Self-medication with antibiotics among dental undergraduate students

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INTRODUCTION

Self-medication with antibiotics is defined as the acquisition of antibiotics and self-administering them with the aim of treating a perceived infection. This is very common in India and other developing countries. Responsible self-medication can help prevent and treat minor ailments that do not require specialized medical consultation and reduce the pressure on medical services. These benefits translate into better productivity as well as cost savings to health-care budget, especially in less privileged countries with limited health-care resources. However, self-medication can easily slip toward inadequate practice such as self-medication of prescription drugs promoting drug misuse. It can lead to antibiotic resistance and also be fatal sometimes.

ABSTRACT

Background: Dental students are future prescribers of drugs and so it is important to find out how rational their drug use is. They differ from the general population because of the existing knowledge of common medicine prescribed and knowledge of pharmacology taught as a subject in the 2nd year of undergraduate program; there are high chances that the dental students may indulge in self-medication practices.

Objective: The aim of the study was to evaluate the practices of self-medicated antibiotics among undergraduate students of our institution.

Materials and Methods: The study was conducted during the academic year January 2018 in Saveetha Dental College, Saveetha University, Chennai. A validated structured questionnaire of 14 questions to assess the students’ knowledge levels, attitude, awareness, and practices regarding self-medication with antibiotics was distributed among 100 students randomly belonging to the 3rd year and intern students of Saveetha Dental College and Hospital. The data extracted were tabulated, statistically analyzed, and results obtained. Results were calculated on the basis of frequencies and percentages using SPSS.

Results: About 45% of students used the same prescription of the family members in obtaining antibiotics. 63% of students were not aware of the term antibiotic resistance. Only 26% of participants were able to correctly identify that antibiotics treat bacterial infection. 75% of students replied that an antibiotic will always be useful for the same infection in future. 68% of respondents were confident enough in treating themselves with self-medicated antibiotics for their illness.

Conclusion: According to our study, compared to the 3rd year students, self-medication in interns was highly prevalent. Hence, it is important to increase awareness and promote safe practice on self-medication with antibiotics to prevent the emergence of antibiotic resistance and other untoward effects.

KEY WORDS: Antibiotic resistance, Antibiotics, Dental students, Knowledge, Practice, Self-medication

It has been identified in several European countries that most antibiotics are consumed by outpatients and people without prescriptions obtained directly from pharmacies or leftover from previous courses of treatment. A study done in India and southeast Asian region also reveals that pharmacists and pharmacy attendants play an important role in fostering self-medication among the public.

Dental students are future prescribers of drugs and so it is important to find out how rational their drug use is. They differ from the general population because of the existing knowledge of common medicine prescribed and knowledge of pharmacology taught as a subject in the 2nd year of undergraduate dental program; there are high chances that the dental students may indulge in self-medication practices. Hence, the question arises whether dental students have a self-medication habit for common ailments. Thus, the aim of the study was to evaluate the practices of self-medicated antibiotics among undergraduate students of our institution.
and compare features of practice of self-medicated antibiotics among the 3rd year undergraduate dental students and BDS students pursuing internship (interns) of Saveetha Dental College.

MATERIALS AND METHODS

A cross-sectional study was conducted randomly among the undergraduate dental students of Saveetha Dental College, Saveetha University, Chennai, during the academic year in January 2018. A total of 100 students, 50 3rd year and 50 intern students who were willing to participate were included in the study after obtaining informed consent and ethical committee clearance. All students in the study voluntarily completed a questionnaire consisting of 14 close-ended questions.

The questionnaire was selected from previous research on relevant topic and few amendments in the questionnaire were made with the help of professionals. The questionnaire consisted of 14 structured questions to assess the students’ knowledge levels, attitude, awareness, and practices regarding self-medication with antibiotics. The questionnaire included the information about student’s age, gender, year of study, conditions treated with non-prescribed antibiotics, reasons for self-medication, guiding source for self-medication, adverse reactions with self-medication of antibiotics, and knowledge on antibiotic resistance. The structured questionnaire was formatted in English.

