CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187
https://doi.org/10.5281/zenodo.7024842

Available online at: http://www.iajps.com *Research Article*

SELF MEDICATION: RISKS, BENEFITS, THE ROLE OF PHARMACIST AND SURVEY ON PRACTICE OF SELF MEDICATION WITH ANTIBIOTICS

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Article Received: July 2022 **Accepted:** July 2022 **Published: August** 2022

Abstract:

Background: *Development of drug resistance caused by self-medication with antibiotics can be seen as one of the growing global threats. Self-medication is defined as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms. The purpose of this study is to assess the practice of self-medication with antibiotics and associated factors among the Pharmacy background persons and non-pharmacy graduate persons.*

Aim*: The aim of this study was to assess prevalence and comparative practices of pharmacy students and other graduates in Amravati, Maharashtra regarding self-medication with antibiotics.*

Methods: *Survey questionnaire was used to collect data from pharmacy college students, staff (consider as Group A) and who have knowledge about antibiotics and from other graduates (non-pharmacy- Group B) using a convenient.*

Findings*: Survey was collected from 60(25 males & 35 females) pharmacy background candidates, and 40 (26 males & 14 females) non pharmacy candidates. both groups, without prior knowledge not practicing self-medication.30 % of Group A and 70 % of group B practicing self-medication with antibiotics. 32 % of group A and 58 % of group B are saying that self medication with antibiotics is acceptable practice. 75 % of both group A& B given the response for the reason for self-medication with antibiotics is time saving and secondly the reason is cost saving for group A (27%) and convenience is the second reason for group B (30 %).35 % of group A and 53 % of group B believing that they can treat common infectious diseases by self-medication.28 % of group A and 38 % of Group B were changing the dosage of Antibiotics deliberately some times during the course of self-treatment and most of them given the reason is for improving conditions. among group A 63% & 33 % and group B 53% &38 % are getting antibiotics from self-treatment from RMP and community pharmacies respectively. 28 % of A group and 35 % of B group switch antibiotics during the course of self-treatment. 50% of A group are switching the antibiotics as the former antibiotic did not works and 60 % of group are switching to another antibiotic to reduce the adverse effects.*

KEYWORDS*: self-medication, antibiotics, practices, groups, OTC*

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Please cite this article in press Amol V Sawale et al, ***Self-Medication: Risks, Benefits, The Role Of Pharmacist And Survey On Practice Of Self Medication With Antibiotics****., Indo Am. J. P. Sci, 2022; 09(8).*

1. INTRODUCTION:

SELF-MEDICATION:

Self-medication or self-treatment is the treatment of self-diagnosed diseases, disorders or symptoms. In other words, it can be defined as intermittent or continued use of a medication that is prescribed by physician for chronic or recurrent symptoms. Medicines for self-medication are often called Over the Counter (OTC) drug, which are available without a Doctor's prescription through pharmacies, mostly in the less developed countries. Self-medication is different from country to country, and might be affected by nutrition, lifestyle, environmental factors, socioeconomic factors and education, law, availability of drugs and exposure to advertisements. Moreover, self-medication does not mean the use of modern medicines but also of herbs. This type of habit is common from long past time.It is clear/common not only in developing countries but also in under developed countries. However, WHO is making issues saying that self-medication should always be taken in the right way and it must be controlled. [1, 2, 3] So Pharmacist can play a key role in giving advice to consumers on the proper and safe use of medicinal products intended for self-medication.[4]

REASONS OF SELF MEDICATION [5]

A number of reasons could be enumerated for self-medication like Urge of self-care, Lack of time, Lack of health services, Financial, constraints, Ignorance, feeling of sympathy toward family members in sickness, Misbelieves, Extensive advertisement, Availability of drugs in other than drug shops

KINDS OF SELF MEDICATION

There are several kinds of self-medications which vary from culture to culture or nation to nation. Common people, in most parts of the world have strong believes in their regional traditional medicines, such as herbal medicines, acupuncture, Ayurveda and other traditional remedies which is often used as self-medication for their diseases. Although, this kind of self-medication is legal and there is no prohibition for pharmacists to give the requested drugs but governments should aware their people about effects, side effects, cautions and interactions of these drugs by mass medias such as radio, TV or newsletter and internet.[6,7]

