International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

IJAMSCR |Vol.13 | Issue 4| Oct - Dec -202

www.ijamscr.com

ISSN: 2347-6567

DOI : https://doi.org/10.61096/ijamscr.v13.iss4.2025.863-876

Review

Prescribing Practices and Public Awareness of Oral Antibiotics: A Community Based Study

Dr. Mohammed Younus*[1], Abhijit Maity[2], Deep Pandit[3], Amartya Guria[4],

[1] *Department of pharmacy practice, Oxbridge college of Pharmacy, Mahadeshwaranagar, Bengaluru, India*
[2] *Department of pharmacy practice, Oxbridge college of Pharmacy, Mahadeshwaranagar, Bengaluru, India*
[3] *Department of pharmacy practice, Oxbridge college of Pharmacy, Mahadeshwaranagar, Bengaluru, India*
[4] *Department of pharmacy practice, Oxbridge college of Pharmacy, Mahadeshwaranagar, Bengaluru, India*

*Corresponding author: Dr. Mohammed Younus
Email: Younus8043@gmail.com

Published on: 08.12.25

Published by:
Futuristic Publications

Abstract

This cross sectional study examined the public knowledge and awareness about oral antibiotics and prescribing practices of oral antibiotics by the healthcare provider.

This study is a community based cross-sectional study where a survey conducted on community populations in Bangalore for a period of six month. Where we used a pre-verified questionnaire form to assess the public knowledge, awareness about oral antibiotics and the prescribing practices of antibiotics by the healthcare providers. This survey has been conducted on a population with 422 participants where 401 general public and 21 healthcare providers included.

The majority of participants (376) almost 93.8% of the total participants responded that they have taken oral antibiotics. 76.1% (305) participants from the total study population have been states that they knows about the antibiotics, and 296 participants almost 73.8% of the total study population states that they aware about the usage of antibiotics. The participants those who states that they know about the antibiotics, among them 79 (25.9%) individuals states that the uses of antibiotics should stop once you feel better, even some of the doses are left according to prescription, whereas 160(52.5%) participants disagreed with this statement.

Through this study we can conclude that the Knowledge about the oral antibiotics uses among the population is found to be less which is required for the better quality of life. The incidences of self medication of antibiotics are more in rural area whereas in urban area majority of people takes consultations of prescriber before taking oral antibiotics.

Keywords: Antimicrobial resistance, Antibiotic resistance, Self-Medication, Antibiotics

INTRODUCTION

Antimicrobial resistance:

Antimicrobial resistance is a global burden, indiscriminate of country border or income levels, and exacerbated by "lack of access to clean water, sanitation and hygiene, poor infection prevention and control in healthcare facilities, lack of awareness, and poor access to quality diagnostics, treatments and vaccines". AMR is estimated to have contributed to over 4.95 million deaths worldwide in 2019, with an approximate economic burden of US$1 trillion in additional healthcare costs by 2050 [1].

Antibiotic resistance :

Antibiotic resistance is a growing global health threat worldwide and especially in developing countries.Resistance occurs when there is a single-step mutation that occurs during or after therapy and increases the MIC of a previously susceptible isolate to extremely high levels unachievable using the therapeutic doses for example the development of gentamicin-resistant P. aeruginosa [2].

Antibiotic resistance with some microorganisms has become a worldwide concern. Penicillin resistance among gonococci and staphylococcal strains was first noted. Methicillin resistant Staphylococcus aureus (MRSA) emerged in the 1970s. (PPNG) strains constitute most gonococcal strains from many geographical locations. Aminoglycoside-resistant Pseudomonas aeruginosa was first noted after the widespread use of gentamicin. Ceftazidime-resistant and ciprofloxacin-resistant P. aeruginosa remain a concern today. Resistance among respiratory pathogens (e.g., Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis) has increased since the 1970 virtually all strains of M. catarrhalis are p-lactamase- producing strains resistant to penicillin and other P-lactam antibiotics. Ampicillin- resistant H. influenzae have increased and now are common in many areas worldwide. Relative penicillin-resistant pneumococci have been reported worldwide. Most penicillin resistance is relative, and highly penicillin-resistant strains remain uncommon [3].

Bacteria:

Bacteria are microscopic, single-celled organisms that exist in their millions, in every environment, both inside and outside other organisms. Some bacteria are harmful, but most serve a useful purpose. They support many forms of life, both plant and animal, and they are used in industrial and medicinal processes. Bacteria are thought to have been the first organisms to appear on earth, about 4 billion years ago [4].

Types of bacteria:

There are many different types of bacteria. One way of classifying them is by shape. There are three basic shapes.

Spherical shaped:

Bacteria shaped like a ball are called cocci, and a single bacterium is a coccus. Examples include the streptococcus group, responsible for "strep throat."

Rod-shaped:

These are known as bacilli (singular bacillus). Some rod-shaped bacteria are curved. These are known as vibrio. Examples of rod-shaped bacteria include Bacillus anthracis (B. anthracis), or anthrax.

Spiral shaped:

These are known as spirilla (singular spirillus). If their coil is very tight they are known as spirochetes. Leptospirosis, Lyme disease, and syphilis are caused by bacteria of this shape

Types of bacteria on the basis of gram staining:

Gram positive bacteria:

The cell wall of these bacteria is mainly composed of peptidoglycan. In gram staining they retain crystal violet or purple, they remain colored with gram stain when washed with alcohol solution. Eg : staphylococcus spp., streptococcus spp., etc

Gram negative bacteria:

Their cell wall is mainly composed of lipopolysaccharides. In gram staining, they can be decolorized to accept counter stain (safranin or fuchsine) and stain red or pink, they don't retain the gram stain when washed with alcohol solution. They have high lipid and lipoprotein content.

