WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 23, 919-936. Research Article ISSN 2277–7105

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF ANTIBIOTIC USE AMONG THE PATIENTS IN TERTIARY CARE TEACHING HOSPITAL, DAVANGERE

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Article Received on
07 October 2024,

Revised on 27 October 2024,
Accepted on 17 Nov. 2024

DOI: 10.20959/wjpr202423-34663

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ABSTRACT

Antibiotics are the most frequently prescribed group of drugs in a developing country like India. The misuse of antibiotic is particularly striking in India. The impact of knowledge, attitude and practice of general public on antibiotic use is important to prevent misuse of antibiotic and antibiotic resistance. The objective of this study was to assess the knowledge, attitude and practice of antibiotic use among patients in a tertiary care teaching hospital. Data was collected from a cross Sectional questionnaire based survey from patients who were admitted in government Chigateri District Hospital Davangere. A total of 200 questionnaires was reviewed and analysed. In our study patients were divided into four age groups 18-34(27.5%), 35-49(24%), 52-64(24.5%) and >65 (24%), 78.5% of the participants were married and 21.5% were unmarried. 23.5% of the participants were uneducated where as 22% had only primary level of education and 54.5% of the participants had at least high school level of education and more. In our study females had a higher level of knowledge about antibiotics than males but males showed better attitude and practice compared to females. The participants in the age group 18-34 and 35-49 showed better knowledge, Attitude and Practice towards antibiotic use than the other age groups. Our study point out that higher education is positively associated with better attitude, knowledge and practice towards antibiotic use. The results of this study provided important information for assessing and improving the public's understanding of antibiotics.

KEYWORDS: *Antibiotics, Public knowledge, Attitude, practice, KAP, Questionnaire survey, Antibiotic resistance.*

INTRODUCTION

The term antibiotic has its origin in the word antibiosis (i.e., against life). Antibiotics are chemical substances obtained from various species of microorganisms (Bacteria, fungi, actinomycetes) that suppress the growth of other microorganisms and eventually may destroy them.[1]

Antibiotics have not only saved patient's lives; they have also played important role in achieving major advances in therapeutics.[9] Between 2000 and 2010, worldwide use of antibiotics drugs by humans increased by 36%. And its pattern has shifted towards newer board spectrum and last resort antibiotics including fluoroquinolones, carbapenems and polymyxins.[2]

Antibiotics are the most frequently prescribed group of drugs in our developing country like india.[12] The misuse of antibiotic is particularly striking in India, which is ranked as one of the world's largest consumers of antibiotics for human health. Most private pharmacies in India are operated by unqualified pharmacists rather than trained and licensed pharmacists, which exacerbates the practice of disbursing medicines normally which are not available Over-The-Counter without prescription from an appropriate medical practitioner.[3]

Self-medication, incorrect prescription, inappropriate consumption and excessive use of these antimicrobial drugs could be the key factors, for the increase and spread of Antibiotic Resistance. This increase in antibiotic resistance will eventually diminish their therapeutic effectiveness and increase treatment failures leading to more severe illness with higher mortality rate.[4]

The inappropriate use of antibiotics could result from a complex interaction among various factors: - prescriber behaviors and knowledge, diagnostic uncertainty, patient demand, the poor- patient prescriber interaction and macro level factors such as sociocultural, economic and health care regulatory policy. Furthermore, patient's knowledge, beliefs and attitudes, their expectations and experience with antibiotics have the contributing factor for spread and emergence of resistant microorganism.[15] In various studies, it has been found that taking an inappropriate dosage of antibiotics can result in the development of resistant bacteria and

diminish the ability of the oral flora to resist the colonization of harmful micro-organisms, there by leading to super infections caused by Multi drug resistant bacteria.[5]

Considering the public health importance of this issue the WHO recommends that antibiotics should only be used when prescribed by a certified health professional, discourages the sharing and use of leftover antibiotics and encourages regimen completion even when symptoms disappear.[6]

