IJNRD.ORG ISSN : 2456-4184

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG

An International Open Access, Peer-reviewed, Refereed Journal

THE PUBLIC KNOWLEDGE,ATTITUDE AND PRACTICE REGARDING THE DRUG USE PATTERN AND BEHAVIOUR ON ANTIBIOTICS IN URBAN AND RURAL POPULATION IN SOUTHERN KERALA

ALEENA ANSON[1], ABISHIN M.S[1], ASHFAK A NAZEEB[1], JERLIN BOSCO[1], SREEJA .S[1]

Mrs SOUMYA R.V[2],Dr PRASHOBH G R[3]

Dr NITHIN MANOHAR[4]

1.Eight Semester B pharm students, Sree Krishna College Of Pharmacy and Research Centre Parassala ,Thiruvananthapuram Kerala , India

2.Associate Professor,Dept. of Pharmacy practice , Sree Krishna College Of Pharmacy and Research Centre Parassala ,Thiruvananthapuram Kerala , India

3.Principal, Sree Krishna College Of Pharmacy and Research Centre Parassala ,Thiruvananthapuram Kerala , India

4.HOD & Professor,Dept. of Pharmacy practice , Sree Krishna College Of Pharmacy and Research Centre Parassala ,Thiruvananthapuram Kerala , India

ABSTRACT

The behaviour of antibiotics is a global health concern that requires an understanding of public knowledge, attitude and practices towards antibiotics in urban and rural population.

METHODS

The cross sectional survey was conducted among 144 respondents in urban and rural population. On Data on socio-demographic characteristics ,knowledge attitude and practice assessment regarding antibiotics use and pattern were collected through a structured questionnaire. Descriptive statistics and analysis were performed to analyse the data

RESULT

The study involved participants , above 18 where included. In rural area both amle and female have equal proportion and in urban area , the male percentage is much higher than the female .The education status was about were the public respondents were (15%) professional degree holders and (19%) were graduate in rural area , whereas in urban population (45%) professional degree holders and (16%) were graduate .From the survey , it was found that there were no difference in knowledge between rural and urban area but among the attitude , it was found that there was significant difference in attitude and practice among the rural and urban population

CONCLUSION

In urban population , most of them were completed there antibiotic course whereas in rural, most of them have different attitude .KAP result suggested that the respondants in rural had poor knowledge ,negative attitude .Thus concluded that public education improved the KAP of patients in rural and urban population.

INTRODUCTION

Antibiotics are common agents used in modern healthcare. They are widely prescribedmedications both in hospital setting and community setting. Resistance to antibiotics become a major thread to public health due to escalating consumption of antibiotics. Various microorganisms have medical significance, including bacteria. Antibiotics are compounds thattarget bacteria and thus, are intended to treat and prevent bacterial infections viruses, fungi, and parasites. These are substances produced by microorganism ,which supress the growth or kill the microorganisms at very low concentration.[1]

