

## Research Article

# Knowledge and practices in community regarding antibiotic usage

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### ABSTRACT

**Background:** One of the major causes of concern in medical world is rapid development of antibiotic resistance. World Health Organisation started an initiative in 2011 with a policy designed to curb this danger of antibiotic resistance. This study was designed to know the knowledge, attitude and belief of community regarding antibiotic use so that data can be generated in this region for the proper designing and implementation of awareness campaigns for the community.

**Methods:** A single point cross sectional study was conducted in 1500 adults attending the Out Patient Department of a tertiary care hospital in Northern India. The tool used for the study was a predesigned questionnaire. The data was evaluated using descriptive statistical analysis.

**Results:** In our study 92.8% participants admitted of having used an antibiotic at any time in their lifetime. The most common reason for use of antibiotics was common cold (36.2%). The most common antibiotic used by the participants was amoxicillin. The most common source of information regarding antibiotics and their use (63.2%) was physicians. 78.6% of the participants believed that they have awareness about rational use of antibiotics. 68.6% respondents were of the view that antibiotics are effective against both viral and bacterial infections. 52.3% of the participants believed antibiotics are not safe to use.

**Conclusions:** The existence of a significant gap between practice of antibiotic usage and knowledge about their usage was found prevalently in the community. After noting the results of this study it is believed that there is a dire necessity to take steps to curb the menace of rapid development of resistance to antibiotics.

**Keywords:** Antibiotics, Practices, Knowledge

### INTRODUCTION

One of the major causes of concern in medical world is rapid development of antibiotic resistance. Many studies have shown that one of the major causes of this resistance is irrational use of antibiotics. World Health Organisation, in 2011, gave the theme "Combat drug resistance: no action today means no cure tomorrow" and also started an initiative with a policy designed to curb this danger of antibiotic resistance.<sup>1</sup> As the problem of

development of antibiotic resistance has overtaken the speed with which newer antibiotics are coming to the market, there is dire necessity to assess the public awareness and attitude towards antibiotic use and misuse. People are indulging in the practices on their own whims and fantasies and it may have many adverse effects. More is the awareness in the community regarding the antibiotic usage lesser are the chances of self-medication and inadvertent antibiotic usage. Many factors can contribute to irrational use of medications such as socioeconomic status of the community, residential

background and instructions given by the medical practitioners while prescribing the antibiotics.<sup>2-6</sup> This study was designed to know the knowledge and practices of community residing in south western areas of Punjab regarding antibiotic usage so that data can be generated for proper designing and implementation of awareness campaigns for the community.

**METHODS**

**Study design**

This facility based one point cross sectional study was done in outpatient department (OPD) of a tertiary care hospital of Northern India.

**Subjects**

The adult patients of either sex coming to the outpatient department of a tertiary care hospital of Northern India were recruited for this study during one month of the study period. The study was conducted on 1500 patients. All the patients coming to OPD irrespective of the diagnosis or treatment prescribed to them were eligible for the recruitment.

**Exclusion criteria**

The subjects who refused to participate in the study were not enrolled. The subjects who submitted the incomplete questionnaire were also not included. The patients who were doctors by profession were excluded from the study to prevent potential bias.

**Method**

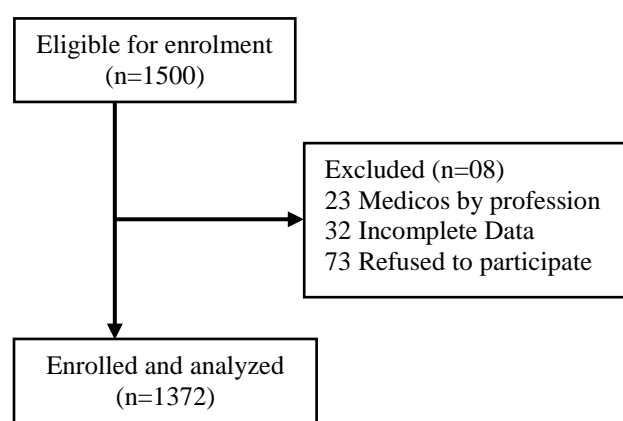
Information on the study variables was collected using a pretested, semi-structured questionnaire. The questionnaire had three parts consisting of socio-demographic details, practices of antibiotic use and actual knowledge about antibiotic usage. The subjects were identified from the OPD and the objective of the study was explained to them. The age, sex, educational status, residential background, and occupation was noted. Further to note the practice of antibiotic use patients were asked about any history of antibiotic use at any time of life, frequency of antibiotic use, reason for antibiotic use, name of the antibiotic used and the main source of information regarding antibiotic use. To evaluate their knowledge about antibiotic use they were asked about assessment of their awareness about rational use of antibiotics, their knowledge about effectiveness of antibiotics, indications for antibiotic usage, appropriate period of antibiotic usage, safety of antibiotic usage and possibility of adverse effects with antibiotic usage. Data was collected by the investigators, compiled and analyzed using descriptive analysis using Microsoft Excel™ and statistical tests.

