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Self-medication with antibiotics among undergraduate nursing students of a government medical college in Eastern India

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Abstract

Antibiotics serve very useful therapeutic purpose in eradicating pathogens. Unfortunately excessive and inappropriate use of antibiotics results in antibiotic resistance. The consequences of inappropriate self-medication with antibiotics among healthcare professionals have severe implications which might be legal issues, ethical issues, negative impacts on patients and poor quality of health care delivery. The present study was conducted on self-medication by undergraduate nursing students in a government medical college of West Bengal, India. A pre designed questionnaire was used to collect the relevant informations pertaining to the study variables. Among the participants 54.2% had self-medicated in the last six months. The antibiotics most commonly used are metronidazole (67.4%), azithromycin (32.6%) and norfloxacin (16.8%). Regarding the source of the antibiotics used for self-medication 41.6% participants went for leftover medicines at home, 34.8% participants obtained the drug from community pharmacies or drug stores. Hospital pharmacies and medicine samples were the source of the drugs for 19.2% and 4.4% participants respectively for this purpose. This study has shown that self-medication with antibiotics is common among undergraduate nursing students. There is a need for a rigorous mass enlightenment campaign to educate the population, including the health care professionals about the disadvantages and possible complications of antibiotic self-medication.
Keywords: Questionnaire; Self-medication; Antibiotics.

1. Introduction

Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a once prescribed drug for chronic or recurrent disease or symptoms [1,2]. 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 [3].

It is now evident that self-medication is widely practiced in both developing [1,4-8], as well as developed countries [9-15]. India is also experiencing this problem of inappropriate use of self-medications in significant numbers [16].

Antibiotics serve very useful therapeutic purpose in eradicating pathogens. Unfortunately excessive and inappropriate use of antibiotics results in antibiotic resistance which is a rapidly increasing global problem with a strong impact on morbidity and mortality [17-19].

Although self-medication with antibiotics (SMA) can potentially shorten the period of illness, reducing both the length of symptoms and period of infectivity; it is a well-recognized form of inappropriate drug use as it comprises the use of antibiotics in wrong indications, such as for common cold or upper respiratory viral infections, a discrepancy between the drug's antimicrobial spectrum and the agents causing a disease, inadequate dosing and duration of treatment [20]. Problems created by indiscriminate and non judicious use of antibiotics have escalated the emergence of resistant strains of pathogenic organisms, such as methicillin resistant staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE), multi-drug resistant tuberculosis (MDR TB), penicillin-resistant pneumococci, multidrug resistant pseudomonas aeruginosa, extended spectrum beta lactamase (ESBL) producing enterococci, and clostridium difficile [21-24].

SMA among students, termed 'a silent epidemic', is a global problem [25]. The consequences of inappropriate self-medication among healthcare professionals have severe implications which might be legal issues, ethical issues, negative impacts on patient and poor quality of health care delivery [26]. Therefore, the present study was conducted on self-medication by undergraduate nursing students in a government medical college of West Bengal, India.

1.1 Objectives

a) To estimate the prevalence of antibiotics used as self-medication among the undergraduate nursing students.
b) To evaluate the characteristics (e.g.-the clinical conditions treated, type of antibiotics used) of self-medication with antibiotics among them.

2. Materials and Methods

2.1 Study Design

This was a cross sectional, anonymous, descriptive study based upon six months illness recall and was conducted for a period of six months in the Department of Pharmacology of a Govt. Medical College. Two respective batches of BSc nursing course students studying Pharmacology were selected for this study. The participants were explained about the nature and purpose of the study and written consent for participation in the study was obtained. A pre designed questionnaire was used to collect the relevant informations pertaining to the study variables.

2.2 Sampling

Each batch has 100 students. The questions were administered to all the 180 participants (86 and 94 students who were present on the day of data collection) of which 16 answered either incompletely or did not answered. Hence, data of 164 participants were taken into consideration.

2.3 Questionnaire

The questionnaire contained questions pertaining to the socio-demographic characteristics (like age, sex and personal habits), patterns of self – medication with antibiotics (e.g. type of antibiotics used, source of the antibiotics, health condition that lead to self-medication etc.).

Data were collected and put into the excel sheet and the collected data were analyzed with graph pad.

3. Results

As in this state the BSc. nursing course can only be studied by females, all our participants were female. As mentioned earlier a total of 164 respondents participated in the study. Participants aged between 19-25 years. Variation of age with antibiotics usage is shown in Table-1. Among them 54.2% (n=89) students had self-medicated in the last six months (Fig. 1).