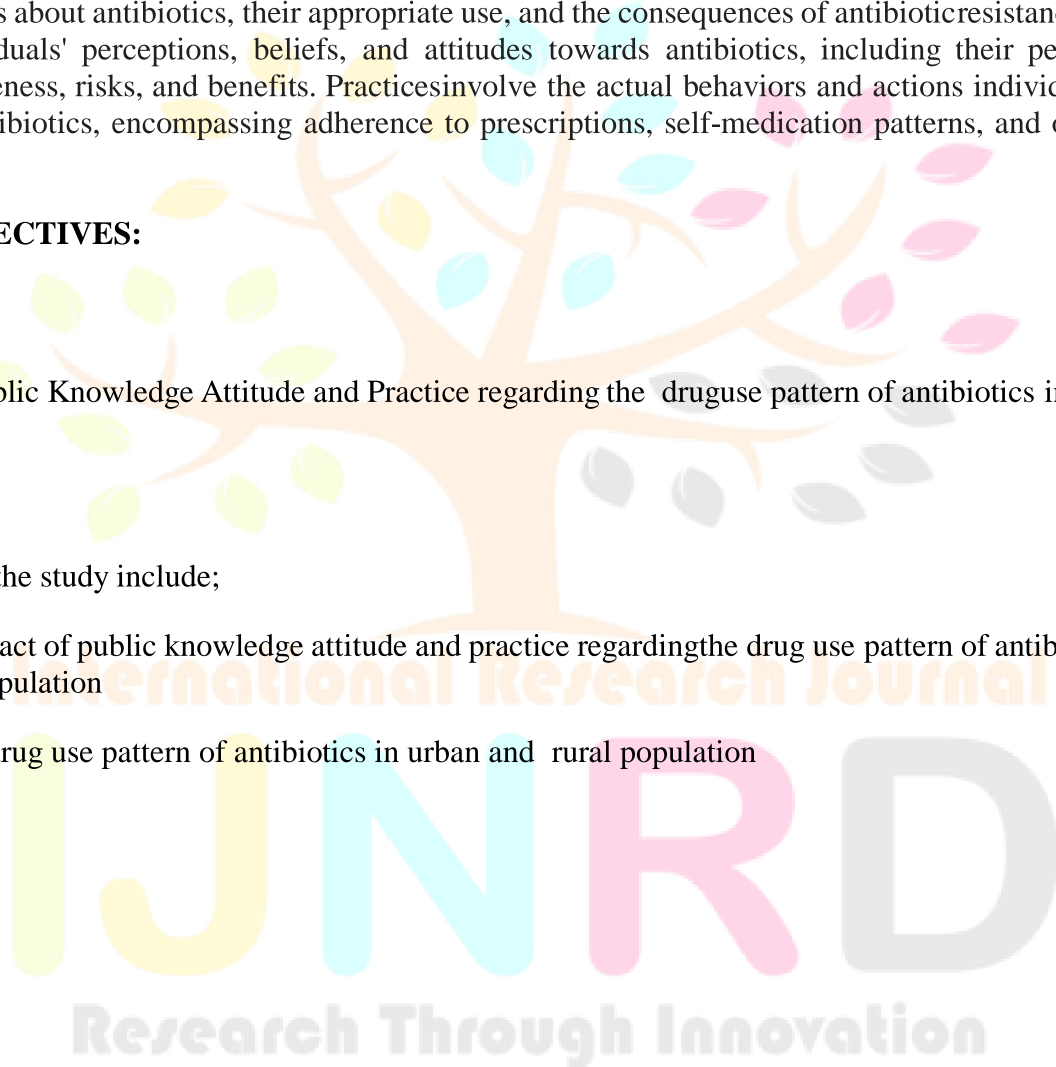
Bacterial resistance to antibiotics is an increasing clinical issue worldwide and estimated to cause 10 million deaths annually by 2050. Excessive use of antibiotic is a primary driver of antibiotic resistance and reducing antibiotic use is a central strategy for confronting resistance.There are various reasons for escalating use of antibiotics includes rising incomes, health insurance and burden of infectious worldwide. In the United States, over 2 million people are affected with antibiotic-resistant infections each year, account for at least 23,000 deaths and have a total economic burden that exceeds $ 20 billion in direct healthcare costs alone. In India,20% to 50 % of all antibiotics used are appearing to be used not only in excess. If the current scenario does not change, there will be economic losses of 100 trillion dollars due to resistant infections worldwide. Because of high treatment costs associated with the resistant infections and limited access to antibiotics, India is assailable to the loss of antibiotic efficacy. It has beenestimated that by 2050, 7lakhs deaths per year occur inevitably to antimicrobial resistance and,there might be 10 million deaths per year. Bacteria causing common or severe infections havedeveloped resistance to varying degrees to each new antibiotic coming to market since over several decades. A rational use of antibiotics is vital to diminish the emergence of antibiotic resistance and to extend the useful lifetime of effective antibiotics. [1]

After discovery of penicillin in 1929, a sharp rise was observed across the globe in the identification, production and commercialisation of antibiotics for the treatment of infectious disease. The discovery of more than 150 antibiotics and semisynthetic derivatives was considered a panacea for infectious diseases caused by bacteria. Even though antibiotic usagecaused an initial drop in the levels of mortality and morbidity associated with common infections, the indiscriminate use of antibiotics exerted negative effects on the environment andhuman health. In fact it is now considered one of the most pressing public health crisis of the 21st century.[2]

ANTIBIOTIC RESISTANCE

Antibiotic resistance imposes a major global health issue and biomedical challenge of the 21stcentury. Misuse of antibiotics is considered as one of the leading causes of its development. Their increased use across the globe, in both human medicine and animal products industry, has resulted in the emergence of resistant bacteria , including multidrug-resistant (MDR), extensively drug-resistant (XDR), and even pan drug-resistant (PDR) bacterial species . The consequences of such an irrational use of antibiotics become evident by the higher mortality rates, prolonged hospital stays, and increased health care system expenses associated with bacterial infections . Furthermore, it is estimated that by 2050, there could be more than 10 million deaths yearly due to resistance to antimicrobial drugs

Knowledge, Attitudes, and Practices (KAP) regarding the drug use pattern of antibiotic use in urban and rural population refer to a comprehensive assessment of individuals' understanding, beliefs, and behaviors related to the use of antibiotics and the development of antibiotic resistance. Knowledge encompasses the level of awareness and information
individuals possess about antibiotics, their appropriate use, and the consequences of antibioticresistance. Attitudes encompass individuals' perceptions, beliefs, and attitudes towards antibiotics, including their perceptions of antibiotic effectiveness, risks, and benefits. Practicesinvolve the actual behaviors and actions individuals engage in when using antibiotics, encompassing adherence to prescriptions, self-medication patterns, and other related behaviour


International Research Journal
IJNRD
Research Through Innovation

AIMS AND OBJECTIVES:

AIM

To observe the Public Knowledge Attitude and Practice regarding the druguse pattern of antibiotics in urban and rural population

OBJECTIVES

The objectives of the study include;

- To asses the impact of public knowledge attitude and practice regardingthe drug use pattern of antibiotic in urban and rural population

- To observe the drug use pattern of antibiotics in urban and rural population

METHODOLOGY:

STUDY SETTING:

A prospective observation study was conducted in southern Kerala .