Eg : Escherichia coli, salmonella spp., etc [5].

Antibiotics:

Antibiotics are vital to treat bacterial infections ranging from life-threatening infections, such as sepsis, to minor infections, such as strep throat. These compounds are designed to attack particular physiological targets, such as cell wall synthesis, protein synthesis or DNA replication in the organism[6].

Classification of antibiotics: Classification based on chemical nature/ structure:

B- Lactams:

Beta- lactam antibiotics are those antibiotics that contain a beta-lactam ring in their chemical structure. All B-lactam antibiotics interfere with the synthesis of bacterial cell wall. The peptidoglycan residues are linked together forming long strands and UDP is split off. The final step is cleavage of the terminal D-alanine of the peptide chains by trans peptidases; the energy so released is utilized for establishment of cross linkages between peptide chains of the neighboring strands. This cross linking provides stability and rigidity to the cell wall. The β-lactam antibiotics inhibit the trans peptidases so that cross linking (which maintains the close knit structure of the cell wall) does not take place. These enzymes and related proteins constitute the (PBPs) which have been located in the bacterial cell membrane.

Types of Beta-lactam antibiotics:

Penicillins: Penicillin was the first antibiotic to be used clinically in 1941. It was originally obtained from the fungus Penicillium notatum, but the present source is a high yielding mutant of P. chrysogenum.

Types of penicillin:

Natural: eg: penicillin G, penicillin- VK

Penicillinase: eg: methicillin, nafcillin, oxacillin, cloxacillin, dicloxacillin.

Aminopenicillins: eg: ampicillin, amoxicillin

Carboxypenicillins: eg: carbenicillin, ticarcillin

Ureidopenicillin: eg: pipercillin, mezlocillin.

Beta- lactamase inhibitor: Eg. Clavulanic acid, Sulbactam, Tazobactam [7].

Cephalosporins:

Derived from 'cephalosporin-C', obtained from a fungus Cephalosporium. They are chemically related to penicillins; the nucleus consists of a β-lactam ring fused to a dihydrothiazine ring, (7-aminocephalosporanic acid). By addition of different side chains at position 7 of β-lactam ring (altering spectrum of activity) and at position 3 of dihydrothiazine ring (affecting pharmacokinetics), a large number of semi- synthetic compounds have been produced.

Types of cephalosporin:

First generation cephalosporin: Eg. Parenteral – Cefazolin. Oral – Cephalexin, Cefadroxil.

Second generation cephalosporin:

Eg. Parenteral – Cefuroxime, Cefoxitin.

Oral – Cefactor, Cefuroxime axetil, Cefprozil.

Third generation cephalosporin:

Eg. Parenteral – Cefotaxime, Ceftrizoxime, Ceftriaxone, Ceftazidine, Cefoperazone.

Oral- Cefixime, Cefpodoxime proxetil, Cefdinir, Ceftibuten, Ceftamet pivoxil

Fourth generation cephalosporin:

Eg. Parenteral – cefepime , cefpirome[7].

Monobactams :

It is a novel β-lactam antibiotic in which the other ring is missing (hence monobactam), but acts by binding to specific PBPs. It inhibits gram-negative enteric bacilli and H. influenzae at very low concentrations and Pseudomonas at moderate concentrations, but does not inhibit gram-positive cocci or faecal anaerobes.

Carbapenems:

Carbapenem is derivative of thienamycin, imipenem which is an extremely potent and broad spectrum β-lactam antibiotic, whose range of activity includes gram- positive cocci, Enterobacteriaceae, Ps. aeruginosa, Listeria as well as anaerobes like Bact. fragilis and Cl. difficile. It is resistant to most β-lactamases; inhibits penicillinase producing staphylococci.

Tetracyclines:

All are obtained from soil actinomycetes. The first to be introduced was chlortetracycline in 1948 under the name aureomycin (because of the golden yellow colour of S. aureofaciens colonies producing it).

Macrolides:

The macrolides are a group of antibiotics with a macrocyclic lactone structure to which one or more deoxy sugars are attached. Erythromycin is the first member discovered in the 1950s, roxithromycin, clarithromycin, telithromycin and azithromycin are the later additions.

Aminoglycoside:

These are a group of natural and semisynthetic antibiotics having polybasic amino groups linked glycosidically to two or more aminosugar (streptidine, 2-deoxy streptamine, garosamine) residues. aminoglycosides are products of deliberate search for drugs effective against gram-negative bacteria. Streptomycin was the first member discovered in 1944 by Waksman and his colleagues.

Quinolones and fluroquinolones:

These are synthetic antimicrobials having a quinolone structure that are active primarily against gram-negative bacteria, though the newer fluorinated compounds also inhibit gram-positive ones.

Sulfonamide:

Sulfonamides were the first antimicrobial agents (AMAs) effective against pyogenic bacterial infections.Most bacteria are capable of developing resistance to sulfonamides. Prominent among these are gonococci, pneumococci, Staph. aureus, meningococci, E. coli, Shigella and some Strep. pyogenes, Strep. viridans and anaerobes.

Chloramphenicol:

Chloramphenicol was initially obtained from Streptomyces venezuelae in 1947. It was soon synthesized chemically and the commercial product now is all synthetic. Chloramphenicol was highly active against Salmonella including S. typhi, but resistant strains are now rampant. It is more active than tetracyclines against H. influenzae (though some have now developed resistance), B. pertussis, Klebsiella, N. meningitidis and anaerobes including Bact. fragilis.