Table 1: List of drugs used for self-medication[8]

No.	CATEGORY	Drugs
1	Cough & Cold	Aminophylline, Camphor, Chlorpheniramine maleate, codeine phosphate, Dextromethorphan, Ephedrine, Eucalyptus oil, Menthol, Xylometazoline Hcl.
2.	Analgesics	Acetaminophen, Ibuprofen, Aspirin, Camphor.
3.	Antipyretics	paracetamol
4	Anti-fungal	Clotrimazole.
5	Antibiotics	Ciprofloxacin, Norfloxacin, Amoxicillin, Cefadroxil
6	Anti-microbial	Povidone iodine, Thimerosal.
7	Vitamin supplements	Vitamin A, Vitamin E, Vitamin B complex.
8	Others	Dabur Chyawanprash, Hajmola

BENEFITS OF SELF MEDICATION [7, 8, 9]

Expected health benefit from self-medication depends on perceived effectiveness of self-medication. In a world of scarce government and in many countries scarce individual resources, responsible self-medication should be a cornerstone of healthcare provision and health policy. Responsible self-medication can:

1. Help to prevent and treat symptoms and ailments that do not require a doctor.
2. Reduce the pressure on medical services where health care personnel are insufficient.
3. Increase the availability of health care to populations living in rural or remote areas.
4. Enable patients to control their own chronic conditions.
5. Reduce the burden of governments due to health expenditure linked to the treatment of minor health conditions.

Appropriate self-medication can cure diseases, saving time and money which would be spent on visiting doctors and even it can sometimes save the patient's life in acute conditions.

RISKS OF SELF MEDICATION[7, 8,9,10]

Self-medication is associated with risks such as misdiagnosis, use of excessive drug dosage, prolonged duration of use, drug interactions and polypharmacy. Inappropriate self-medication can create a lot of problems for patients and even society. For example, self-medication with antibiotics has potential to produce harmful effects on society such as antibiotics resistance and other example is taking more of a painkiller than recommended to treat a headache. Reports have proven that Paracetamol, an antipyretic and analgesic in large doses can cause liver failure.

Inappropriate self-treatment can cause a lot of personal problems (from headache to osteoporosis, cancers and even death) and difficulties in society.

ROLE OF PHARMACIST IN SELF MEDICATION[4, 12]

The pharmacist is an adviser to the public on everyday health care and is a key figure in the supply and delivery of medicines to the consumer. He is a partner of the manufacturer of non-prescription medicines. Both share the common goals of service of high quality for the patient and encouragement of the rational use of medicines. The pharmacist in his professional capacity and in direct contact with patients is competent to provide sound advice on the medicines he supplies, Product selling. Along with these roles pharmacist have following functions

Pharmacist As a communicator[4]

- The pharmacist should initiate dialogue with the patient (and the patient's physician, when necessary) to obtain a sufficiently detailed medication history;
- To address the condition of the patient appropriately the pharmacist must ask the patient key questions and should give information to him or her regarding how to take the medicines and how to deal with safety issues.
- The pharmacist must be prepared and adequately equipped to perform a proper screening for specific conditions and diseases, without interfering with the prescriber's authority;
- The pharmacist must provide objective information about medicines, able to use and interpret additional sources of information to fulfil the needs of the patient, able to help the patient undertake appropriate self-medication or, when necessary, refer the patient for medical advice.

Pharmacist as a trainer and supervisor.[4]

Pharmacist to be encouraged to participate in continuing professional development activities like as continuing education programs to ensure quality service with update knowledge. Often the pharmacist is assisted by non-pharmacist staff, so it must be ensured that the services provided by these non-pharmacist's assistants are according to the established standards of practice. To ensure this pharmacist must develop protocols for referral to the pharmacist, protocols for community health workers involved in handling and distribution of medicines. The pharmacist must give the training to non-pharmacist assistants and must supervise their work.

Pharmacist as a collaborator[4, 12]

It is important that the pharmacists must develop collaborative relationships with other health care professionals, national professional associations, pharmaceutical industries, governments, patients and the general public.