STUDY PERIOD:

The study was conducted for a period of 6 months.

STUDY DESIGN:

A prospective observational study on knowledge ,attitude and practice of drug use pattern andbehaviour on urban and rural population in southern kerala. Data was collected from 144 participants respectively and then analysed for drug use pattern and behaviour among them.

INCLUSION CRITERIA:

- Public who are willing to participate in the study
- Public with age group <18

EXCLUSION CRITERIA:

- Public who are not willing to participate in the study.
- Public who are less than 18 of age were excluded.

SAMPLE SIZE:

Sample size of proposed study was calculated by the following formulae;

Sample size $$n=\frac{2\alpha^2 p(1-p)}{d^2}$$

2α= the standard normal comate with α% level of significance

p= proportion of the public knowledge about the attitude and practice regarding drugd= margin of error or precision of the study

From the previous study the knowledge ,attitude and practice regarding the druguse pattern and behaviour of antibiotics in urban and rural population is estimated as is 75% with a rural urban difference of 10%.A margin of error of 10% is admissible with 5% level of significance ,the estimated sample size

$$n=\frac{(1.96)^2\times0.75\times0.25}{(10)^2}$$

=72

Hence 144 samples needed for the study

STUDY PROCEDURE:

Data employed the prospective observational study design and utilise the a quantitative method to analyse the primary data collection from public in urban area and Rural area .Datacollection took place at different areas including railway station, bus station, and places in southern Kerala .All information's relevant to the study were collected from the public response.

The demographic characteristics , clinical background ,comorbidities, disease characteristics, past medication history ,present medication history, details of antibiotic prescribed was documented in proforma.

A suitably designed KAP (knowledge, attitude and practice) questionnaire were administered to all the public to access the knowledge, attitude ,practice regarding the druguse pattern and behaviour of antibiotics in urban and Rural population .Proper counsellingwere given to public using validated leaflet.

Finally, the data collected is analysed using suitable statistical method with assistantsof qualified statistician.

DATA COLLECTION TOOL:

A questionnaire to collect information about the drug use pattern and behaviour onantibiotics among the urban and rural population was conducted.

DATA ANALYSIS:

After collecting the data, was analysed using suitable statistical method.

RESULTS AND DISCUSSION:

The proposed study entitled the **"public knowledge, attitude and practice regarding drug use pattern of antibiotics in urban and rural population was a prospective observational study carried out among the public"**. In the study the data on demographic characteristics and KAP score were collected from 144 respondents. The collected data were subjected to statistical analysis using appropriate statistical use. The correlation between rural and urban population were assessed using bargraphs .All the analysis were carried out with the help of statistical software SPSS V.24 version for WINDOWS.

DEMOGRAPHIC CHARACTERISTICS OF PUBLIC

In this session data background characteristics of public were collected and calculated its total ,mean ,standard deviation, minimum ,maximum ,the details are shown below

AGE WISE DISTRIBUTION

Table 1 :Age distribution of study population

AGE GROUP (in years)	RURAL		URBAN	
	No of patients (n=72)	Percentage (%)	No of patients (n=72)	Percentage (%)
20-30	15	21	1	1
30-40	19	27	11	15
40-50	16	22	16	22
50-60	13	18	20	29
60-70	8	11	11	15
70-80	1	1	10	14
>=80	0	0	3	4

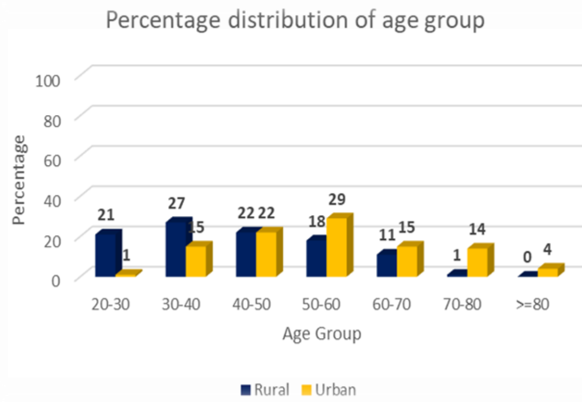


figure 11:Age distribution of study population

The age of the study population was categorized into rural and urban population .In rural population 20-30(21%) ,30-40(27%),40-50(22%),50-60(18%), 60-70(11%) ,70-80 (1%). In urban population

20-30(1%),30-40(5%),40-50(22%),50-60(29%),60-70(15%),70-80(14%)

In rural, Public belonging to 30-40 years were more to antibiotics and in urban 50-60 year were moreto antibiotics

The study corelated with the study of Md Ragaul Azim **et.al**; Public knowledge, attitudes, and practices(KAP) regarding antibiotics use and antimicrobial resistance (AMR) in Bangladesh [15]

GENDER WISE DISTRIBUTION

Table 2 :Gender wise distribution

GENDER	RURAL		URBAN	
	No of patients(n=72)	Percentage(%)	No of patients (n=72)	Percentage (%)
Male	36	50	38	53
Female	36	50	34	47

For gender, in rural area both male and female has equal proportion and in urban area, the male percentageis much higher than the female.