The public plays a key role in the emergence and spread of bacterial resistance to the antibiotics. In 2000, the WHO report overcoming antimicrobial resistance identified three key issues for public involvement- improving access to medical services, reducing unnecessary use of antimicrobial drugs and not sharing medication with other peoples or keeping part of course for another occasion. Several countries have undertaken campaigns to encourage the public to ask for less antibiotics. These campaigns advice the public that antibiotics do not work on cough and cold.[7]

The impact of knowledge, attitude and practice of general public on antibiotic use is important to prevent misuse of antibiotics and antibiotic resistance. Education can improve the understanding of antibiotic use among the public to potentially reduce the resistance. An understanding of the current knowledge, attitude and practice of the public in regard to antibiotic use is important to inform intervention development plans.[8] Understanding patient's antibiotic knowledge, attitude and practice can help to maintain effectiveness and it is crucial step in the design of strategies to combat this public health threat.[9]

METHODOLOGY

Study site

Chigateri District Hospital, Davangere (Tertiary care teaching hospital).

Study design

Cross sectional, questionnaire based study.

Sample size

The study was conducted in 200 patients in a tertiary care teaching hospital.

Study criteria

- The study was carried out by considering the following Inclusion and Exclusion criteria.

Inclusion criteria

- Patients of either sex.
- Patients who are prescribed with at least one antibiotic.
- Patient admitted in Medicine department
- Patients in medicine outpatient department.

Exclusion criteria

- Patients having missing and insufficient data.
- Pediatric patients, pregnant and lactating women are excluded.

Study procedure

A cross sectional questionnaire based study was conducted among 200 patients who were been admitted to the medicine department of government Chigateri District Hospital Davangere within a period of six months. The Institutional Ethical Committee of SCS College of Pharmacy has approved the study and consent have been obtained from all residents. For this study a specialized KAP questionnaire form was designed.

Questionnaire

Dear participant, you are giving consent to participate in this study by providing answers to the questions. Your answer will be kept confidential and will only be used for the scientific analysis. You have full right to withdraw your consent of participation.

Date of data collection	
Name of the department	
Year of study	
Age	
Marital status	
Gender	
Education	

Knowledge section (Please check the answer according to your choice)

1) Antibiotics are effective for the treatment of bacterial infection.	a. True b. False c. Uncertain
2) Antibiotics are effective for sore throat.	a. True b. False c. Uncertain
3) One need to take antibiotics for a cold with green mucus.	a. True b. False c. Uncertain
4) Once the symptoms are relived, one should immediately stop using antibiotics.	a. True b. False c. Uncertain
5) Antibiotics are effective for viral infection.	a. True b. False c. Uncertain
6) Antibiotics can speed up recovery from flu.	a. True b. False c. Uncertain

Attitude section (Please check the answer according to your choice)

1) Do you usually stop taking antibiotic when you start feeling better?	a. Yes b. No c. Don't know
2) Do you take antibiotics only when prescribed by doctor?	a. Yes b. No c. Don't know
3) Do you have leftover antibiotics at home?	a. Yes b. No c. Don't know
4) Do you complete the course of treatment with antibiotics even if it feels better?	a. Yes b. No c. Don't know
5) Do you prefer to keep antibiotics at home in case there may be a need for them later?	a. Yes b. No c. Don't know
6) Do you buy antibiotics without medical prescription?	a. Yes b. No c. Don't know

Practice section (Please check the answer according to your choice)

1) Do you consult a doctor before starting antibiotics?	a. Yes b. No c. Don't know
2) Do you buy antibiotics from medicine shops/pharmacies directly?	a. Yes b. No c. Don't know
3) Do you follow the advertisement (leaflets/internet) while purchasing antibiotics?	a. Yes b. No c. Don't know
4) Do you give the antibiotics to your family/friends if they get sick?	a. Yes b. No c. Don't know

RESULTS

1. Distribution of patients according to gender

Out of the 200 participants the males and females had a comparable participation rate of 53.7% (107) and 46.5 %(93) respectively.

Table 1: Distribution of patients according to gender.

Gender	Patients, n (%)
Male	107, (53.7%)
Female	93, (46.5%)

2. Distribution of patients according to age

The total number of patients was classified into three age groups: 18-34, 35-49, 50-64, and above 65 years. Most common patients were between 18-34 years.