Pharmacist as a health promoter [4, 12]

As one of the member of the health-care team, the pharmacist must participate in health screenings to find out the health problems and which at risk in the community; should participate in health promotion campaigns to improve the awareness of health problems and disease preventions, advice and help individuals to make informed health choices.

So the Pharmacists should help the patients and coach them in using the right or even the best medication and also, they should warn them not to use or suggesting non-OTC drugs without consulting a doctor for appropriate self-medication.

SELF-MEDICATION WITH ANTIBIOTICS:

Self-medication with antimicrobial is frequently noted as one of the major factors contributing to drug resistance. Antibiotics are substances produced by a microorganism, or a chemical synthesis, which in low Concentrations can inhibit the growth and/or kill bacteria. Unlike other drugs and virtually all other technologies, antibiotics suffer from transmissible loss of efficacy over time. Antibiotic resistance refers to the phenomena when an antibiotic, which at its therapeutic level was once able to effectively stop the growth of the bacteria, has lost its ability to do so. Self-medication with and overuse/ misuse of antibiotics have been identified among the main risk factors for antibiotic resistance. Moreover; lack of knowledge is a major factor responsible for

inappropriate antimicrobial use and hence resistance globally.

Antibiotic resistance may result in prolonged illnesses, more health facility visits, extended hospital stays, the need for more expensive medications, and even death . If the current trend continues, 10 Million deaths are attributable to AMR worldwide by 2050. [13,14]

2. MATERIAL AND METHODS:

This was a retrospective study carried out by self-developed questionnaire. Study is based on the data collected from two groups. Group A: pharmacy back ground peoples, And group B: non pharmacy graduates. The survey collected randomly from Group A& B.

Study site & study groups:

To get data for Group A (those have knowledge about antibiotics) the study was carried at Vidyabharti college of pharmacy with the due permission of principal sir; survey collected from B-Pham Third year students and pharmacy staff. For Group B data, survey collected randomly from non-pharmacy graduate at Amravati.

Survey instrument

The questionnaire was in two parts. The first part contained questions on demographic information of the respondents such as name, age, gender, qualification, designation etc. The second part contained questions on practice of self-medication. The survey questionnaire given in APENDIX 1. first five questions related to practice of self-medication with antibiotics, next question is about the reasons of self-medication with antibiotics, questions 7 to 16 are related to self-treating of which diseases with antibiotics?, whether they change the dosage and drugs deliberately and why they change? From where they gets the antibiotics for self-medication? , how many antibiotics they uses by self to treat singe disease?, experience of any adverse effects during self-medication with antibiotics? .so with these questions we can estimate the practice of self-medication with antibiotics and any resistance development for antibiotics and any adverse effects associated with anti-biotic self-medication. The language of questionnaire is English.

Analysis of survey data:

Simple descriptive statistics was used, the responses calculated in percentages and proportions and the result of responses compared in between two groups.

3. RESULTS AND DISCUSSION:

Our study provides useful information about the knowledge, attitudes, perceptions and the practices of pharmacy college's students and staff and non-pharmacy graduated persons with respect to antibiotics elf-medication

The response rate was 100 per cent among the 60 participants of Group A and 40 participants of group B. who were asked to participate in the survey. The study participants were dominated by females (58.33%) in group A and by males (65 %) in Group B given in Table1. Majority (41.66 %) of participants were in the age group of 21–25 years from Group A and 55 % of Group B are of 21-25 age group, given in table 2.

Regarding practice of self-medication the question no 1 is there, for that both groups given 100 % response to that they didn't take the drug for self-medication without any professional advice or prior knowledge. Second question in survey form is regarding knowledge about antibiotics, so the response given is from group A 100% and from B group 75% for that they know That what are antibiotics. Self-medication with antibiotics was practiced by 30 % of group A and 37.5 % of group B. 8.3 % of group A and 17.5 % of group B believes that self-medication with antibiotics is good practice for self-health care and 32 % and 57 % of group A& B respectively given response that it is acceptable practice. The difference in group A& B is may be due to that the pharmacy persons in their academics they learn that the problems associate4d with self-medication with antibiotics.75 % of both groups given the response to the reasons of self-medication with antibiotics is time saving and the next reason is cost saving (27 %) response from A group and convenience (30 %) is the reason from group B. the time saving is the major reason for self-medication is might be due to the time taking for to take appointment of doctors, health check-up, diagnosis etc process. And the cost saving is reason may be due to with self-medication the cost involved in doctor fee and in diagnosis tests can be avoided.