Glycopeptides:

Glycopeptide antibiotic discovered in 1956 as a penicillin substitute which assumed special significance due to efficacy against MRSA, Strep. viridans, Enterococcus and Cl. difficile. Bactericidal action is exerted on gram-positive cocci, Neisseria, Clostridia and diphtheroids. However, in hospitals where it has been extensively used for surgical prophylaxis etc., vancomycin-resistant Staph aureus (VRSA) and vancomycin-resistant Enterococcus (VRE) have emerged.

Lincosamides:

Lincosamide antibiotic is similar in mechanism of action (inhibits protein synthesis by binding to 50S ribosome) and spectrum of activity to erythromycin with which it exhibits partial cross resistance.Antibiotic efflux is not an important mechanism of lincosamides resistance. Lincosamide inhibits most grampositive cocci (including most species of streptococci, penicillinase producing Staph., but not MRSA), C. diphtheriae, Nocardia, Actinomyces, Toxoplasma and has slow action on Plasmodia. However, the distinctive feature is its high activity against a variety of anaerobes, especially Bact. fragilis. Aerobic gram-negative bacilli, spirochetes, Chlamydia, Mycoplasma and Rickettsia are not affected.

Oxazolidinoes:

Linezolid: This is the first member of a new class of synthetic AMAs 'Oxazolidinones' useful in the treatment of resistant gram-positive coccal (aerobic and anaerobic) and bacillary infections. It is active against MRSA and some VRSA, VRE, penicillin-resistant Strep. pyogenes, Strep. viridans and Strep. pneumoniae, M. tuberculosis, Corynebacterium, Listeria, Clostridia and Bact. fragilis.

METHODOLOGY:

Study setting:

The study were conducted in a community setting, encompassing both urban and rural areas to ensure a diverse representation of the population in Bangalore. The study design were Cross-sectional study.

Study were conducted for 6 months. The sample size was 422.

Study criteria

Inclusion criteria:

Healthcare providers who mostly prescribe antibiotics in community setting.

Individuals aged 18 years and above irrespective of gender.

Residents of the community where the study is being conducted.

Able to read and understand the language in which the survey / interview is conducted.

Exclusion criteria:

Individuals who is not willing to participate.

Study procedure:

Random sampling technique were used to select households within the community.

Data Collection:

Surveys/questionnaires were administered to individuals within the community to collect data on oral antibiotic usage, knowledge, attitudes, and demographics.

Focus group discussions (FGDs) and semi-structured interviews were conducted with healthcare providers to explore prescribing practices and challenges.

Ethical considerations:

Approval from the Institutional Ethical Committee (ICE) was obtained before initiation of the study.

RESULTS:

Results obtained from public:

Distribution of study population depending upon the Age group:

Table 1: Distribution of participants based on Age group

Age Group (years)	Frequency	% of total	Cumulative %
18-25	210	52.4%	52.4%
26-35	105	26.2%	78.6%
36-50	71	17.7%	96.3%
50- above	15	3.7%	100%

According to the table no.1 within the total number of participants (401), the age group of 18- 25 years represents the largest portion of participants with 210 individuals (52.4 % of total population), then the age group 26-35 years represents 26.2% of total population with 105 individuals, followed by the age group of 36-50 years represents the 3rd position in the total population with 71 individual (17.7% of total population) and the age group 50 years to above includes 15 participants which is the 3.7% of total participants, shown in figure no.01

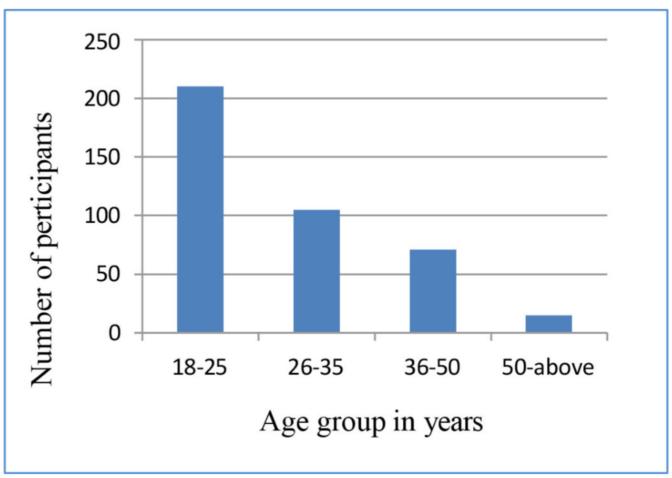

Figure 1: Distribution of participants based on Age group

Distribution of population depending upon the Gender:

Table 2: Frequency distribution of Gender

Gender	Frequency	% of total	Cumulative %
Male	217	54.11 %	54.11 %
Female	184	45.89%	100%

The survey have done on a population which consist of 401 participants in which 217 individuals are male which is the 54.11% of total population and 184 participants are female which is the 45.89% of total population. Here the numbers of male participants are more than the female participants which is shown in table no. 2 and figure no.2.