**Informed consent**

Written informed consent was taken from subjects. They were provided with written and verbal information about the study. Confidentiality of the subjects was maintained.

**RESULTS**

In our study 1500 subjects were enrolled during one month of the study period. 1421 patients responded leading to a response rate was 94.7%. Out of 1500 participants 1372 were found eligible for enrolment. The reasons for exclusion are given in Figure 1.



**Figure 1: Study flow.**

**Table 1: Baseline variables.**

N=1372		Value	Percentage
Gender	Males	771	56.2
	Females	601	43.8
Age	18 to <30 years	358	26.1
	30 to <50 years	480	35
	50 to 60 years	505	36.8
	>60 years	29	2.1
Educational qualification	Less than 10 <sup>th</sup>	69	5
	10 <sup>th</sup> to < 10+2	182	13.3
	10+2	313	22.8
	Graduate	647	47.2
Occupation	Postgraduate	161	11.7
	Related to paramedical field	98	7.1
	Not related to paramedical field	1274	92.9
Residential background	Urban	478	34.8
	Rural	894	65.2

**Demographic profile**

Out of these 1372 participants 56.2% were males and 43.8% were females. Age distribution of the participants was in the range of 18-78 years with majority in range of 50-60 years (36.8%). Most of the participants were having a graduate degree (47.2%). The participants without knowledge of paramedical sciences were 92.4%. The participants with rural background were 65.2% and with urban background were 34.8%. The various baseline variables are listed in Table 1.

**Table 2: Practices of antibiotic use.**

		Value	Percentage
Prior antibiotic use at any time of life	Yes	1273	92.8
	No	99	7.2
Approximate frequency of antibiotic use	Occasionally	686	53.9
	Frequently	443	34.8
	Most of the time, even at minor illness	144	11.3
Most common reason for antibiotic use	Common cold	496	36.2
	Fever	408	29.7
	Diarrhoea	208	15.2
	Genitourinary infection	135	9.8
	Typhoid	86	6.3
Most common antibiotic used	Others	39	2.8
	Amoxycillin or salt	476	34.7
	Ciprofloxacin	271	19.8
	Norfloxacin	243	17.7
	Ofloxacin	181	13.2
	Tetracyclines	105	7.7
	Co-trimoxazole	25	1.8
	Metronidazole	11	0.8
	Tinidazole	4	0.3
Source of information regarding antibiotic use	Others	16	1.1
	Physician	867	63.2
	Pharmacist	373	27.2
	Relatives and Friends	167	12.2
	Previous experience	485	35.3
	Drug information leaflet	91	6.6
	Others	51	3.7

**Practices about antibiotic use**

A total of 1273 (92.8%) participants admitted of having used an antibiotic at any time in their lifetime. Out of

these 53.9% participants used the antibiotic occasionally where as only 11.3% of them used antibiotics most of the times at a slightest illness. The most common reason for use of antibiotics, as reported by the participants was common cold (36.2%) followed by fever. The most common antibiotic used by the participants (34.7%) was amoxycillin alone or in combination with other molecule. The most common source of information available to the participants (63.2%) regarding antibiotics and their usage was physician's prescription or verbal advice. The details of practice being followed by the participants in this study are mentioned in Table 2.

**Knowledge about antibiotic usage**

Out of all the participants 78.6% believed that they have awareness about rational use of antibiotics. 68.6% respondents were of the view that antibiotics are effective against both viral and bacterial infections. The percentage of the participants believing in using antibiotics till the symptoms of the disease are cured was 62.2. About half (52.3%) of the participants believed antibiotics are not safe to use and 52.8% believed that these antibiotics can have possible adverse effects. The details of knowledge of participants are being tabulated in Table 3.

