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Antibiotic Resistance and Usage - A Survey on the Knowledge Based, Attitude, Practice, Prescription among the Rural, Urban, Suburban Area of People

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ABSTRACT

Our survey based study provides the knowledge, attitude, perceptions and practices of the respondents those who are living in some rural, urban, sub urban area for Antibiotic Resistance (ABR) which can help us in devising suitable educational interventions for them. The final questionnaire consisted of six parts which consist of 29 questions. Whose responses ranged from 'YES' and 'NO' were used, as well as the factors which influenced their decision about the antibiotic selection and prescribing are also included. Their self-reported attitude regarding antibiotic usage were also assessed by using a Likert scale. Simple descriptive statistics was used to generate frequencies, percentages and proportions. The response rate was 100 % among the respondents who were asked to participate in the survey. 97.75 % of the respondents gave importance to consult physicians/doctors before taking the antibiotic. In addition, 68.5% of respondents agreed that our body become resistant to antibiotics and they no longer work as well. 60.5 % respondents have agreed that it is only problem for those people who had taken antibiotic regularly. Also 15 % of respondents believe that an additional burden of medical costs to the people. Our study provides useful information about the knowledge, attitudes, perceptions and the practices of antibiotics with respect to antibiotic resistance and usage, which may be utilized to plan suitable educational interventions that aim at improving the antibacterial/ prescribing and use. The attitude of the respondents about antibiotic use and resistance was found to be casual.

INTRODUCTION

The threat of antibacterial resistance is rapidly progressing and intensifying. The awareness on its seriousness and significance is the first step towards curtailing its progress. Various approaches have been taken worldwide, to meet the challenges which are posed by its spread. One of the approach which is commonly suggested is to undertake instructional and educational campaigns among the general population [1] as well as among the health care personnel [2] about antibiotic resistance and its dangerous consequences and regarding the steps which can limit its development and spread [3,4].

Prescribers have an important role to play in the against antibiotic resistance, not only through their safe and rational prescribing, but also by promoting patient awareness and knowledge and imparting health education to the community regarding safe medication practices concerning antibiotics.

Various studies have described the inability of the prescribing physicians in creating awareness and providing adequate education to the patients regarding antibiotic usage [4].

The lack of adequate training during their undergraduate and postgraduate, also those people who are not able to attain a higher education may be responsible for their inability to undertake these tasks confidently.

Hence, educating about antibacterial resistance, antimicrobial resistance, drug resistance forms a vital part of both the undergraduate, postgraduate and also common person considering the frequency with which these agents are prescribed and our continuing and increasing concern regarding antibiotic resistance [8].

It has been greatly emphasized that adequate training should be provided for the undergraduate pharmacy students regarding the proper prescribing, dispensing and the usage of antibiotics respectively. It is an important measure which is widely proposed and documented, in order to promote the judicious use of antibiotics [10].

Young doctors should be given more education during their undergraduate training regarding antibiotic resistance and appropriate prescribing [11].

The interventions which are undertaken to prevent and control antibacterial resistance, usually aim to bring about behavioral changes in the people, and the outcome of these interventions is affected by the previous beliefs and motivations which are held by this people [12].

Hence, for any educational intervention to be successful and for the changes to be sustained, it should change the knowledge, advance based knowledge, attitudes and practices of the survey people [13].

It is in this regards that this study was undertaken among some people, in order to assess their knowledge and attitude concerning antibiotic resistance, as well as their self reported practices which are related to antibiotic usage.

A better understanding of what the students know and believe about the issues of antibacterial use and resistance can assist us in planning and devising an effective and a tailored educational intervention for them.

MATERIALS AND METHODS

This study was about antibiotic resistance and related all terms questionnaire based survey which was undertaken in some people those are living in rural, urban and sub urban area.

The final questionnaire consisted of 6 part which consist of 29 questions. Whose responses ranged from ‘YES ‘and ‘NO’ was used, as well as the factors that influenced their decision about the antibiotic selection and prescribing? A series of questions which were intended to study the attitude of the participants [Table/Fig-1] regarding antibiotic resistance and usage, were analyzed by responses as ‘YES ‘and ‘NO’ and also by True and False.

Their self reported attitude regarding antibiotic usage were also assessed by using a Likert scale which ranged as feel better, taken all ,as directed by physician. The participants’ knowledge was assessed by using a set of six questions. Six of these were of the True/False /No reply type of questions. Simple descriptive statistics was used to generate frequencies, percentages and proportions.