Data collected and statistical analyses for knowledge, attitude, and practice descriptive statistics were computed and results obtained. Data management and statistical analysis were performed using the statistical software SPSS version 20.0. Frequencies and percentages were obtained for categorical data.

RESULTS

The sample of 100 students comprised 60 female subjects (60%) and 40 male subjects (40%) in the age group of 19–24 years [Table 1]. Of the total group investigated 71% of students were aware of the disease conditions treated with non-prescription antibiotics. Among students who were aware of non-prescription antibiotics, the main reason for self-medication with antibiotics was lack of time and easy availability of antibiotics. Only 19% of students chose pharmacists as the guiding source for self-medication with antibiotics, the guiding source for self-medication with antibiotics was due to previous prescription, and 27% from others which include parents and friends [Figure 1]. 45% of students used the same prescription of the family members in obtaining antibiotics and 65% checked the expiry date of their antibiotics before consuming [Figure 2].

54% of students said that they experienced adverse reactions because of self-medication with antibiotics [Figure 3]. When asked about the common antibiotics taken as self-medication, 45% of students answered amoxicillin, while 55% replied erythromycin and metronidazole. However, only 26% of participants were able to correctly identify that antibiotics treat bacterial infection [Figure 4]. 63% of students were not aware of the term antibiotic resistance. 74% replied that antibiotic resistance is promoted by not completing the full course of antibiotics and 42% of students believed that antibiotic resistance is promoted by self-medication with antibiotics. 55% of participants answered that antibiotic resistance is promoted using the antibiotic when not needed and 58% of students agreed that long-term use of antibiotic may cause allergy and lead to death.
42% of respondents disagreed that viral fever should always be treated with antibiotics. On the other hand, 75% of students replied that an antibiotic will always be useful for the same infection in future. 41% of participants answered that they were confident in diagnosing their illness without the guide of the physician. 68% of students were confident enough in treating themselves with self-medicated antibiotics for their illness [Figure 5].

**DISCUSSION**

In our study, more than one-third of the dental students gave a positive history of self-medication with antibiotics over the past 1 year. Various studies conducted among different student’s populations revealed dissimilar results. The prevalence of self-medication with antibiotics was 70% among tertiary level students in Accra (Ghana).44.1% of the respondents started self-medication when they became ill in a study done on university students.9 The prevalence of self-medication among the medical students in Coastal South India was very high (78.6%).10 A study done in eastern China revealed that 47.9% of the university students including medical students had lifetime history of self-medication with antibiotics.11 Self-medication was reported by 79.9% medical students in a study done in Serbia.12 Similarly, a large proportion (63.9%) of undergraduate medical students reported self-medication with antibiotics in a study done in India.13 Self-medication with antibiotics is a practice among non-medical students also highlighted by a study done in Pakistan in which 47.6% of non-medical students reported of taking antibiotics themselves.14 Similarly, self-medication with antibiotics among non-medical university students in Punjab, Pakistan was 58.3%.15

The prevalence of self-medication with antibiotics among Nigerian dental students was 53.5%,16 dental students in Pune city was 40.9%,17 undergraduate dental students of tertiary care teaching dental hospital in South India was 62.5%,18 dental students of Kathmandu was 35%,19 dental students in Tumkur was 100%,20 and dental students in North India was 74%.21

The reason for self-medication in our study was knowledge regarding its use, cost-effectiveness, lack of time, and easy availability. Mild illness, previous experience of treating similar illness, non-availability of physician, lack of time, minor ailments, consultation from others, saved time, and presence of knowledge regarding antibiotics were the reasons for self-medication with antibiotics from other studies.14,22-24