Table 2: Distribution of patients according to age.

Age in years	Patients, n (%)
18-34	55, (27.5%)
35-49	48, (24%)
52-64	49, (24.5%)
>65	48, (24%)

Minimum age (years)	18
Maximum age (years)	90

3. Distribution according to marital status

Majority of the participants were married (Table no: 6.3)

Table 3: Distribution of patients according to marital status.

Marital status	No: of patients (%)	Males	Females
Married	157(78.5%)	81(75.7%)	76(81.7%)
Unmarried	43(21.5%)	26(24.2%)	17(18.2%)

4. Distribution of patients according to educational status

A greater number of participants were uneducated (23.5%), followed by primary 22%, high school 18.5% and 18% for both PUC and degree (Table 6.4)

Table 4: Distribution of patients according to educational status.

Educational status	No: Of patients (%)
Uneducated	47(23.5%)
Primary	44(22%)
High school	37(18.5%)
PUC	36(18%)
Degree	36(18%)

5. Knowledge of antibiotic use among participants

As it is shown in Table 6.5,80% of the participants agreed that the statement Antibiotics are effective for the treatment of bacterial infection was true, 11% were uncertain and 9%, agreed that the statement was false. Majority of the participant were aware that Antibiotic are effective for treatment for bacterial infection. A large part of the participants believed that Antibiotic are effective for sore throat. More number of participants was uncertain of the statement, that one need to take antibiotic for a cold with green mucus only 8 % agreed that it is true. Only 48.5% agreed that the statement antibiotics are effective for viral infection is false. For the statement Antibiotics can speed up recovery from Flu, only 9.5 % agreed that the statement was false. And 84 % true and 6.5% wasuncertain.

Table 5: Knowledge of antibiotic use among patients.

Sl. no	Statements	True	False	Uncertain
1)	Antibiotics are effective for the treatment of bacterial infection.	160(80%)	18(9%)	22(11%)
2)	Antibiotics are effective for sore throat	91(45.5%)	76(38%)	33(16.5%)

3)	One need to take antibiotics for a cold with green mucus.	16(8%)	58(29%)	126(63%)
4)	Once the symptoms are relieved, one should immediately stop using antibiotics.	75(37.5%)	97(48.5%)	28(14%)
5)	Antibiotics are effective for viral infections.	158(79%)	31(15.5%)	11(5.5%)
6)	Antibiotics can speed up recovery from flu.	168(84%)	19(9.5%)	13(6.5%)

6. Attitude towards antibiotic use among the patients

As it is depicted in the table 6.6, 35% of participants did not stop taking antibiotics when they started feeling better. 93% of people took antibiotic only when prescribed by doctor. 43% had leftover antibiotics at home. 62% patients didn't complete the course of treatment with antibiotics when they started feeling better. 16% preferred to keep antibiotics at home in case there may be a need for them later. 7% of patients bought antibiotics without medical prescription.

Table 6: Attitude towards antibiotic use among the patients.

Sl. No	Questions	Yes	No	Don't know
1)	Do you usually stop taking antibiotic when you start feeling better?	130(65%)	70(35%)	-
2)	Do you take antibiotics only when prescribed by doctor?	186(93%)	14(7%)	-
3)	Do you have leftover antibiotics at home?	86(43%)	114(57%)	-
4)	Do you complete the course of treatment with antibiotics even if it feels better?	76(38%)	124(62%)	-
5)	Do you prefer to keep antibiotics at home in case there may be a need for them later?	188(84%)	12(16%)	-
6)	Do you buy antibiotics without medical prescription?	14(7%)	186(93%)	-

7. Antibiotics in practice among patients

As depicted in the table 6.7 out of the total 200 patients 93% participants agreed that they consult a doctor before starting antibiotics. 87% said that they buy antibiotics from medicine shops or pharmacies directly, only 13% of the participants bought antibiotics other than pharmacies. 95% of the participants don't follow the advertisement (leaflets/internet) while purchasing antibiotics. Only 7.5% of the participants gives antibiotic to their family or friends when they are sick.