This study was corelated with the study of Elena Narcisa Pogurschi **et al;** Knowledge, Attitudes and Practices Regarding Antibiotic Use and Antibiotic Resistance: A Latent Class Analysis of a Romanian Population [16]

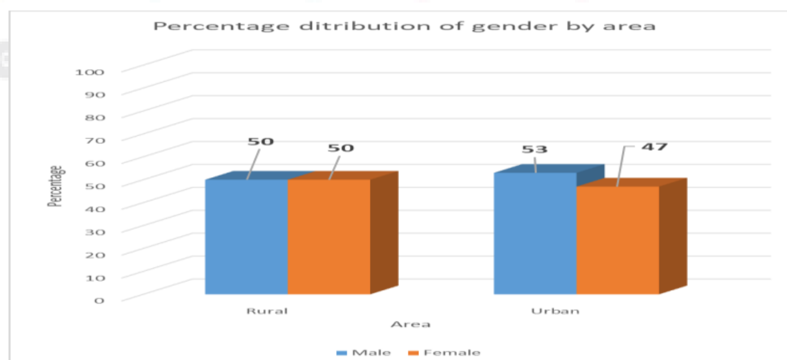


figure 13: Gender wise distribution

PERCENTAGE DISTRIBUTION BASED ON EDUCATION STATUS

Table 3: Percentage distribution based on education status

EDUCATION	RURAL		URBAN	
	No of patients (n=72)	Percentage (%)	No of patients (n=72)	Percentage (%)
Professional degree	11	15	32	45
Graduate	36	50	27	38
Higher secondary	14	19	11	16
High school	9	13	1	1
Others	2	3	0	0

From the table it is observed that out of 144 public respondents 11(15%) were professional degree, 36(50%) were graduate, 14(19%) were higher secondary,9(13 %) were high school and 2(3%) others inrural area.

In urban population 32(45%0 professional degree, 27(38%) were graduate, 11(16%) were higher secondary ,1(1%) were high school .

The study was corelated with the study of Baye Sitotaw **et.al;** Knowledge, Attitude, and Practices (KAP)on Antibiotic Use and Disposal Ways in Sidama Region, Ethiopia: A Community-Based Cross-SectionalSurvey.[17]

It is observed that majority were graduate in rural area36(50%) .

In urban area the majority was found to be professional degree 32(45%).

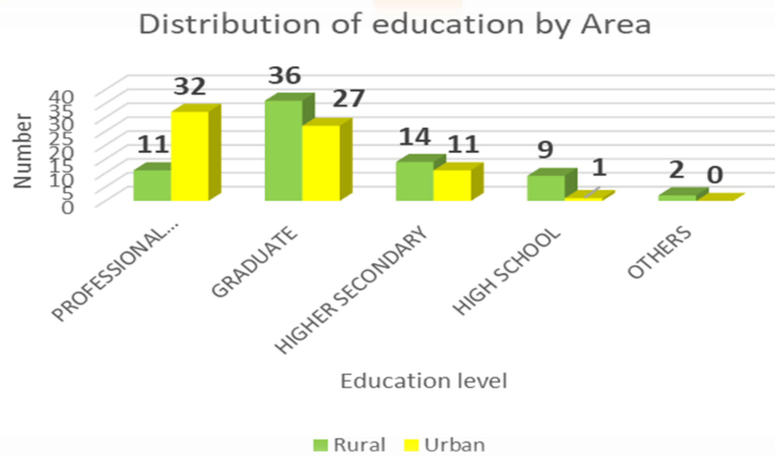


Figure no :14 Distribution of education by area

PERCENTAGE DISTRIBUTION BASED OCCUPATIONAL STATUS

Table 4 :Percentage distribution based occupational status

OCCUPATION	RURAL		URBAN	
	No of patients (n=72)	Percentage(%)	No of patients (n=72)	Percentage (%)
Government	15	21	23	27
Private	29	40	33	46
Nil	28	39	12	17

From the table;15(21%) where government employees ,29(40%) were private employees,28(39%) werein rural population

And 27(37%0 were govt employees, 33(46%) were private employees,12(17%) were in urban population.

The study is corelated with the study of Mokhtar Shatla **et.al** ; Public Knowledge, Attitudes, and PracticesTowards Antibiotic Use and Antimicrobial Resistance in the Western Region of Saudi Arabia.[18]

Therefore the results shows that the occupational status was found to be similar in rural and urbanpopulation.