Table -1: Questions related to survey regarding to antibiotic resistance and use

Questions included in a survey of antibiotic resistance	
1.ATTITUDE	
1.When to stop taking antibiotics	FEEL BETTER/TAKEN ALL/AS DIRECTED
2.Have you followed dosage regime prescribed by physician	YES/NO
3. are you giving the same antibiotics to your family, friends for same disease	YES/NO
4. Do you feel that antibiotics are safe	YES/NO
2.PRACTICE	
1. Who Recommended to Antibiotics	
1. Physicians	YES/NO
2 .Self recommended	YES/NO
3.family/friends	YES/NO
2.Do u check information of antibiotics before consumption	YES/NO
3.Was it really required or Additional burden	YES/NO
3.PRESCRIPTION	
1. Does it required prescription	YES/NO
2. Are you advising your family member, friend to take Antibiotics Without concerning physician	YES/NO
3. Do you consulting physician before taking antibiotics	YES/NO
4.KNOWLEDGE	
Do you think following condition can be treated with antibiotics	
HIV/AIDS, UTI :	YES/NO
Fever, Head ache, Joint ache:	YES/NO
Malaria, Gonorrhea :	YES/NO
Cold and flu ,Diarrhea:	YES/NO
5. ADVANCES	
a. Do you know about the following term:	
1. Antibiotic resistance	YES/NO
2.antimicrobial resistance	YES/NO
3. superbugs	YES/NO
4.drug resistance	YES/NO
5.AMR	YES/NO
b. Where did you hear the following term	
1.antibiotic resistance 2.antimicrobial resistance 3.superbugs 4.drug resistance 5.AMR (Doctor /Pharmacist/Family Member/friends/Digital Media / newspaper)	
6. KNOWLEDGE BASED QUESTIONS	
following statement are true/false/no reply	
1. When your body become resistant to antibiotics, it no longer work as well.	
2. Is there any infection which increases resistant to treatment of antibiotics?	
3. Is it an only problem for people who take antibiotics regularly?	
4. Can bacteria which are resistant to antibiotics spread from person to person.	
5. Issues are present in other country but not here.	
6. Is it an issue which could affect to our family member?	

Table -2.1: Respondents regarding antibiotic resistance and use by age

SR NO.	SURVEY ITEMS	Less than16	16-24	25-34	35-44	45-54	55-64	65+
1.	AGE N (%)	3%	21.75%	22%	23%	18.5%	5.25%	5.25%

Table -2.2 Respondents regarding antibiotic resistance and use by gender

SR NO.	SURVEY ITEM	MALE	FEMALE
1.	GENDER N (%)	50.25%	49.75%

Table -2.3 Respondents regarding antibiotic resistance and use by Area

SR NO.	SURVEY ITEM	URBAN N (%)	SUB URBAN N (%)	RURAL N (%)
1	Location N (%)	36 %	9.5%	35.5%

Table -2.4 Respondents regarding antibiotic resistance and use by Education level

SR NO.	SURVEY ITEM	HSC N (%)	GRADUATE N (%)	POST GRADUATE N (%)
1.	EDUCATION N (%)	47%	26.25 %	8 %

Table -3: Respondents attitude regarding antibiotic resistance and use

SR. NO	SURVEY ITEMS	YES N (%)	NO N (%)
1.	Use and repeated dose for same disease	20 %	70.25%
2.	Is it Right to give same antibiotics to friends, family for same disease	20.5%	67.25%
3.	Antibiotics are safe drugs for administration.	55.5 %	39.5%

Sr.no	SURVEY ITEMS	Feel better N (%)	Taken all N (%)	As directed N (%)
4.	When you stop taking antibiotics	35.75 %	32 %	38.25%

Table -4: Respondents Practice regarding to antibiotic use

SR. NO	SURVEY ITEMS	YES N (%)	NO N (%)
1.	Recommended by		
	a. Physician	77%	23%
	b. Self recommended	6.5%	93.5%
	c. Family ,friends	9.5%	90.5%
2.	Do you check information written on container or packaging antibiotics	43.25%	38%
3.	Additional burden on mind while taking it	15%	72%

Table -5: Respondents Prescription regarding antibiotic use

SR. NO	SURVEY ITEMS	YES N (%)	NO N (%)
1.	Safe drug ,no prescription is needed	32%	57.75%
2.	Save antibiotics for next time when you get sick	21%	7.45%
3.	Consults physicians before taking Antibiotics	97.75%	6.5%