Table 7: Antibiotics in practice among patients.

Sl. No	Questions	Yes	No	Don't know
1)	Do you consult a doctor before starting antibiotics?	186(93%)	14(7%)	-
2)	Do you buy antibiotics from medicine shops or pharmacies directly?	174(87%)	26(13%)	-
3)	Do you follow the advertisement (leaflets/internet) while purchasing antibiotics?	10(5%)	190(95%)	-
4)	Do you give antibiotic to your family or friends when they are sick?	15(7%)	185(92.5%)	-

Table 8: Relationship between knowledge of antibiotic use versus gender.

Statement	Male	Female
1. Antibiotics are effective for the treatment of bacterial infection.		
True	94(87.85%)	66(70.96%)
False	3(2.80%)	15(16.12%)
Uncertain	10(9.34%)	12(12.90%)
2. Antibiotics are effective for sore throat.		
True	45(42.05%)	31(33.3%)
False	45(42.05%)	46(49.46%)
Uncertain	17(15.88%)	16(17.20%)
3. One needs to take antibiotics for a cold with green mucus.		
True	10(9.34%)	6(6.45%)
False	32(29.9%)	26(27.95%)
Uncertain	65(16.74%)	61(65.59%)
4. Once the symptoms are relieved, one should immediately stop using antibiotics		
True	37(34.57%)	38(40.86%)
False	52(48.59%)	45(48.38%)
Uncertain	18(16.82%)	10(10.75%)
5. Antibiotics are effective for viral infections.		
True	91(85.04%)	67(72.04%)
False	6(5.60%)	25(26.88%)
Uncertain	10(9.34%)	1(1.07%)
6. Antibiotics can speed up recovery from flu.		
True	86(80.37%)	82(88.17%)
False	9(8.41%)	10(10.75%)
Uncertain	12(11.21%)	1(1.07%)

Table 9: Relationship between attitudes regarding antibiotic Use and Gender of the patients.

Questions	Male	Female
1. Do you usually stop taking antibiotic when you start feeling better?		
Yes	69(64.48%)	61(65.5%)
No	38(35.51%)	32(34.40%)

Don't know	0	0
2. Do you take antibiotics only when prescribed by doctor?		
Yes	99(0.009%)	87(93.5%)
No	8(7.47%)	6(6.45%)
Don't know	0	0
3. Do you have leftover antibiotics at home?		
Yes	36(33.64%)	50(53.7%)
No	71(66.3%)	43(46.2%)
Don't know	0	0
4. Do you complete the course of treatment with antibiotics even if it feels better?		
Yes	43(40.1%)	33(35.48%)
No	64(59.8%)	60(64.5%)
Don't know	0	0
5. Do you prefer to keep antibiotics at home in case there may be a need for them later?		
Yes	7(6.54%)	5(5.37%)
No	100(93.45%)	88(94.62%)
Don't know	0	0
4. Do you buy antibiotics without medical prescription?		
Yes	8(7.47%)	6(6.45%)
No	99(92.52%)	87(93.54%)
Don't know	0	0

Table 10: Relationship between practice regarding antibiotic Use and Gender of the patients.

Questions	Male	Female
1. Do you consult a doctor before starting antibiotics?		
Yes	99(92.52%)	87(93.54%)
No	8(7.47%)	6(6.45%)
Don't know	0	0
2. Do you buy antibiotics from medicine shops or pharmacies directly?		
Yes	92(85.98%)	82(88.17%)
No	15(14.01%)	11(11.82%)
Don't know	0	0
3. Do you follow the advertisement (leaflets/internet) while purchasing antibiotics?		
Yes	8(7.47%)	2(2.15%)
No	99(92.52)	91(97.84%)
Don't know	0	0
4. Do you give antibiotic to your family or friends when they are sick?		
Yes	5(4.67%)	10(10.75%)
No	102(95.32%)	83(89.24%)
Don't know	0	0

Table 11: Relationship between knowledge of antibiotic use versus age group.