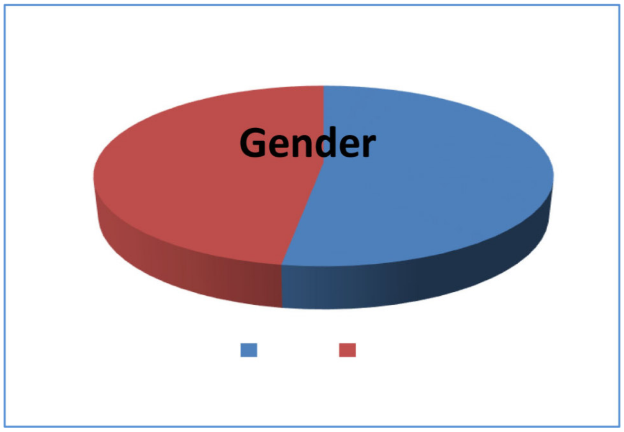

Figure 2: Distribution of Gender

Distribution of population depending upon the Occupation:

Table 3: Frequency distribution of Occupation

Occupation	Frequency	% of total	Cumulative %
Student	196	48.88%	48.88%
Employed	131	32.68%	81.56%
Unemployed	37	9.22%	90.78%
Other	37	9.22%	100%

The majority of the participants are students, almost 196 individuals (48.88%). Followed by employed 131 individuals almost 32.68% of the total participants were participated in this survey, followed by 37 individuals (9.22%) are unemployed and 37 (9.22%) individuals from other category like house wife and businessmen were participated in this study which have shown in table no.3 and figure no.3.

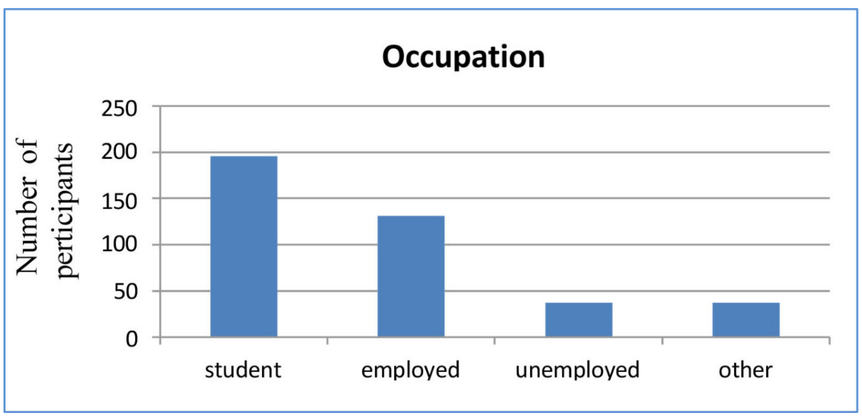

Figure 3: Frequency distribution of Occupation

Distribution of population depending upon the area of survey:

Table 4. : Distribution of study population based on study area.

Area	Frequency	% of total	Cumulative %
Urban	161	40.1 %	40.1 %
Rural	240	59.9%	100%

The survey was conducted in rural area of Bangalore. Almost 240 individuals are from the rural area which is the 59.9% of total participants are participated in the study and rest others participants are from urban area total 161 individuals which is the 40.1% of total participants. Which is shown in table no 4 And figure no. 4.

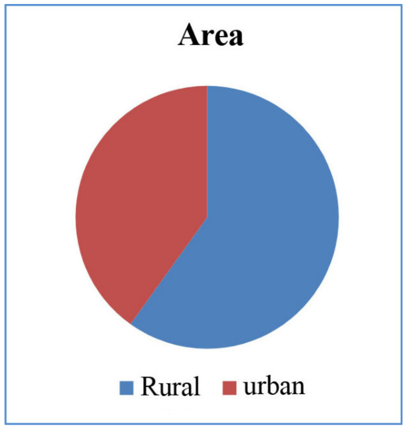

Figure 4. Distribution of participants based on study area.

Knowledge about antibiotics:

Table 5: Knowledge about the antibiotics

Qus.no.	Questions and answers	Frequency	% of total
6.5.1	Have you ever taken oral antibiotics? • Yes • No • Not sure	376 10 15	93.8% 2.5% 3.7%
6.5.2	Do you know about antibiotics? • Yes • No • Not sure	305 60 36	76.1% 15.0% 9.0%
6.5.3	Have you aware about the usage of antibiotic? • Yes • No • Not sure	296 64 41	73.8% 16.0% 10.2%
6.5.4	Which of the following condition can be treated with antibiotics? • Bacterial infection • Viral infection • Fungal infection • Bacterial & viral infection • Bacterial & fungal infection • Bacterial, viral & fungal infection • None of the above	178 33 12 38 118 17 5	44.39% 08.23% 02.99% 09.47% 29.42% 04.25% 01.25%
6.5.5	Do you believe antibiotics are effective against viruses? • Yes • No • Not sure	97 266 38	24.2% 66.3% 9.5%
6.5.6	Do you think it is safe to stop taking antibiotics once you feel better, even if you have some left according to prescription? • Yes • No • Not sure	94 175 132	23.4% 43.6% 32.9%
6.5.7	Do you think over use and misuse of antibiotic can cause harm?		

	• Yes • No • Not sure	292 31 78	72.8% 7.7% 19.5%
6.5.8	What are the potential consequences of overusing or misusing antibiotics? • Antibiotic resistance • Allergic reaction • Harm to beneficial bacteria in the body • No significant consequences • Not sure	35 14 0 334 18	8.7% 3.5% 0 83.3% 4.5%
6.5.9	Have you aware about antibiotic resistance? • Yes • No • Not sure	224 13 164	55.9% 3.2% 40.9%

According to table number 5 we can assess that the majority of participants (376) almost 93.8% of the total participants are responded that they have taken oral antibiotics, where 10 (2.5%) participants are responded that they have not taken oral antibiotics ever and 15(3.7%) participants said that they are not sure about the administration of oral antibiotics. 76.1% (305) participants from the total study population have been states that they knows about the antibiotics where 60 (15%) participants are not known about the antibiotics and 9.0% (36) participants states that they don't know properly about the antibiotics. 296 participants almost 73.8% of the total study population states that they aware about the usage of antibiotic where 64 (16%) participants don't know and 41 (10.2%) participants not sure about the proper usage of antibiotics which all are shown in figure no. 5.