Table -6: Respondents of knowledge regarding to antibiotic use

(SURVEY ITEMS) Do you think these condition can be treated with antibiotics										
	HIV/ AIDS	UTI	Fever (Plain)	Head Ache	Joint Ache	Malaria	Fever (Sever)	Gonorrhea	Cold & flu	Diarrhea
YES N (%)	27.5 %	39.5 %	26%	9.75%	15.25 %	31.75 %	28.75 %	40.5%	32.5 %	17%
NO N (%)	72.5 %	60.5 %	74%	90.25 %	84.25 %	68.25 %	71.25 %	59.5%	67.5 0%	83%

Table -7: Respondents of Advances regarding to antibiotic related terms

SR. NO	SURVEY ITEMS Have u heard any of the following term:	YES N (%)	NO N (%)
1.	Antibiotic resistance	41%	30.75%
2.	Superbug	8.75%	42.25%
3.	Antimicrobial Resistance	45.5%	27.5%
4.	AMR	20.75%	35%
5.	Drug Resistance	31%	24%

Table -8: Respondents of Advanced knowledge regarding to antibiotic resistance and use

SR. NO	SURVEY ITEMS (Where did u heard the following term)	Doctor N (%)	Pharmacist N (%)	Family Members N (%)	Friend's N (%)	Digital Media N (%)	News Paper N (%)	Other N (%)
1.	Antibiotic resistance	54%	32.5%	8.5%	1%	0.25%	3.25%	0.75%
2.	Superbug	57.25 %	23.25%	4.75%	2%	2.5%	1%	0.28%
3.	Antimicrobial Resistance	50.75 %	36.5%	3.25%	2.5%	0.5%	0.5%	4%
4.	AMR	51.5%	29%	2.5%	4.25%	1%	2%	1.5%
5.	Drug Resistance	48%	38%	3%	4.25%	1.25%	2.25%	2%

Table -9: Respondents of knowledge regarding antibiotic resistance and uses

SR. NO	SURVEY ITEMS	TRUE N (%)	FALSE N (%)	NO REPLY N (%)
1.	When your body become resistant to antibiotics, it no longer work as well.	68.5%	24.25%	7.25%
2.	Is there any infections that increases resistant to treatment of antibiotics?	34.5%	57%	16.5%
3.	Is it only problem for those people who take antibiotics regularly?	60.5%	25.5%	7.25%
4.	Bacteria which are resistant to antibiotics can spread from person to person.	11.25%	71.75%	21.75%
5.	Issues are present in other country but not here.	47.25%	12.25%	16%
6.	Is it an issue that could affect to our family member?	43.5%	43.25%	18.25%

RESULTS

The response rate was 100 % among the 400 persons who were asked to participate in the survey. In order to simplify the analysis, we reduced the options like a Yes/No, True /False /No Reply, Taken all/feel better/As directed.

More than 77 % of the respondents agreed that a we have use of antibiotics recommended by physician. some of 6.5 , 9.5 % of the respondents that agreed we have taken antibiotics as by self recommended ,also family ,friends could lead to an ineffective treatment, increased adverse effects, the emergence of bacterial resistance and an also 15 % of people believe as a **additional burden** of medical costs to the patient. The results of which are shown in the [Table/Fig-4].

A majority, % respondents were aware that if antibiotics were taken too often, they are less likely to work in the future. Only 35.75 % of the respondents were aware to taken of antibiotics as feel better, while the remaining 77 % were aware to taken antibiotics as directed by physician/doctors.

9.5 % of the respondents agreed that as we have recommended antibiotics as same to your friend or family for same disease. some of 20 % of the respondents that agreed we have taken antibiotics as same dose for same disease by self recommended ,also family ,friends could lead to an ineffective treatment, increased adverse effects, the emergence of bacterial resistance and the results of which are shown in the [Table/Fig-3] .

The attitudes and the self reported practices of the students', which pertained to antibiotic use and resistance were examined on a Likert scale, the results of which are shown in the [Table/Fig-3] and [Table/Fig-4], respectively.

The questionnaire also consisted of a list of Condition disease like HIV/AIDS,UTI,fever,joint ache, head ache,malaria,gonorrhea,cold and flu,diarrhoea which could be responsible for the development of antibiotic resistance and the people were asked to rate them according to their condition. The corresponding ratings which were given by the persons have been depicted in [Table/Fig-6].

A list of factors which had to be considered before prescribing an antibiotic were provided and the persons were asked to rate them according to the importance which they felt that these factors deserved. 97.75 percent of them gave importance to consult physicians before taking of the antibiotic and the risk of a super infection as well as the immune status of the patient. Nearly 21 % of the participants felt that they are save antibiotics for next time when u get sick.

