students are highly knowledgeable and aware of the adverse effects and complications of self-medication by visiting medical practitioners, unfortunately, they have more self-confidence in self-medication using the previous prescription. On a final note, nursing students experienced adverse drug reactions when using antibiotics when compared to medical students. Such finding suggests that taking adequate time to read the package instructions is required to minimize the burden of complications related to self-medication.

## 5. CONCLUSION

The present study has found that there is a high prevalence of using self-medication, especially among medical students.

Also, it has been found that there is a high utilization of antibiotics which is alarming for the concern of antibiotic resistance and economic burden. However, even after a decade, we found that there is still a high incidence of self-medication among medical students. This is the ideal time to create adequate awareness among the students through subject-wise teaching, especially pharmacology, conducting CME, workshops, and conferences with experts. Even as per the NMC's recent guidelines, adverse drug reaction (ADR) monitoring and reporting is an important part of the medical curriculum, and the students must strictly follow . This study paves the way as an eye opener among medical students to come forward to understand and reduce the practice of self-medication.

## 6. AUTHORS CONTRIBUTION STATEMENT

SmitaKar contributed to the study's conceptualization, study design, and manuscript drafting. S. Narayanasamy provided supervision, coordinated the research process, and reviewed the manuscript critically for intellectual content. Vrinda Singh was involved in data collection, statistical analysis, and manuscript writing. Akshata Sharma contributed to the literature review, data interpretation, and manuscript editing. T. Vijayasanthi played a significant role in study methodology and data validation. B.R. Asokan assisted in data acquisition and ensured adherence to ethical guidelines. T. VivekAnand contributed to data analysis and graphical representation of results. M. Muthumeenatchi provided technical support, critically reviewed the manuscript, and assisted in finalizing the submission.All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

## 7. CONFLICT OF INTEREST

Conflict of interest declared none.