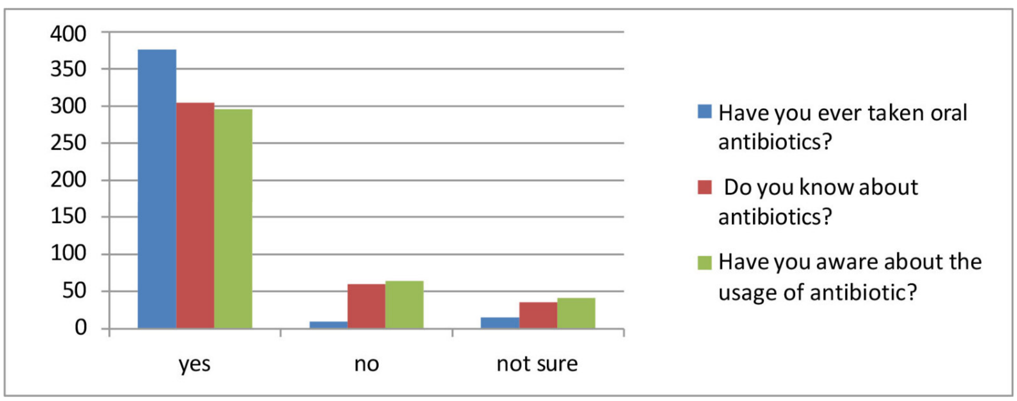

Figure 5: Responses of the public for the survey question no.6.5.1, 6.5.2 & 6.5.3

As we know that antibiotics are effective only against the bacterial infection so majority of participants almost 44.39% (178 participants) are agreed with that statement. Where 118 participants (29.42%) are states that antibiotics are effective against bacterial as well as fungal infections and 38 participants (9.47%) are states that it is useful against the bacterial and viral infection. A low number of participants almost 8.23% (33 participants) states that antibiotics are effective against viral infection and 12 participants (2.99%) states it is effective against fungal infection where 17 participants (4.25%) states that it effective against bacterial, viral as well as fungal infection. which all are shown in table no.5 (question no.6.5.4) and figure no. 6.

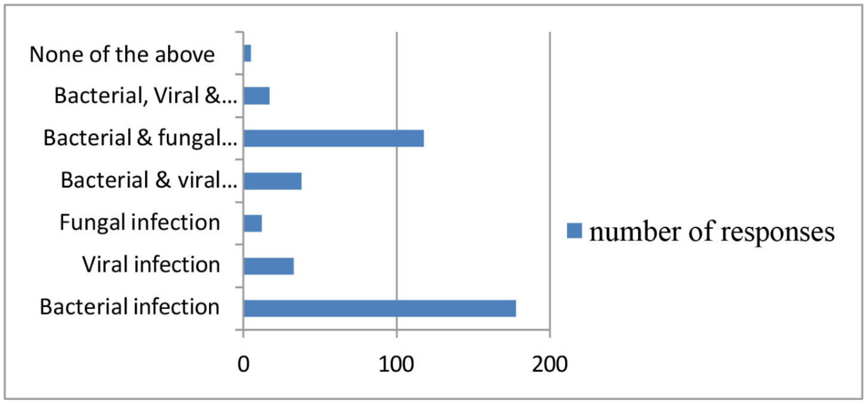

Figure 6: Responses of the public for the survey question no.6.5.4

Majority of participants about 266 (almost 66.3%) from the study populations are disagreed with the statement that antibiotics are effective against viruses and 97 participants almost 24.2% of total participants are agreed and about 9.5% (38 participants) are not sure with that statement.

Years of practice	Frequency	% of total	Cumulative %
Less than 5 years	8	38.1%	38.1%
5-10 years	3	14.3%	52.4%
10-20 years	6	28.6%	81%
More than 20 years	4	19.0%	100%

Figure 8: Frequency distribution depending upon the years of practice

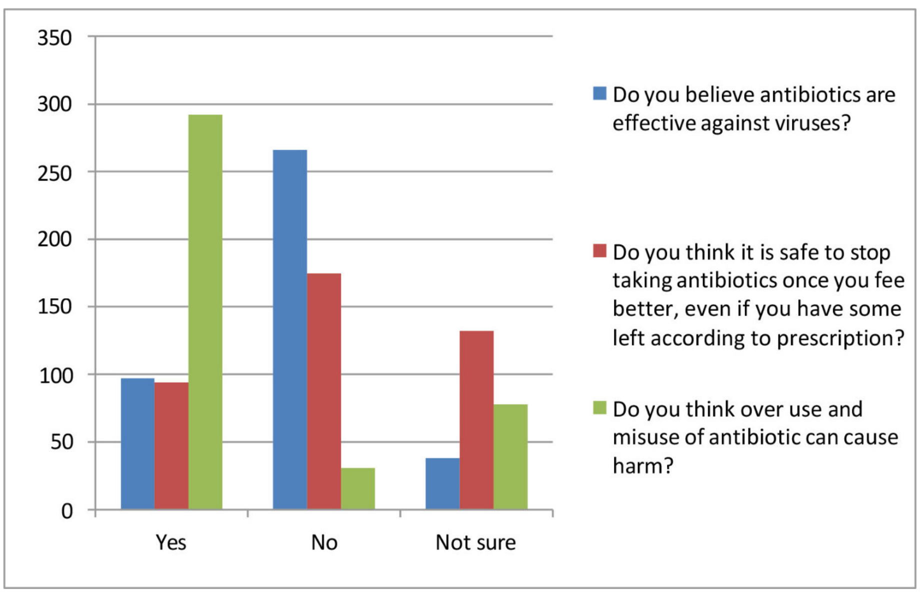

Figure 9: Responses of the public for the survey question no. 6.5.5, 6.5.6 & 6.5.7