Questions	18-34 yrs	35-49 yrs	50-64 yrs	>65 yrs
1. Antibiotics are effective for the treatment of bacterial infection.				
True	52(26%)	45(22.5%	32(16%)	31(15.5%)

False	2(1%)	2(1%)	4(2%)	10(5%)
Uncertain	1(0.5%)	1(0.5%)	13(6.5%)	7(3.5%)
2. Antibiotics are effective for sore throat				
True	15(7.5%)	21(10.5%)	20(10%)	20(10%)
False	35(17.5%)	25(12.5%)	20(10%)	11(5.5%)
Uncertain	5(2.5%)	2(1%)	9(4.5%)	17(8.5%)
3. One needs to take antibiotics for a cold with green mucus.				
True	8(4%)	3(1.5%)	3(1.5%)	2(1%)
False	21(10.5%)	21(10.5%)	11(5.5%)	5(2.5%)
Uncertain	26(13%)	24(12%)	35(17.5%)	41(20.5%)
4. Once the symptoms are relieved, one should immediately stop using antibiotics.				
True	8(4%)	14(7%)	22(11%)	31(15.5%)
False	45(22.5%)	27(13.5%)	18(9%)	13(6.5%)
Uncertain	7(3.5%)	8(4%)	9(4.5%)	4(2%)
5. Antibiotics are effective for viral infections.				
True	34(17%)	45(22.5%)	34(17%)	45(22.5%)
False	17(8.5%)	1(0.5%)	11(5.5%)	2(1%)
Uncertain	4(2%)	2(1%)	4(2%)	1(0.5%)
6. Antibiotics can speed up recovery from flu.				
True	44(22%)	40(20%)	43(21.5%)	41(20.5%)
False	6(3%)	6(3%)	3(1.5%)	4(2%)
Uncertain	5(2.5%)	2(1%)	3(1.5%)	3(1.5%)

Table 12: Relationship between attitudes regarding antibiotic Use and Age groups of the patients.

Questions	18-34 yrs	35-49 yrs	50-64 yrs	>65 yrs
1. Do you usually stop taking antibiotic when you start feeling better?				
Yes	31(15.5%)	19(9.5%)	36(18%)	44(25%)
No	24(12%)	29(14.5%)	13(6.5%)	4(2%)
Don't know	0	0	0	0
2. Do you take antibiotics only when prescribed by doctor?				
Yes	52(26%)	45(22.5%)	46(23%)	43(21.5%)
No	3(1.5%)	3(1.5%)	3(1.5%)	5(2.5%)
Don't know	0	0	0	0
3. Do you have leftover antibiotics at home?				
Yes	11(5.5%)	15(7.5%)	23(11.5%)	37(18.5%)
No	44(22%)	33(16.5%)	26(13%)	11(5.5%)
Don't know	0	0	0	0
4. Do you complete the course of treatment with antibiotics even if it feels better?				
Yes	30(15%)	24(12%)	15(7.5%)	7(3.5%)
No	25(12.5%)	24(12%)	34(17%)	41(20.5%)
Don't know	0	0	0	0
5. Do you prefer to keep antibiotics at home in case there may be a need for them later?				
Yes	2(1%)	5(2.5%)	0	5(2.5%)
No	53(26.5%)	43(21.5%)	49(24.5%)	43(21.5%)

Don't know	0	0	0	0
6. Do you buy antibiotics without medical prescription?				
Yes	3(1.5%)	3(1.5%)	3(1.5%)	5(2.5%)
No	54(26%)	45(22.5%)	46(23%)	43(21.5%)
Don't know	0	0	0	0

Table 13: Relationship between practice regarding antibiotic Use and Of age groups the patients.