Table 1:-Distribution of age among the study population

Age (in years)	No. of participants	No. of participants used SMA
19	5	1
20	9	6
21	12	10
22	25	9
23	56	33
24	40	21
25	17	9

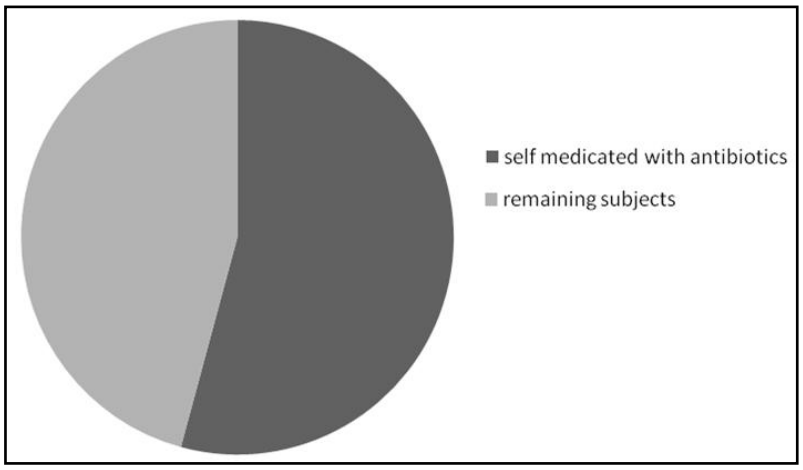

Fig. 1:-Prevalence of self medication with antibiotics (N=164)

As the participated students were allowed to fill multiple options in questionnaire, response percentage is taken where 89 is considered as maximum possible response in a particular option. The antibiotics most commonly used being

metronidazole (67.4%), azithromycin (32.6%) and norfloxacin (16.8%) (Fig. 2). Amoxicillin, ofloxacin, ornidazole, and erythromycin are also used by some participants.

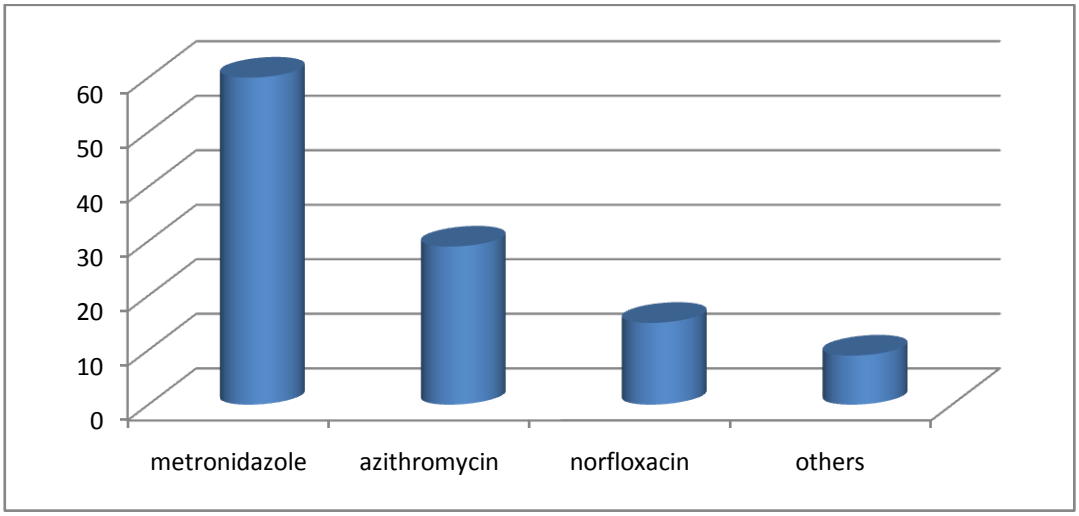

Fig. 2:-According to types of antibiotics used (along the vertical axis no. of responses are depicted; n=89)

The most common indications for self-medication with antibiotics included common-cold, cough and sore throat, diarrhoea, fever, burning sensation on micturation and skin infections.

Regarding the source of the antibiotics used for self-medication 37 participants (41.6%) went for leftover medicines at home, 31 participants (34.8%) obtained the drug from community pharmacies or drug stores. Hospital pharmacies and medicine samples were the source of the drugs for 17 participants (19.2%) and 4 participants (4.4%) respectively for this purpose (Fig. 3).