## 8. REFERENCES


1. Kumar R, Goyal A, Padhy BM, Gupta YK. Self-medication practice and factors influencing it among medical and paramedical students in India: A two-period comparative cross-sectional study. J Nat SciBiol Med. 2016;7(2):143-148.
2. Raut P, Vamsi D, Rao BV. Evaluation of the knowledge, attitude, and practice of self-medication among second year B.Sc nursing students. J Drug DelivTher. 2014;4(3):150-153.
3. Sarahroodi S, Jamshid AM, Sawalha AF, Mikaili P, Safaeian L. Pattern of self-medication with analgesics among Iranian University students in central Iran. J Fam Community Med. 2012;19(2):125-129.
4. Soroush A, Abdi A, Andayeshgar B, Vahdat A, Khatony A. Exploring the perceived factors that affect self-medication among nursing students: A qualitative study. BMC Nurs. 2018;17(35):1-7.
5. Gyawali S, Shankar PR, Poudel PP, Saha A. Knowledge, attitude, and practice of self-medication among basic science undergraduate medical students in a medical school in Western Nepal. J ClinDiagn Res. 2015;9(12):17-22.
6. Pal B, Murti K, Kumar A, Gupta, Choudhury U, Rastogi M, Pandey H, Lal CS, Krishna Pandey K, Das P. Self-medication with antibiotics among medical and pharmacy students in North India. Curr Res Med. 2016;7(2):7-12.
7. Saha A, Zam D, Khan AA, Dutta P, Mannan A, Alam N. Prevalence and determinants of self-medication practices among general population: A cross-sectional study in Thimphu, Bhutan, and Chattogram, Bangladesh. J Public Health Res. 2023;12(1):1-10.
8. Jain S, Thakur A, Peepre K, Kaushal S, Kasar P. Prevalence of self-medication practices among the residents of urban slums located near govt. medical college, Jabalpur. Int J Community Med Public Health. 2018 Feb;5(2):811-817.
9. Sontakke SD, Bajait CS, Pimpalkhute SA, Jaiswal KM, Jaiswal SR. Comparative study of evaluation of self-medication practices in first and third year medical students. Int J Biol Med Res. 2011;2:561-564.
10. Patel PM, Prajapati AK, Ganguly B, Gajjar BM. Study on impact of pharmacology teaching on knowledge, attitude, and practice on self-medication among medical students. Int J Med Sci Public Health. 2013;2:181-186.
11. Poudel A, Singh S, Shrestha S, Pradhan N, Thapa N. Study of self-medication among first- and seventh-semester medical and dental undergraduate students of tertiary care teaching hospital in Nepal: A descriptive cross-sectional study. JNMA J Nepal Med Assoc. 2020;58(230):711-716. doi:10.31729/jnma.5454.
12. Selvaraj K, Kumar SG, Ramalingam A. Prevalence of self-medication practices and its associated factors in urban Puducherry, India. PerspectClin Res. 2014 Jan;5(1):32-36.
13. Deshpande SG, Tiwari R. Self-medication—a growing concern. *Indian J Med Sci*. 1997;51:93-96. Available from: https://europepmc.org/article/med/9355716
14. Shitindi L, Issa O, Poyongo BP, Horumpende PG, Kagashe GA, Sangeda RZ. Comparison of knowledge, attitude, practice and predictors of self-medication with antibiotics among medical and non-medical students in Tanzania. Front Pharmacol. 2024;14:1301561.
15. Chaudhary A, Arora S, Bansal A, et al. Self-medication with antibiotics: An element increasing resistance. PubMed Central. 2022. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC9704507/
16. Sachdev C, Anjankar A, Agrawal J. Self-medication with antibiotics: An element increasing resistance. Cureus. 2022 Oct 29;14(10). doi: 10.7759/cureus.30844. Available from: https://pubmed.ncbi.nlm.nih.gov/36451647/
17. Sinha RR, Ahmad I, Agrawal R, Datta B. Exploring self-medication practices and patterns among medical and nursing students: A cross-sectional study. J Pharm Technol. ChemPharmaceut Sci. 2023;30(18):23antibiotic
18. Emera NM, Iman A, Baraky, Abbassi MM, Sabry NA. Knowledge, attitude, and practice towards antibiotics use among medical sector final year students in Egypt. e Educator. 2024 Jul 3. doi:10.1007/s40670-024-02117-6.
19. Fernández-Domínguez JC, de la Cruz-Sánchez E, García-Sánchez J, et al. Self-medication of drugs in nursing students from Castile and Leon (Spain).

PubMed Central. 2020 Jul 17. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7914606/
20. Misli SB, Ahmad A, Yusof P, Masri AM, Halimaton T, Kunjukunju A. Knowledge, attitude, and practice of undergraduate nursing students regarding self-medication. Int J Nurs Health Sci. 2021;7(2):1-7. doi:10.14445/24547484/ijnhs-v7i2p101.
21. Self-medication: The hidden danger. Indian J Pharm Pract. 2021;14(3):185-188. Available from: https://www.ijpp.org.in/journal-article-file/5431
22. Alduraibi RK, Altowayan WM. A cross-sectional survey: Knowledge, attitudes, and practices of self-medication in medical and pharmacy students. BMC Health Serv Res. 2022;22(1). doi:10.1186/s12913-022-07704-0.
23. Mawani M, Iqbal Z, Hussain A, et al. Prevalence, pattern, and reasons for self-medication: A community-based cross-sectional study from Central India. PubMed Central. 2023 Feb 24. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC9936784/
24. Ezz NF, Ez-Elarab HS. Knowledge, attitude and practice of medical students towards self medication at Ain Shams University, Egypt. PubMed. 2011;52(4):196-200. Available from: https://pubmed.ncbi.nlm.nih.gov/22442925/
25. Ruiz ME. Risks of self-medication practices. Curr Drug Saf. 2010 Oct;5(4):315-323. doi: 10.2174/157488610792245966. Available from: https://pubmed.ncbi.nlm.nih.gov/20615179/
26. Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self-medication. Drug Saf. 2001;24(14):1027-1037. doi: 10.2165/00002018-200124140-00002. Available from: https://pubmed.ncbi.nlm.nih.gov/11735659/