**Table 3: Knowledge about antibiotic use.**

		Value	Percentage
Awareness about rational use of antibiotics	Yes	1078	78.6
	No	294	21.4
Antibiotic effectiveness	Against Bacteria	307	23.1
	Against Viruses	94	6.8
	Against Both	941	68.6
	Don't know	30	2.2
Appropriate period of antibiotic use	As prescribed by the physician	457	33.4
	Till relief from symptoms	854	62.2
	Arbitrary	61	4.4
Safety of antibiotic use	Safe	317	23.1
	Not safe	718	52.3
	No knowledge	337	24.6
Possible adverse reactions	Yes	725	52.8
	No	263	19.2
	No knowledge	384	28

**DISCUSSION**

This study was designed to know the knowledge, and practices of community regarding antibiotic usage so that data can be generated in this region for the proper

designing and implementation of awareness campaigns for the community.

In our study more than 90% of the participants admitted of having used an antibiotic at any point of time in their life. This is in coherence with another study showing approximately similar percentage of the persons having history of use of antibiotics in their lifetime.<sup>7</sup> More than half of the participants used the antibiotic occasionally whereas less than one tenth of the participants used these antibiotics most of the times at even minor illnesses. This is however different from the previously quoted study which showed that more than two third of the participants have not used antibiotics occasionally.<sup>7</sup> The most common reason for use of antibiotics, as reported by the participants was common cold followed by fever. This finding is supported by other studies showing respiratory tract infections specifically common cold as the most common cause of antibiotic use.<sup>7,8</sup> The most common antibiotic used by the participants was amoxicillin followed by ciprofloxacin and norfloxacin respectively. To the best of our knowledge no other study has shown any data regarding commonly used antibiotics. The frequency of usage of antibiotics can vary from place to place as the prevalence of diseases and personal choice of physicians will be different at various locations. Almost two third of the participants were of the view that physicians are the most common source of information regarding use of antibiotics followed by pharmacists and relatives & friends. It was reassuring as well as surprising that very few participants followed the internet as source for information regarding the antibiotic usage. Our results are in tandem with another study showing physicians to be the most common source of information about antibiotics.<sup>7</sup>

Almost three quarter of the participants believed that they have awareness about rational use of antibiotics which was in coherence with a study showing more than two third having good to average knowledge about antibiotics.<sup>7</sup> As far as their actual knowledge regarding etiology based antibiotic use was interrogated most of them were of the view that antibiotics are effective against both viral and bacterial infections. Previous studies were in unison with present study having almost similar results.<sup>2,8-11</sup> The facts in this study are in total opposition to a study on American participants which showed that more than four fifth of the people were aware of the fact that antibiotics can cure bacterial infections only.<sup>12</sup> This could be due to differences in level of awareness and the spread of knowledge making them more aware about the use of antibiotics.

In this study 6 out of 10 participants believed that it is appropriate to use antibiotics till the symptoms of the disease are cured. This is in unison with other studies which showed that more than two third of the participants were of the view that antibiotics can be stopped when symptoms improve even if the course of antibiotics is not complete as prescribed by the physician.<sup>8,13</sup> However the

results of this study are in contradiction to the study in which only 13% of the respondents agreed to the fact that the medication should be stopped as soon as the symptoms disappear and more than four fifth were of the view that appropriate duration of treatment is the duration prescribed by the physician.<sup>7,12</sup> This can be attributed to the higher education level and urban background of majority of the study participants.

More than half of the participants believed antibiotics are not totally safe to use and can have possible adverse effects. In another study more than two third of the participants believed that antibiotics can have allergic reactions.<sup>9</sup> In a similar study it was found that nearly half of the participants believed that antibiotic do not cause side effects.<sup>8</sup>

### **Limitations**

This study has several limitations even after having high rate of response to the questionnaire. As this study was a questionnaire based study and the information provided by the participants was dependent on their memory leading to a potential recall bias. This study was conducted at a single centre only. The relationship with the educational background and socioeconomic data was not taken into consideration. The sample size was also small. The results of the study are not generalizable because of small sample size and single centre nature of the study.

### **Future prospects**

Further studies should be planned as a multi-centric study recruiting adequate sample size of participants to generate a more elaborated data. The stratification of the educational background and socioeconomic status with the knowledge of use of antibiotics can be further explored. Addition of the patient's attendants who have come to the hospital to sample size would also generate more insight about the topic.

### **CONCLUSIONS**

This study has described the variation in knowledge and practice of people. Our study concluded the existence of a significant gap between practice of antibiotic usage and knowledge about their usage prevalently in the community. There is a dire necessity for the proper and regular lectures, seminars and community meetings for development of awareness and growth of knowledge in the community regarding rational use of antibiotics to avoid unnecessary use of antibiotics. This might further help in defending the menace of rapid development of resistance to antibiotics.

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