32 % of the respondents agreed that as we have recommended antibiotics as safe drugs so not the need of a Prescription. The corresponding ratings which were given by the persons have been depicted in [Table/Fig-5].

No of % of the respondents agreed that we know the (41%) antibacterial resistance,

(45.5%) antimicrobial resistance, (31 %) drug resistance, (26.25% and 8%) should form a vital part of both the undergraduate and postgraduate and also a common people who is not attening a higher education considering the frequency with which these Term our continuing and increasing concern regarding antibiotic resistance [9].and also some % of the respondents agreed that most probably 80% will briefly explain u as all different terms. The corresponding ratings which were given by the persons have been depicted in advance knowledge [Table/Fig-7] and [Table/Fig-8].

68.5% of people agreed that our body become resistant to antibiotics and they no longer work as well. And also some 34.5 % of infection are increases resistant to treatments of antibiotics. Also some 60.5 % people have agreed that it is only problem for those people who are taken antibiotic regularly.

Some people had confusion that bacteria which are resistant to antibiotic can be spread from person to person (11.25%) also, that type of issues are present not in our country (47.25%),max or min people agreed that antibiotic resistance were affected (43.5%) and not affected (43.25%)to our family members. The corresponding ratings which were given by the persons have been depicted in knowledge based [Table/Fig-9].

DISCUSSION

Our study provides useful information about the knowledge, attitudes, perceptions and the practices of antibiotics with respect to antibiotic resistance and usage, which may be utilized to plan suitable educational interventions that aim at improving the antibacterial/ prescribing and use. The attitude of the people with regards to antibiotic use and resistance was found to be casual and lax. Some rates of antibiotic consumption, which can result in a corresponding increase in the bacterial resistance [10].

When they were asked to rate the important causes of antimicrobial resistance, most of the participants rated mutational and evolutionary changes in the microorganism and lack of restrictions on the antibiotic usage as very important causes.

The failure in implementing basic infection control practices has been one of the principle causes of the emergence and the dissemination of resistant organisms [10] [15]. Learning about the significance of simple measures like hand hygiene in the control of resistance should be endorsed [16] [17] and its practice should be inculcated at an earlier stage of the education.

The virulence of the organism, the risk of adverse effects and superinfection as well as the immune status of the patient, were considered as the factors which deserved the most consideration before the prescription of an antibiotic. The ability of the antibiotic to promote resistance, the in-vitro antibiotic sensitivity of the causative organism and the pharmacokinetic profile of the antibiotic were given second priority. This demonstrates that the peoples were more aware and concerned about the individual patient's benefit and harm, the dangerous

consequences which result to the society due the indiscriminate antibiotic use may not be obvious to them.

CONCLUSION

One of the common misperceptions which is held by the prescribers while they treat their patients is that, more is better in treating by using broad-spectrum antimicrobials. This falsely held belief is considered to be a primary barrier which prevents the development of antibiotic resistance [21].

The people should be made aware of these important facts and a sense of responsibility should be nurtured, that as prescribers, they are not only responsible for the benefit and the welfare of their patients but also for the society at large.

Outcome-based education is said to be an important tool in which the requirements are explicitly defined in detail, to ensure that the medical graduates are fit for practice. This can be utilized for educating the peoples about antibiotics, so that as prescribers, they are fit to prescribe antibiotics, maximize their effective and efficient use and minimize the development of resistance [22].

The medical education strategies should aim, not only to increase the knowledge, but also to change the behavior and to improve the patient outcomes [16]. They have to be tailored as per the youngster's development, capabilities and experience [11].

In spite of the lack of any formal training regarding antibiotics during their schooling or at the pre university level, the students who take admissions in the subjects which are related to the health sciences during their graduation, tend to have a better knowledge regarding antibiotics and their use as compared to the students who enter other streams ·This proves that peoples exposed to similar curriculum, and having the same learning experience, due to their differing capabilities, interests and development may have different knowledge levels and attitudes.

However, antibiotic resistance has been widely discussed and publicized in the press, media and on the online discussion forums and the general public are becoming knowledgeable about the issue of resistance. Since the media and the internet have become important sources of information, especially among the youth [23], they have become the medium of gaining knowledge and awareness regarding various public issues.

Our study, despite its limitation of drawing conclusions, based on a convenience, provides an important insight regarding their knowledge, attitudes, perceptions and practices, which can be considered, in order to plan for an effective to people regarding antibiotic resistance and usage.

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