Questions	18-34 yrs	35-49 yrs	50-64 yrs	>65 yrs
1. Do you consult a doctor before starting antibiotics?				
Yes	52(26%)	45(22.5%)	46(23%)	43(21.5%)
No	3(1.5%)	3(1.5%)	3(1.5%)	5(2.5%)
Don't know	0	0	0	0
2. Do you buy antibiotics from medicine shops or pharmacies directly?				
Yes	51(25.5%)	40(20%)	41(20.5%)	42(21%)
No	4(2%)	8(4%)	8(4%)	6(3%)
Don't know	0	0	0	0
3. Do you follow the advertisement (leaflets/internet) while purchasing antibiotics?				
Yes	5(2.5%)	5(2.5%)	0	0
No	50(25%)	43(21.5%)	49(24.5%)	48(24%)
Don't know	0	0	0	0
4. Do you give antibiotic to your family or friends when they are sick?				
Yes	0	15(7.5%)	0	0
No	55(27.5%)	33(16.5%)	49(24.5%)	48(24%)
Don't know	0	0	0	0

Table 14: Relationship between knowledge of antibiotic use versus marital status of the patients.

Statement	Married	Unmarried
1. Antibiotics are effective for the treatment of bacterial infection.		
True	122(61%)	38(19%)
False	16(8%)	2(1%)
Uncertain	19(9.5%)	3(1.5%)
2.Antibiotics are effective for sore throat		
True	68(34%)	18(9%)
False	62(31%)	29(14.5%)
Uncertain	27(13.5%)	6(3%)
3. One need to take antibiotics for a cold with green mucus.		
True	12(6%)	4(2%)
False	40(20%)	18(9%)
Uncertain	105(52.5%)	21(10.5%)
4. Once the symptoms are relieved, one should immediately stop using antibiotics.		
True	67(33.5%)	8(4%)
False	64(32%)	32(60%)
Uncertain	25(12.5%)	3(1.5%)

5. Antibiotics are effective for viral infections.		
True	124(62%)	115(57.5%)
False	24(12%)	7(3.5%)
Uncertain	9(4.5%)	2(1%)
6. Antibiotics can speed up recovery from flu.		
True	136(68%)	32(16%)
False	12(6%)	7(3.5%)
Uncertain	9(4.5%)	4(2%)

Table 15: Relationship between attitudes regarding antibiotic Use and Marital status of the patients.

Questions	Married	Unmarried
1. Do you usually stop taking antibiotic when you start feeling better?		
Yes	108(54%)	22(11%)
No	49(24.5%)	21(10.5%)
Don't know	0	0
2. Do you take antibiotics only when prescribed by doctor?		
Yes	150(75%)	36(80%)
No	7(3.5%)	7(3.5%)
Don't know	0	0
3. Do you have leftover antibiotics at home?		
Yes	76(38%)	10(5%)
No	81(40.5%)	33(16.5%)
Don't know	0	0
4. Do you complete the course of treatment with antibiotics even if it feels better?		
Yes	63(31.5%)	13(6.5%)
No	94(47%)	30(15%)
Don't know	0	0
5. Do you prefer to keep antibiotics at home in case there may be a need for them later?		
Yes	7(3.5%)	5(2.5%)
No	150(75%)	38(19%)
Don't know	0	0
6. Do you buy antibiotics without medical prescription?		
Yes	7(3.5%)	7(3.5%)
No	150(75%)	36(18%)
Don't know	0	0

Table 16: Relationship between practice regarding antibiotic use and marital status of the patients.

Questions	Married	Unmarried
1. Do you consult a doctor before starting antibiotics?		
Yes	150(75%)	36(18%)
No	7(3.5%)	7(3.5%)
Don't know	0	0
2. Do you buy antibiotics from medicine shops or pharmacies directly?		

Yes	135(67.5%)	39(19.5%)
No	22(11%)	4(2%)
Don't know	0	0
3. Do you follow the advertisement (leaflets/internet) while purchasing antibiotics?		
Yes	3(1.5%)	5(2.5%)
No	154(77%)	36(18%)
Don't know	0	0
4. Do you give antibiotic to your family or friends when they are sick?		
Yes	10(5%)	5(2.5%)
No	147(73.5%)	38(19%)
Don't know	0	0

Table 17: Relationship between knowledge of antibiotic use versus education.