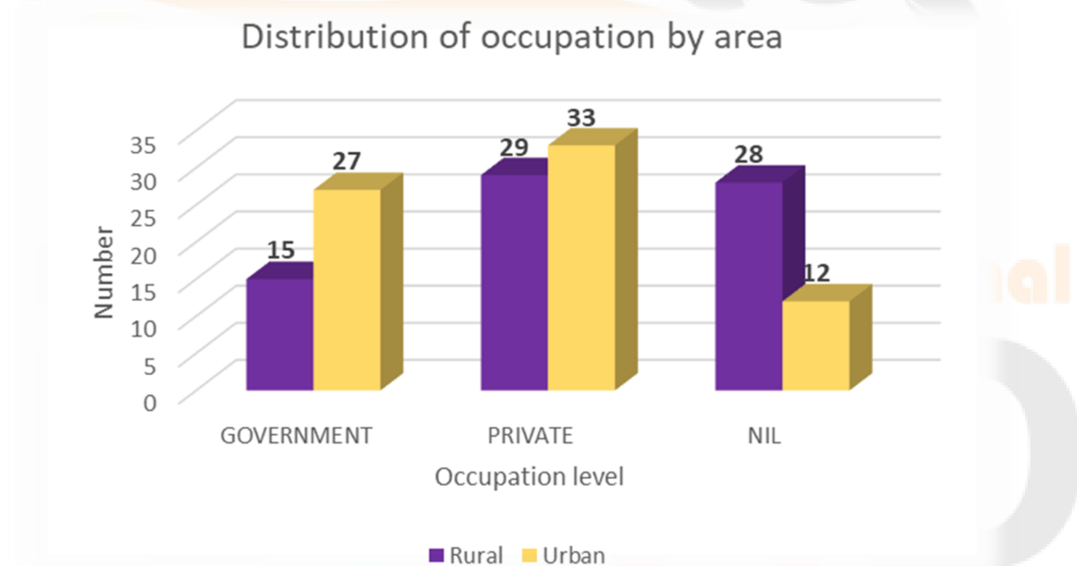


Figure 15: Diagrammatic representation of the distribution of occupation

DISEASE CHARACTERISTICS

This data reveals about the comorbidities and current medication within last 3 months and current antibiotic use within last 3 months

Table no:5 multiple comorbidities within public

CO-MORBIDITIES	RURAL*		URBAN*	
	No of patients (n=72)	Percentage (%)	No of patients (n=72)	Percentage (%)
Hypertension	20	28	24	33
Diabetes mellitus	17	24	19	26
Kidney disease	5	7	11	15
Heart disease	1	1	16	22
Dyslipidaemia	8	11	4	6
Thyroid disease	9	12	12	17
Pulmonary disease	6	8	11	15

The table shows multiple comorbidities within public. Hypertension was found to be more in urban population with respect to rural area.

In rural area ,20(28%) hypertension, 17(24%) diabetes mellitus ,5(7%) kidney disease ,1(1%) heart disease ,8(11%) dyslipidemia ,9(12%) thyroid disease, 6(8%)pulmonary disease were as in urban area 24(33%) hypertension, 19(26%) diabetes mellitus,11(15%) kidney disease ,16 (22%) heart disease,4(6%)Dyslipidemia ,12(17%) thyroid disease,11(15%) pulmonary disease.

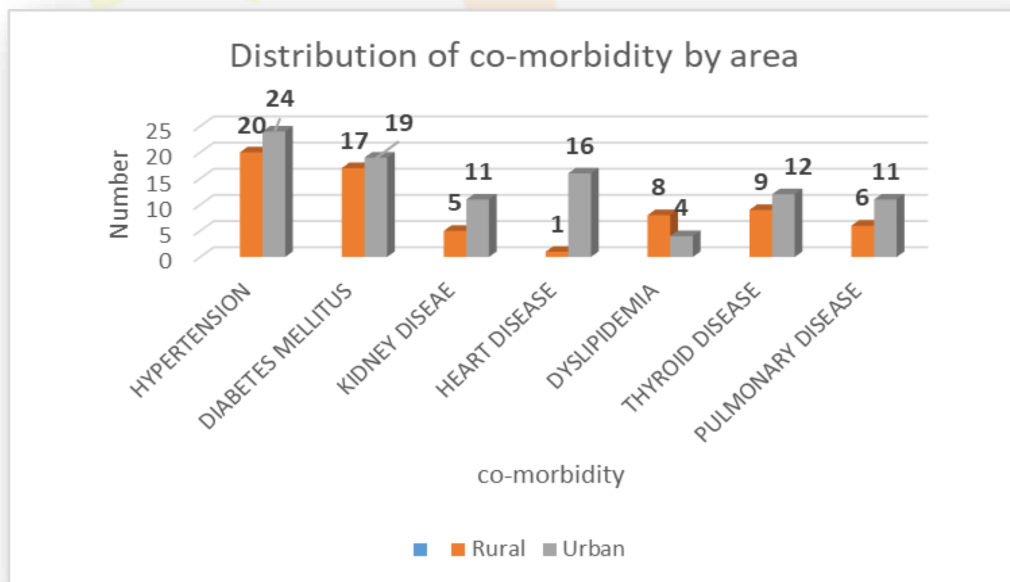


Figure no :16 Diagrammatic representation of the distribution of comorbidity

The figure thus shows that hypertension is more in rural than in urban area.