Behaviors towards using antibiotics:

Table 6: Behaviors towards using antibiotics

Qus.no.	Questions and answer	Frequency	% of total
6.6.1	Have you ever taken antibiotics without a prescription? • Yes • No • Not sure	 282 116 3	 70.3% 28.9% 0.7%

6.6.2	Do you complete the full course of antibiotics as prescribed by your doctor?		
	• Always	190	47.4%
	• Usually	112	27.9%
	• Sometimes	95	23.7%
	• Never	4	1.0%
6.6.3	Do you consult a healthcare professional before taking antibiotics?		
	• Always	156	38.9%
	• Usually	115	28.7%
	• Sometimes	126	31.4%
	• Never	4	1.0%
6.6.4	Have you ever used leftover antibiotics from a previous illness to treat a new illness?		
	• Yes	162	40.4%
	• No	186	46.4%
	• Not sure	53	13.2%

Among the participants a large number of participants about 282 (70.3%) states that they use to take antibiotics without a prescription where 116 (28.9%) participants states that they never taken antibiotic without prescription and 3 (0.7%) participants states that they are not sure about the uses of medication without the prescription. Which all responses are shown in table no.6 (question no. 6.6.1 & 6.6.4) and figure no. 10.

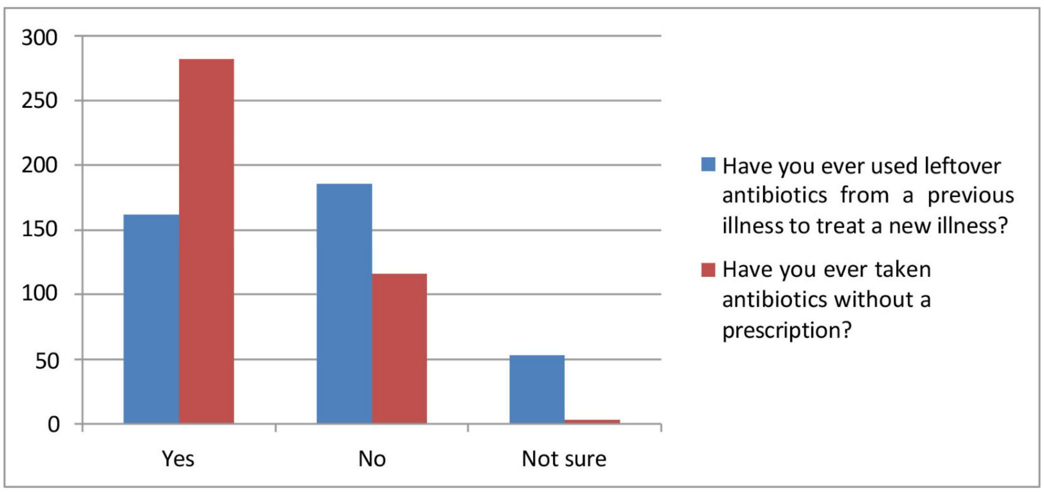

Figure 10: Responses of the public for the survey question no. 6.6.1 & 6.6.4

In the current situation where AMR is a major consequences which may occurs due to improper uses of antibiotics, so it is important to consult a healthcare professional before taking antibiotics.

So a majority around 156 (38.9%) participants states that they always consult a healthcare professional before taking antibiotics where 115 (28.7%) states that usually they use to take consultation before use of antibiotics and 126 (31.4%) participants states that sometimes they have taken and 4 (1%) participants said they have never consult with a healthcare professional before taking antibiotics. Which all are shown in table no.6 (question no.6.6.2 & 6.6.3) and figure no.11.

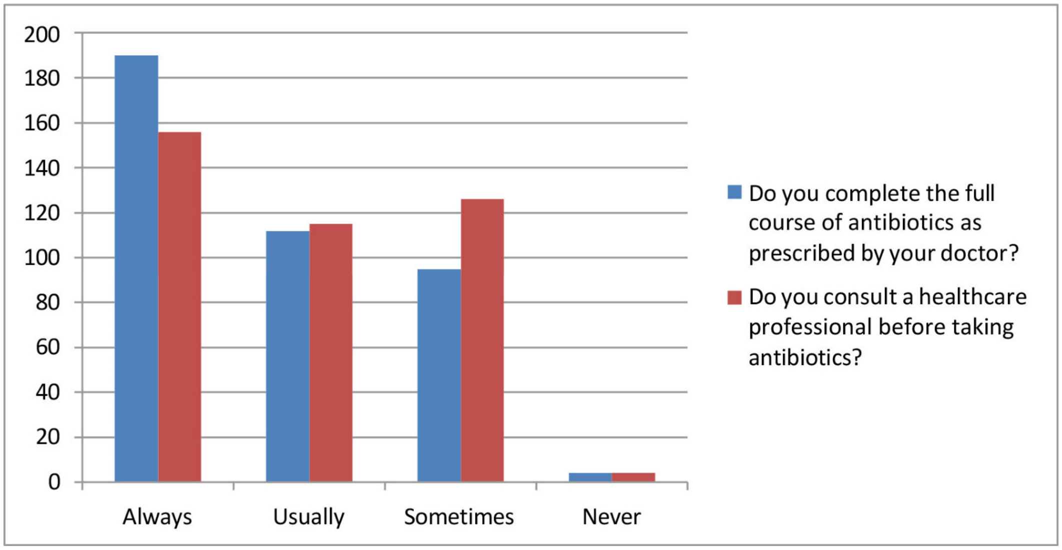

Figure 11: Responses of the public for the survey question no. 6.6.2 & 6.6.3

Awareness and Education about antibiotics:

Table 7: Awareness and Education about antibiotics

Qus.no	Questions and answers	Frequency	% of total
6.7.1	How important do you think it is to educate the public about the proper use of antibiotics? • Very important • Somewhat important • Not important at all	381 19 1	95.0% 4.7 % 0.2%
6.7.2	Do you feel there is enough public information available about the risk of antibiotic misuse? • Yes • No • Not sure	102 196 103	25.4% 48.9% 25.7%
6.7.3	What method do you think would be most effective in increasing public awareness about antibiotics? • Information from healthcare providers • Public health campaigns • School education programs • Social media campaigns • Television and radio advertisement • All of the above	13 34 10 12 6 326	3.3% 8.4% 2.5% 2.9% 1.5% 81.3%

Results obtained from prescribers:

Distribution of frequency depending upon the years of practice: This survey has done on health care providers within the community, those who mostly prescribe oral antibiotics. Total 21 HCPs participates in this study, where 8(38.1%) participants have experiences about less than 5 years, 3(14.3%) participants having experiences about 5-10 years. And 6 participants are from 10 – 20 years of experiences; where as 4 participants are having experiences more than 20 years. Which all are shown in table no.8 and figure no.12.

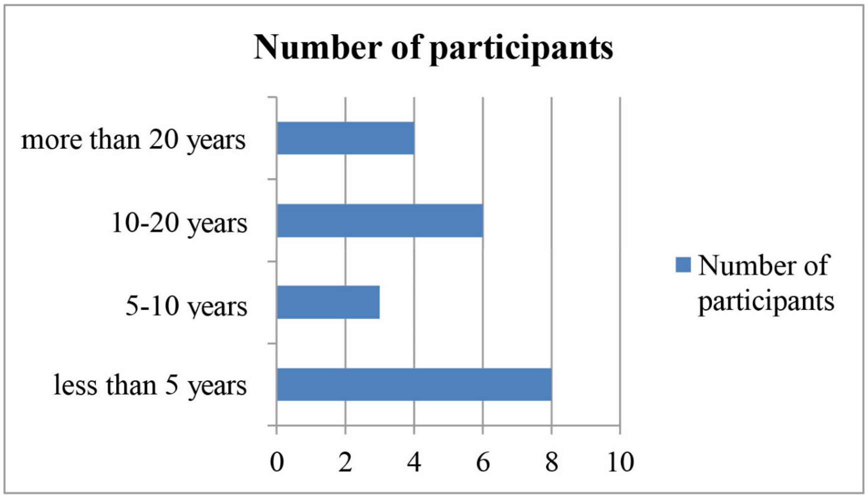

Figure 12: Frequency distribution depending upon the years of practice

Distribution of participants depending upon the professional title:

Table 9: Distribution of participants depending upon the professional title

Professional title	Frequency	% of total	Cumulative %
Physician	17	81.0%	81.0%
Dentists	3	14.3%	95.3%
Others	1	4.8%	100%

Majority of participants among the healthcare providers were physicians with a frequency of 17 (81%), where as frequency of dentists were 3(14.3%) and 1 participants come under others register prescribers.

Responses of prescribers about following clinical guidelines:

In the response of the question that 'how often they consult clinical guidelines before prescribing antibiotics?' a large number of prescribers about 16(76.2%) said that always follows clinical guidelines before prescribing antibiotics whereas 5(23.8%) prescribers states that sometimes they follows guidelines. which are shown in table no.10 and figure no.13

Table 10: Responses of prescribers about following clinical guidelines

How often do you consult Clinical guidelines before prescribing antibiotics?	Frequency	% of total	Cumulative %
Always	16	76.2%	76.2%
Sometimes	5	23.8%	100%

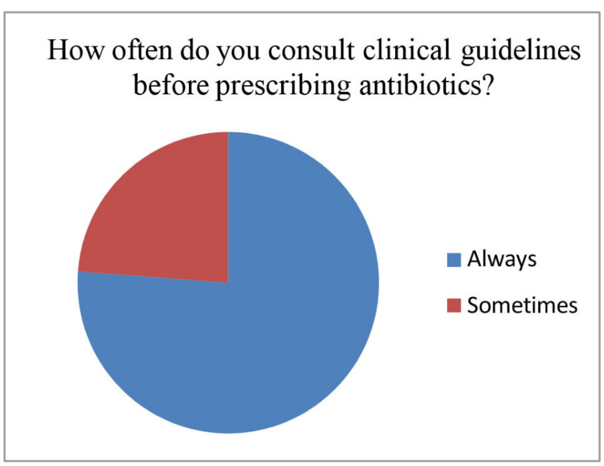

Figure.13: Responses of prescribers about following clinical guidelines

Responses of prescribers on providing information about importance of antibiotics to patients:

In the response of the question that 'do they educate patients about the importance of completing the entire course of antibiotics?' a majority of prescribers with a frequency of 16(80.0%) states they always they provide information about uses of antibiotics. Where a less number of prescribers with a frequency of 3(14.3%) states that sometimes they do and 2 prescribers said that rarely they provide education to the patient about the importance of completing the entire course of antibiotics.