Statement	Uneducated	Primary	High school	PUC	Degree
1. Antibiotics are effective for the treatment of bacterial infection.					
True	7(3.5%)	44(22%)	37(18.5%)	36(18%)	36(18%)
False	18(9%)	0	0	0	0
Uncertain	22(11%)	0	0	0	0
2. Antibiotics are effective for sore throat					
True	27(13.5%)	39(19.5%)	25(12.5%)	0	0
False	0	0	12(6%)	36(18%)	28(14%)
Uncertain	20(10%)	5(2.5%)	0	0	8(4%)
3. One need to take antibiotics for a cold with green mucus.					
True	0	0	0	10(5%)	6(3%)
False	0	4(2%)	23(11.5%)	21(10.5%)	10(5%)
Uncertain	47(23.5%)	40(20%)	14(7%)	5(2.5%)	20(10%)
4. Once the symptoms are relieved, one should immediately stop using antibiotics.					
True	47(23.5%)	28(14%)	0	0	0
False	0	0	25(12.5%)	36(18%)	36(18%)
Uncertain	0	16(8%)	12(6%)	0	0
5. Antibiotics are effective for viral infections.					
True	47(23.5%)	44(22%)	37(18.5%)	28(14%)	2(1%)
False	0	0	0	2(1%)	29(14.5%)
Uncertain	0	0	0	6(3%)	5(2.5%)
6. Antibiotics can speed up recovery from flu.					
True	34(17%)	44(22%)	37(18.5%)	27(13.5%)	26(13%)
False	0	0	0	9(4.5%)	10(5%)
Uncertain	13(6.5%)	0	0	0	0

Table 18: Relationship between attitudes regarding antibiotic use and education of the patients.

Questions	Uneducated	Primary	High school	PUC	Degree
1. Do you usually stop taking antibiotic when you start feeling better?					
Yes	47(23.5%)	44(22%)	0	29(14.5%)	10(5%)
No	0	0	37(18.5%)	7(3.5%)	26(13%)
Don't know	0	0	0	0	0
2. Do you take antibiotics only when prescribed by doctor?					

Yes	47(23.5%)	44(22%)	30(15%)	34(17%)	31(15.5%)
No	0	0	7(3.5%)	2(1%)	5(2.5%)
Don't know	0	0	0	0	0
3. Do you have leftover antibiotics at home?					
Yes	47(23.5%)	39(19.5%)	0	0	0
No	0	5(2.5%)	37(18.5%)	36(18%)	36(18%)
Don't know	0	0	0	0	0
4. Do you complete the course of treatment with antibiotics even if it feels better?					
Yes	0	0	23(11.5%)	27(13.5%)	26(13%)
No	47(23.5%)	44(22%)	14(7%)	9(4.5%)	10(5%)
Don't know	0	0	0	0	0
5. Do you prefer to keep antibiotics at home in case there may be a need for them later?					
Yes	0	0	8(4%)	0	4(2%)
No	47(23.5%)	44(22%)	29(14.5%)	36(18%)	32(16%)
Don't know	0	0	0	0	0
6. Do you buy antibiotics without medical prescription?					
Yes	0	0	7(3.5%)	2(1%)	5(2.5%)
No	47(23.5%)	44(22%)	30(15%)	34(17%)	31(15.5%)
Don't know	0	0	0	0	0

Table 19: Relationship between practice regarding antibiotic use and education of the patients.

Questions	Uneducated	Primary	High school	PUC	Degree
1. Do you consult a doctor before starting antibiotics?					
Yes	47(23.5%)	44(22%)	30(15%)	34(17%)	31(15.5%)
No	0	0	7(3.5%)	2(1%)	5(2.5%)
Don't know	0	0	0	0	0
2. Do you buy antibiotics from medicine shops or pharmacies directly?					
Yes	31(15.5%)	34(17%)	37(18.5%)	36(18%)	36(18%)
No	16(8%)	10(5%)	0	0	0
Don't know	0	0	0	0	0
3. Do you follow the advertisement (leaflets/internet) while purchasing antibiotics?					
Yes	0	0	0	0	10(5%)
No	47(23.5%0	44(22%)	37(18.5%)	36(18%)	26(13%)
Don't know	0	0	0	0	0
4. Do you give antibiotic to your family or friends when they are sick?					
Yes	12(6%)	0	0	0	3(1.5%)
No	35(17.5%)	44(22%)	37(18.5%)	36(18%)	33(16.5%)
Don't know	0	0	0	0	0