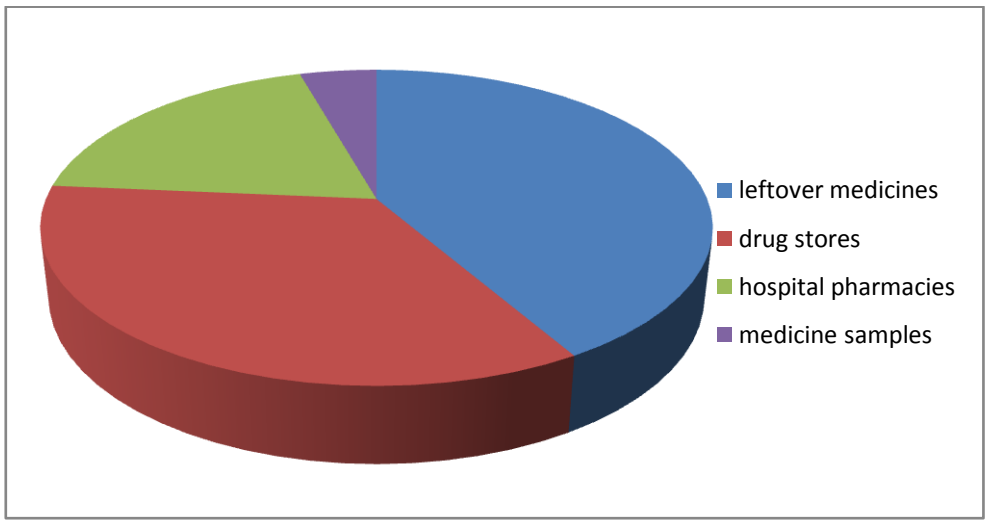

Fig. 3:-Source of the antibiotics

4. Discussion

SMA constitute a major form of irrational use of medicine that can cause significant adverse effects such as drug toxicity, the lack of therapeutic effect, increase in treatment cost, prolonged hospitalization, the emergence of bacterial resistance to antimicrobial agents, progression of the disease and morbidity. The students have an easy access to information about drugs from drug indices, medical literature and colleagues. As all of our study population were females and belonged to same educational level, antibiotic usage variation according to gender and educational qualification could not be analysed by our study. Our study shows a high prevalence of antibiotic usage among nursing students. 54.2% (n=89) students reported use of antibiotics as self-medication at least once in the preceding 6 months. In concordance to our study, students reported a high rate of SMA in other studies [27-32].

The most common symptoms that led students to practice self-medication were common cold, sore throat, cough with fever and diarrhea. Acute respiratory tract infections (ARIs) account for a large share of community antibiotic use in many countries [27-29]. Antibiotic treatment is only occasionally indicated and is not necessary in viral infections. Improper selection and sub-optimal duration of treatment due to earlier discontinuation of antibiotics when symptoms improve compound the problem. Emergence of multi-drug resistant strains further limits the therapeutic options for clinicians.

Macrolides and quinolones were the most common antibiotics used for self-medication in other studies [28]. For treatment of gastrointestinal infections, an Indian study found metronidazole, enteroquinol and norfloxacin-tinidazole to be the most commonly self-medicated drugs [33] which is also similar to our study.

Majority of the students obtained the antibiotics from the leftover stock at home or drug stores. Over the counter (OTC) availability of antibiotics invariably promotes wider sales and over usage in the community.

5. Limitations in this study

The main limitation of this study is that the data collected were self-reported which may introduce some bias in the behavioural pattern of the respondents. The study refers to any previous use of self-medication with antibiotics by the participants (retrospective study) which might not reflect the current or future trends in SMA. Since the study was done on a small sample of a specific region, results cannot be generalized. The reported data may represent an underestimation of the problem as students may choose not to reveal such data.

6. Conclusion

This study has shown that self-medication with antibiotics is common among undergraduate nursing students. The knowledge of pharmacology probably has led to a false sense of confidence in self-diagnosis and self-management leading them to self-prescribe irrationally. Alternatively, drug-related knowledge and easy access might have encouraged their SMA practice. There is a need for a review of educational programs especially the teaching of clinical pharmacology to include topics on self- medication and judicious use of medicines. At the policy-making level, there is an urgent need to legislate and implement laws restricting access to antibiotics in India. Most importantly, there is a need for a rigorous mass enlightenment campaign to educate the population, including the health care professionals about the disadvantages and possible complications of antibiotic self-medication.

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