CURRENT MEDICATIOIN USE WITHIN LAST 3 MONTH

Table 6: Current medication use within last 3 months

CURRENT MEDICATION USE WITHIN LAST THREE MONTHS		Rural		Urban	
		No of patients (n=72)	**Percentage (%)**	**No of patients (n=72)**	**Percentage (%)**
	YES	19	26	47	65
	NO	51	71	23	23

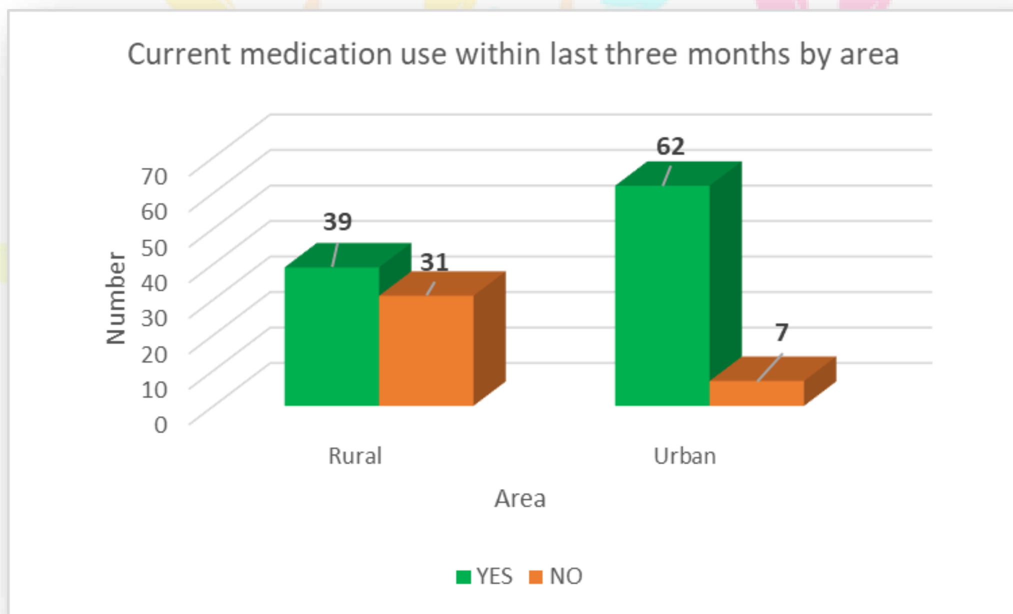


Figure 17: Diagrammatic representation of the current medication use within last three months

CURRENT ANTIBIOTIC USE WITHIN LAST 3 MONTHS

Table 7: current antibiotic use within last 3 months

CURRENT ANTIBIOTICS USE WITHIN LAST 3 MONTHS		RURAL		URBAN	
		No of patients (n=72)	**Percentage (%)**	**No of patients (n=72)**	**Percentage (%)**
	YES	19	26	47	65
	NO	51	71	23	32

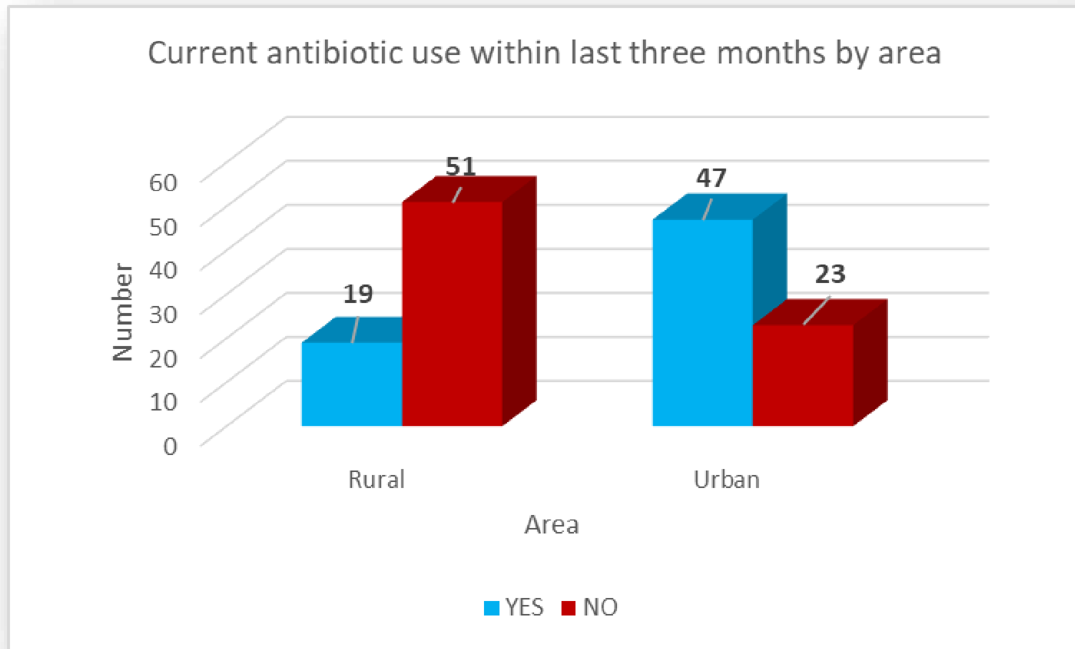


Figure 18: Diagrammatic representation of current antibiotic use within last three monthsLIST OF ANTIBIOTICS USED