DISCUSSION

In the present study a total of 250 questionnaires were distributed, out of which 200 were eligible for analysis. Out of the 200 participants, 53.7% were males and 46.5% were females. In our study patients were divided into four age groups 18-34(27.5%), 35-49(24%), 52-

64(24.5%) and >65 (24%), the trend was similar to the study conducted in Romania by Voidazan S *et al*.,[10] 78.5% of the participants were married and 21.5% were unmarried. 23.5% of the participants were uneducated where as 22% had only primary level of education and 54.5% of the participants had at least high school level of education and more.

In this study 80% of the participants agreed that the statement antibiotics are effective for the treatment of bacterial infections. This finding is higher than (66.5%) the study conducted in Kuwait by Awad AI *et al*.,[11] and (78.3%) the study conducted in Malaysia by Lim KK *et al*.,[12] 91% of the participants agreed to the statement that antibiotics are effective for sore throat which is higher than (64%) the study conducted by Khojali AA *et al*.,[13] 79% of the participants agreed that antibiotics are effective for viral infections. It was observed in our study that there is confusion among the people regarding the actions of antibiotics. The above-mentioned results demonstrate that people are ignorant of the differences between bacteria and viruses. Other studies done in Sweden by Andre M *et al*.,[11] showed similar results with people that do not know antibiotics are ineffective against viruses.

In our study 65% of the participants usually stopped taking antibiotics when they started feeling better. This finding is higher than that found in the study conducted in Kuwait by Awad Al *et al*.,[11] which had a result of 45% of participants and 33.2% in western region of Saudi Arabia by Shatla M *et al*.,[14] 93% of the participants had a positive attitude of taking antibiotics only when prescribed by doctor.43% of the participants had a negative attitude of keeping leftover antibiotics at home which was similar to the result (44,3%) found in the study conducted in Kuwait by Awad Al *et al*., and (42.1%) in Saudi Arabia by Shatla M *et al*.,[14] 7% of the participants agreed that they will give antibiotic to their family or friends when they are sick, which is less than that found in the study conducted in northwestern Ethiopia Geta K *et al*.,[9] which has 49.6% of the participants giving antibiotics to their family or friends. In our study only 5% of the people said that they follow the leaflets or internet while purchasing antibiotics.

In our study females had a higher level of knowledge about antibiotics than males but males showed better attitude and practice compared to females. The participants in the age group 18-34 and 35-49 showed better knowledge, Attitude and Practice towards antibiotic use than the other age groups. Our study point out that higher education is positively associated with better attitude, knowledge and practice towards antibiotic use. This was similar to the study done in India by Bhardwaj K *et al*.[15]

CONCLUSION

The purpose of this study was to assess the knowledge, Attitudes and Practice (KAP) towards antibiotic use. We concluded that most of our Study participants had poor overall KAP. Our study demonstrates overall a widespread misconception regarding antibiotics, their actionand their use. The present study highlighted the gaps in knowledge, attitude and Practice of the patients regarding antibiotics.

As in the case of any public surveys, our results are also largely based on reported rather than measured behavior Respondents may have only reported their knowledge regarding the use of antibiotics and not their real behavior. There were no ways to assess the honesty of the participants answer to the survey questions.

Despite the limitations described above, the results provide important information for assessing and improving the public's understanding of antibiotics. This information can be used to design interventions targeting the misconceptions among the general public.

ACKNOWLEDGEMENT

The authors are thankful to **Dr. Nagendra Rao**, the principal of SCS College of pharmacy, harapanahalli, for the encouragement and significant support for the study.

Authors contribution

All authors have contributed. equally.

Conflict of interest

NIL.

Ethics declaration

The Institutional Ethics Committee of SCS College of pharmacy has approved the Protocol and Consent have been obtained from all residents.

Consent for publication

All authors have consented for the publication of their work.

Competing interest

All authors declare that they have no competing. interests.

Authors funding

The authors hereby stated that they did not obtained any financial support from any source for the writing or publication of this article.

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