In our study, the most common medical complaint for self-medication with antibiotics was fever followed by sore throat, cough, and diarrhea. Our study results were in accordance to other studies.16,23 While a study done in Portugal, pharmacist agreed that dispensing of unprescribed antibiotics was high in the cases of dental diseases followed by urinary tract infections.25
Amoxicillin was the most commonly used antibiotics in the current study. Other studies also yielded similar results regarding commonly used antibiotics.\textsuperscript{[16,26,27]} The use of amoxicillin can be due to the fact that it is easily available, cheap, and relatively has broad-spectrum coverage. Adverse reactions to antibiotics were experienced by 54\% of students in the present study which was high compared to a study conducted in Nepal Medical College in Kathmandu where adverse reaction was experienced only by 20.4\% of dental students.\textsuperscript{[19]}

When the 3\textsuperscript{rd} year students were compared with interns, the results of our study revealed that interns were more likely to be involved in self-medication behavior than the 3\textsuperscript{rd} year students. Other studies also showed that the prevalence of self-medication with antibiotics was more in senior students than in juniors.\textsuperscript{[19,21,28,29]} The main reason for this could be due to the fact that interns believe that they have enough knowledge to self-diagnose and self-medicate themselves.

In our study, more than two-third (68\%) of students felt confident in successfully treating common diseases with antibiotics by themselves. This could be due to increased clinical exposure and confidence they gained by treating dental patients, which is similar to the results obtained from other studies.\textsuperscript{[20,28,29]} This highlights the need to strengthen the current undergraduate dental curriculum to make future health professionals vigilant regarding antibiotic prescription and self-medication practices, thereby preventing irrational use of antibiotics.

**CONCLUSION**

According to our study, compared to the 3\textsuperscript{rd} year student, self-medication in interns was highly prevalent. The knowledge of pharmacology probably has built up confidence in self-diagnosis and self-management, leading the interns to self-prescribe irrationally. Alternatively, drug-related knowledge and easy access might have encouraged their self-medication with antibiotics practice. Thus, from this study, we can say that it is important increase awareness and promote safe practice on self-medication with antibiotics to prevent the emergence of antibiotic resistance and other untoward effects.

**REFERENCES**


Questionnaire

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Age: Sex: Year of study:

1. What are the disease conditions treated with non-prescription antibiotics?
   a) Sore throat
   b) Fever
   c) Cough
   d) Common cold
   e) Dental infection
   f) Diarrhea
   g) Others (e.g., skin infection)

2. What were your reasons for self-medication with antibiotics?
   a) Similar experience
   b) Good knowledge about antibiotics
   c) Lack of time
   d) Easy availability of antibiotics
   e) Other (e.g., high cost of private consultation)

3. What was the guiding source for you for self-medication with antibiotics?
   a) Previous prescription
   b) Pharmacist
   c) Parents
   d) Friends
   e) Self

4. Do you use the same prescription of your family members for obtaining antibiotics?
   a) Yes
   b) No

5. Do you check the expiry date of your antibiotics before consuming?
   a) Yes
   b) No

6. Have you ever experienced any adverse reactions because of self-medication with antibiotics?
   a) Yes
   b) No

7. Do you believe that antibiotic resistance is promoted by not completing the full course of antibiotics?
   a) Yes
   b) No

8. Antibiotic resistance is promoted by self-medication with antibiotics?
   a) Yes
   b) No

9. Do you think antibiotic resistance is promoted using the antibiotic when not needed?
   a) Yes
   b) No

10. Use of long-term antibiotic may cause allergy and lead to death.
   a) Yes
   b) No

11. Viral fever should always be treated with antibiotics.
   a) Yes
   b) No

12. An antibiotic will always be useful for the same infection in the future.
   a) Yes
   b) No

13. As a student do you feel confident to diagnose your own underlying condition, you are suffering without a guide of a physician?
   a) Yes
   b) No

14. As a student do you feel confident to treat yourself with antibiotics from the condition you suffer?
   a) Yes
   b) No