Table 8: list of antibiotics used

LIST OF ANTIBIOTICS USED	RURAL		URBAN	
	No of patients (n=72)	Percentage (%)	No of patients (n=72)	Percentage(%)
AZITHROMYCIN	6	8	25	25
AMOXICILLIN CLAVULANATE	16	22	12	12
CEFIXIME	0	0	10	14

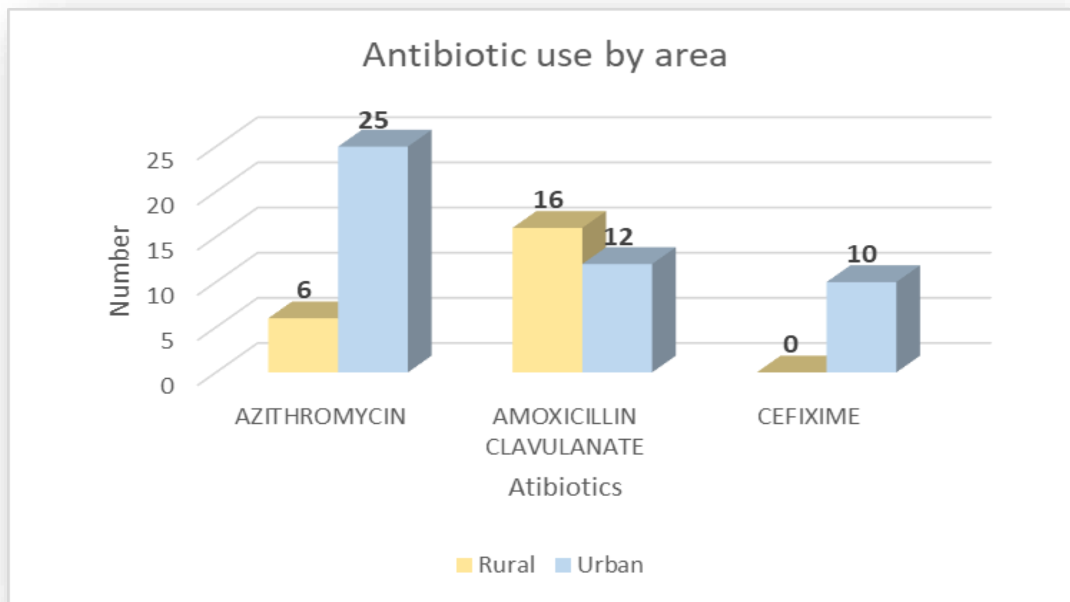


Figure 19: Diagrammatic representation of antibiotic useKAP REGARDING ANTIBIOTIC USE
The knowledge, attitude practice regarding the drug use pattern of antibiotics in urban and rural area wereassessed among the public using the structured questionnaire.

In this section scores on KAP of public were selected and converted into % scale.

PERCENTAGE DISTRIBUTION OF LEVEL OF KNOWLEDGE ON ANTIBIOTIC USE

Table 9 :Percentage distribution of level of Knowledge on antibiotic use

KNOWLEDGE	RURAL		URBAN	
	No of patients(n=72)	Percentage(%)	No of patients(n=72)	Percentage (%)
Is Antibiotics are effective for the treatment of bacterial infections	19	26	0	0
Is Antibiotics are effective for the treatment of viral infections	22	31	0	0
Does the Loss of effectiveness of an antibiotic is antibiotic resistance	13	18	0	0
Do Antibiotic resistance creases due to missing of an antibiotic dose	9	12	1	1
Does more we use antibiotic, the higher the risk that resistance develops	5	7	8	11
Is Antibiotic resistance can develop due to use of antibiotic without doctors prescription	4	6	9	13
Does After feeling better, one should stop a partially completed antibiotic dose	0	0	29	41
Is Antibiotic resistance can develop due to misuse of antibiotic	0	0	25	35