35 % of group A and 53 % of Group B think that they can treat common infectious disease with antibiotics successfully by self-medication. Self-medication with antibiotics was practiced by group A for Fever(52%), Runny nose (18%), Cough(27 %)Sore throat (23 %), Skin wound (13 %), Diarrhoea (8.33 %) and group B for Cough(33 %), Fever (25 %), Runny nose (25 %), Sore throat (35%), Skin wound (13 %), Diarrhoea (10 %).

Antibiotics used for self-medication by group A were obtained mainly from RMP (63%), community pharmacist (32 %) online shopping (5 %) and by group B were obtained mainly from RMP (52%) , community pharmacist(38 %), Leftover from previous prescription (10 %). So most of the both groups said that they are getting antibiotics from registered medical practioners means they using antibiotics under the guidance of RMPS. Group A not using any leftover antibiotics but 10 % group B using leftover antibiotics from previous prescriptions.5 % of group A using the online shopping facility to get antibiotics. Their source of information about the dosage of the antibiotics is getting both groups mainly by consulting a doctor and next by consulting a pharmacist. By this practice they can avoid the adverse effects of self-medication of antibiotics, that's why 62 % of group A and 50% of group B are reported that they never changed the dosage of antibiotics deliberately during the course of self-treatment and 10% of A group and 12% of group B changing the dosage of antibiotics deliberately during the course of self-treatment. And 17 % of A and of 20% B group given the reasons for changing the dosage of antibiotics during the course of self-medication is improving conditions. 8% of A and of 13% B group given the reasons for changing the dosage of antibiotics during the course of self-medication is to reduce adverse reaction.17 % of group A and 18 % of group B reported that they had adverse reactions when use antibiotics for self-medication. The survey results given in table 3.

Table.1 survey data related to gender

Gender	Group A (n=60)	Group B (n=40)
MALES	41.67 % (25)	65 % (26)
FEMALES	58.33% (35)	35 % (14)

Table.2. data related to Age group

AGE (YR)	Group A (n=60)	Group B (n=40)
15-20	43.33% (26)	17.5 % (7)
21-25	41.66 %(25)	55% (22)
26-30	6.67% (4)	7.5 % (3)
31-40	8.33% (5)	15 % (6)
ABOVE 40	0	5 % (2)

Table: 3 Survey results

Options	**PHARMACY (n=60)**	**NON-PHARMACY (n=40)**
1	**Do you take drug for self-medication without any professional advice or prior knowledge**	
YES		
NO	100 %	100 %
2	**Do you know what antibiotics are?**	
YES	100 %	
NO	75 %	25%
3	**Have you ever taken antibiotics?**	
YES	87%	75 %
NO	13%	25 %
4.	**Have you ever treated yourself (self-medicated) with antibiotics?**	

YES	30 %	37.5 %
NO	70 %	62.5 %
5	**What do you think about self-medication with antibiotics for self-health care?**	
Good practice	8.3 % (5)	17.5 % (7)
Acceptable practice	31.6% (19)	57.5 % (23)
Not acceptable practice	60 % (36)	25 % (10)
6	**What were your reasons of self-medication with antibiotics**?	
Cost saving	26.66 % (16)	27.5 % (11)
Time saving	75 % (45)	75% (30)
Convenience	21.67 % (13)	30 % (12)
Lack of trust in prescribing doctor	0 %	5 % (2)
Other	13.33 % (8)	7.5 % (3)
7	**Do you think you can treat common infectious disease with antibiotics successfully by yourself?**	
Yes, I can	35 % (21)	52.5 % (21)
Not sure	40 % (24)	37.5 % (15)
No, I cannot	25 % (15)	10 % (4)
8	**For which of the following complaints did you use antibiotics?**	
Runny nose	18.33 % (11)	25 % (10)
Nasal congestion	1.67 % (1)	0
Cough	26.67 % (16)	32.5 % (13)
Sore throat	23.33 % (14)	35 % (14)
Fever	51.67 % (31)	25 % (10)
Aches And Pains	8.33 % (5)	5 % (2)
Vomiting	0	2.5 % (1)
Diarrhoea	8.33 % (5)	10 % (4)
Skin wound	13.33 % (8)	5% (2)
Other	1.67 % (1) not specified.	0
9	**Where did you usually obtain antibiotics from for self-medication of antibiotics?**	
Community pharmacists	31.66 % (19)	37.5 % (15)
RMP	63.33% (38)	52.5% (21)
Leftover from previous prescription	0 %	10 % (4)