Table 11: Responses of prescribers on providing information about importance of antibiotics to patients

How often do you consult clinical guidelines before prescribing antibiotics?	Frequency	% of total	Cumulative %
Always	16	76.2%	76.2%
Sometimes	3	14.3%	90.5%
Rarely	2	9.5%	100%

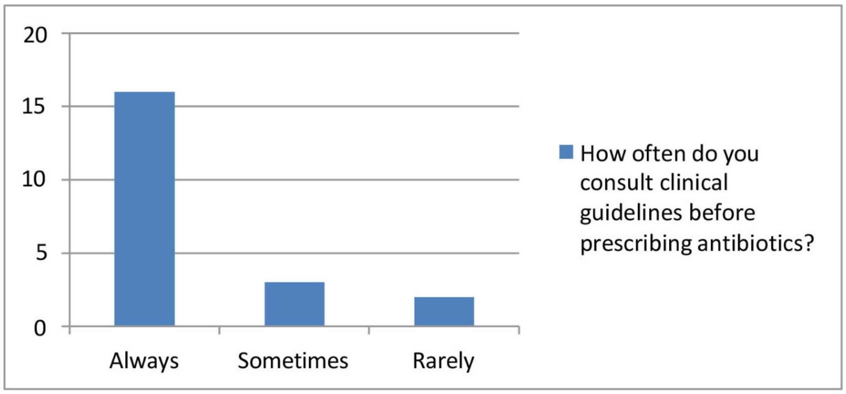

Figure 14: Responses of prescribers on providing information about importance of antibiotics to patients

DISCUSSION

As we know antibiotic resistance is a growing global health threat worldwide and irrational antibiotic prescriptions as well as lack of knowledge and awareness of proper antibiotic use are the major drivers of antibiotic resistance. Mostly this resistance occurs due to improper uses of oral antibiotics by the public. Their self-medicated behaviors without having a proper knowledge about the appropriate dose and duration of treatment lead to potential consequences of misusing and overusing of antibiotics like allergic reactions, antibiotic resistance which finally results in therapeutic failures.

So, this study was conducted to assess the public knowledge, attitude and behaviors towards using oral antibiotics and to assess the prescribing patterns of antibiotics by the healthcare professionals in community settings.

Our study has been conducted in the community settings of Bangalore on 401 participants where 240(59.9%) participants are from rural area and 161(40.1%) individuals are from urban area of Bangalore.

The majority of participants (376) almost 93.8% of the total participants responded that they have taken oral antibiotics, where 10 (2.5%) participants responded that they have not taken oral antibiotics ever and 15(3.7%) participants said that they are not sure about the administration of oral antibiotics. 76.1% (305) participants from the total study population have been states that they knows about the antibiotics where 60 (15%) participants does not known about the antibiotics and 9.0% (36) participants states that they don't know properly about the antibiotics. 296 participants almost 73.8% of the total study population states that they aware about the usage of antibiotic where 64 (16%) participants don't know and 41 (10.2%) participants not sure about the proper usage of antibiotics.

As we know that the statement "It is safe to stop taking antibiotics once you feel better, even you have some left according to prescription" is not correct, so only 160 participants actually knows about the antibiotics which is 52.5% of the total participants those have been states that they know about the antibiotics.

Misuse or over use of antibiotics can cause harm, most of the participants about 259(84.9%) have agreed with this statement, those previously states that they know about the antibiotics, so the majority of the participants have known that misuse and over use of antibiotics can cause harm.

Majority of the participants in the study populations about 196 (48.9%) participants does not know that there is enough public information available about the risk of antibiotic misuse.

CONCLUSIONS

This study has been conducted to assess the public knowledge and awareness about the uses of oral antibiotics; to check if they follow self-medication technique for any disease condition or they consult any prescriber or healthcare provider before taking any antibiotics, or are they follow the proper treatment regimen prescribed by the physicians or any other healthcare providers. Through this study we can conclude that the Knowledge about the oral antibiotics uses among the population is found to be less which is required for the better quality of life.Through this study we can conclude that the prescribing practices in community settings by the healthcare providers are mostly appropriate. Most of the physicians or health care providers always follow clinical guidelines before prescribing as well as they provides proper information about uses of antibiotics with their potential side effects.So, to reduce the incidence of antibiotic resistance we need to educate people about the proper uses and potential consequences of overusing or misusing of antibiotics.

ACKNOWLEDGMENTS

This work was carried out in collaboration among all authors. Abhijit Maity designed the study protocol and performed the statistical analysis. Deep Pandit and Amartya Guria managed the analyses of the study. Dr. Mohammed Yunus provided supervision and guidance throughout the course of this work.

REFERENCES

1 Sneka P, Mahalakshmi K. Antimicrobial Resistance–A Silent Pandemic. National Journal of Community Medicine. 2023; 14(01):71-2.
2 Sabtu N, Enoch DA, Brown NM. Antibiotic resistance: what, why, where, when and how? British medical bulletin 2015; 116(1):1
3 Lin J, Nishino K, Roberts MC, Tolmasky M, Aminov RI, Zhang L. Mechanisms of antibiotic resistance. Frontiers in microbiology. 2015; 6:34.
4 https://www.ncbi.nlm.nih.gov/books/NBK279387.
5 Mason T, Trochez C, Thomas R, Babar M, Hesso I, Kayyali R. Knowledge and awareness of the general public and perception of pharmacists about antibiotic resistance. BMC public health. 2018; 18:1.
6 Truman A. Antibiotics: Past, present and future Matthew I Hutchings, Andrew W Truman 2 and Barrie Wilkinson 2. Current Opinion in Microbiology. 2019; 51:72-80.
7 Tripathi KD. Essentials of medical pharmacology. JP Medical Ltd; 2013.