Online shopping	5 % (3)	
Other(specify)		
10	**How did you know the dosage of antibiotics?** (tick more than one if applicable)	
By checking the package insert	16.67 % (10)	5 % (2)
By consulting a doctor	66.67 % (40)	77.5 % (31)
By consulting a pharmacist	41.67 % (25)	25 % (10)
By consulting family member/friends	5 % (3)	0
From newspaper, magazines,book,or TV program	0	0
From the internet	13.33 % (8)	10 % (4)
From my previous experience	15 % (9)	12.5 % (5)
By guessing the dosage by myself	0	0
11	**Did you ever change the dosage of antibiotics deliberately during the course of self-treatment?**	
Yes, Always	10 % (6)	12.5 % (5)
Yes, sometimes	28.33 % (17)	37.5% (15)
Never	61.67 % (37)	50 % (20)
12	**Why did you change the dosage of antibiotics during the course of self-medication?**	
Improving conditions	16.67% (10)	20 % (8)
Worsening conditions	5 % (3)	12.5 % (5)
To reduce adverse reaction	8 % (5)	12.5 % (5)
Drug insufficient for complete treatment	5 % (3)	2.5 % (1)
Other(specify)	3.3% (2)	2.5 % (1)
13	**Did you ever switch antibiotics during the course of self-treatment?**	
Yes, Always	8 % (5)	5 % (2)
Yes, sometimes	28.33 % (17)	35 % (14)
Never	63.33 % (38)	60 % (24)
14	**How many different antibiotics did you take maximally during single illness?**	
One	41.67 5 (25)	15% (6)
Two	8.3 % (5)	
Three	1.6 % (1)	
four	1.6 % (1)	
15	**Why did you switch antibiotics during the course of self treatment (tick more than one if applicable)**	
The former antibiotics did not work	43.33 % (26)	17.5 % (7)

The former antibiotics ran out	3.3% (2)	22.5 % (9)
To reduce adverse reaction	18.33 % (11)	40 % (16)
Drug insufficient for complete treatment	15 % (9)	12.5 % (5)
Other(specify)	3.33 % (2)	5 % (2)
16	**Have you ever had any adverse reactions when you took antibiotics for self-medication?**	
Yes	16.67% (10)	17.5 % (7)
NO	83.33 % (50)	82.5 % (33)

4. CONCLUSION:

All the pharmacy back ground persons and majority of non-pharmacy graduates have the knowledge about antibiotics and all have taken antibiotic previously. No significant difference is found to be observed between the two groups in attitude of practicing self-medication with antibiotics. In Both groups majority of are not practicing self-medication with antibiotics. But majority of group B believing that self-medication with antibiotics is acceptable practice and majority of group A saying that it is not acceptable practice, this difference is might be due to the difference in having knowledge about the problems associates with antibiotics like resistance development, adverse effects etc., As compare with pharmacy group, the practice of switching and changing dosage of antibiotics during the course of self-treatment deliberately is slightly more with non-pharmacy group. This practice indicating that the reason may be development of resistance to antibiotics in study groups, which is one of the global threats, at present total world is facing. With this study it can be concluded that there is slight difference in attitude and practice of self-medication with the antibiotics between pharmacy and non-pharmacy groups, which indicates that having knowledge about adverse effects of antibiotics (pharmacy group) can avoid the excessive use of antibiotics and the resistance development to antibiotics. As this survey is collected from less number of samples it can't relate it to the whole population. The conclusions only limited to the present studied groups.

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