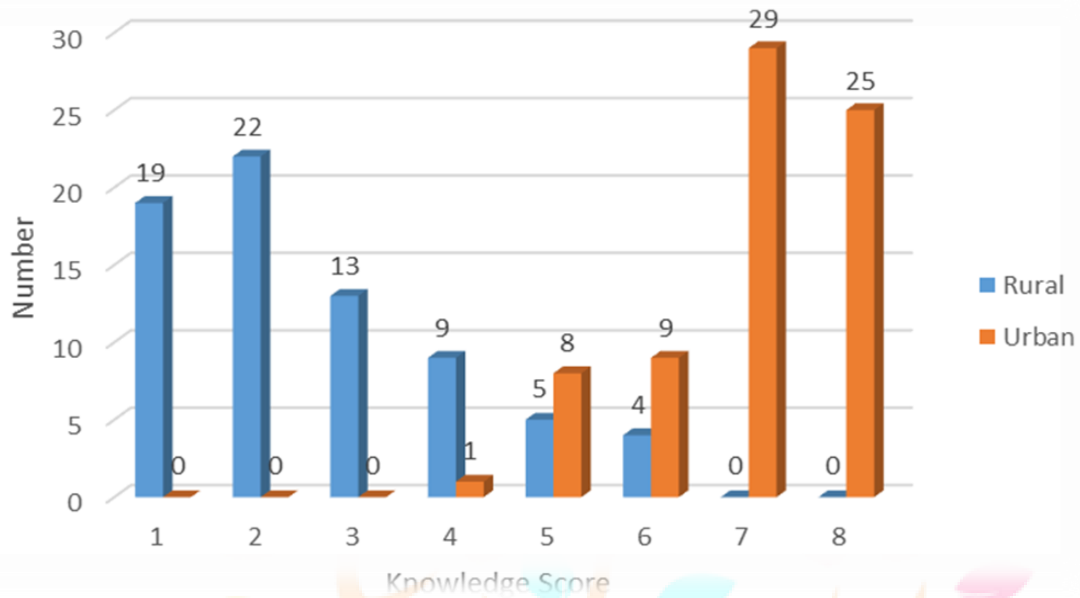


Figure 20: Diagrammatic representation Percentage distribution of level of Knowledge on antibiotic use

PERCENTAGE DISTRIBUTION OF LEVEL OF ATTITUDE ON ANTIBIOTIC USE

Table 10: Percentage distribution of level of attitude on antibiotic use

ATTITUDE	RURAL		URBAN	
	No of patients(n=72)	Percentage(%)	No of patients(n=72)	Percentage (%)
Does Antibiotics are safe so they can commonly be used	3	4	0	0
Without prescription does the sale of antibiotics should be banned	17	24	0	0
Do the Surplus /unused antibiotics can be saved for future use or to give someone else	35	49	1	1
Does the antibiotics speed up the recovery from most coughs and cold	15	21	1	1
Is it okay to take antibiotics based on suggession of a medicine seller	1	1	4	6
should they take antibiotics to avoid getting a more severe illness ,when I suffer from cough and cold	1	1	22	31
Does Antibiotics speeds up recovery when I get a fever	0	0	30	42
If a doctor does not prescribe an antibiotic when I think one is needed Did you go to another doctor	0	0	14	19

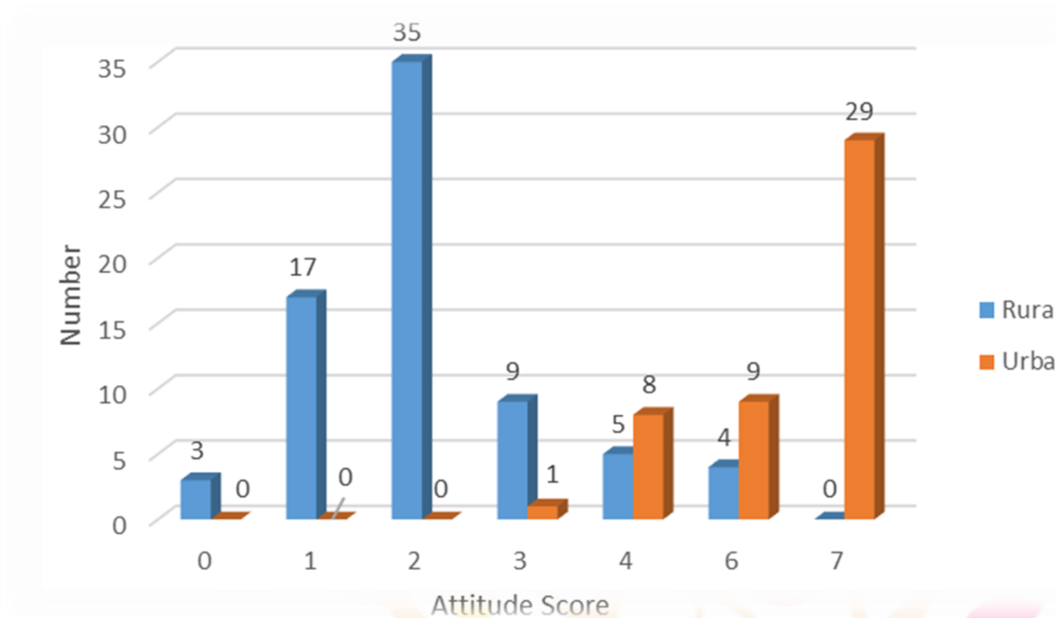


Figure 21: Diagrammatic representation of chart showing the attitude scale by area

PERCENTAGE DISTRIBUTION OF LEVEL OF PRACTICE ON ANTIBIOTIC USE

Table 11: percentage distribution of level of practice on antibiotic us

PRACTICE	RURAL		URBAN	
	No of patients (n=72)	**Percentage(%)**	**Noi of patients (n=72)**	**Percentage(%)**
Whether doctor used to be consulted before using antibiotics	18	25	0	0
Did the antibiotic course is fulfilled	4	55	0	0
How did the antibiotics is taken	10	14	5	7
If feel better after taking some doses of antibiotics ,did the dose still be completed	4	6	23	32
	0	0	44	61

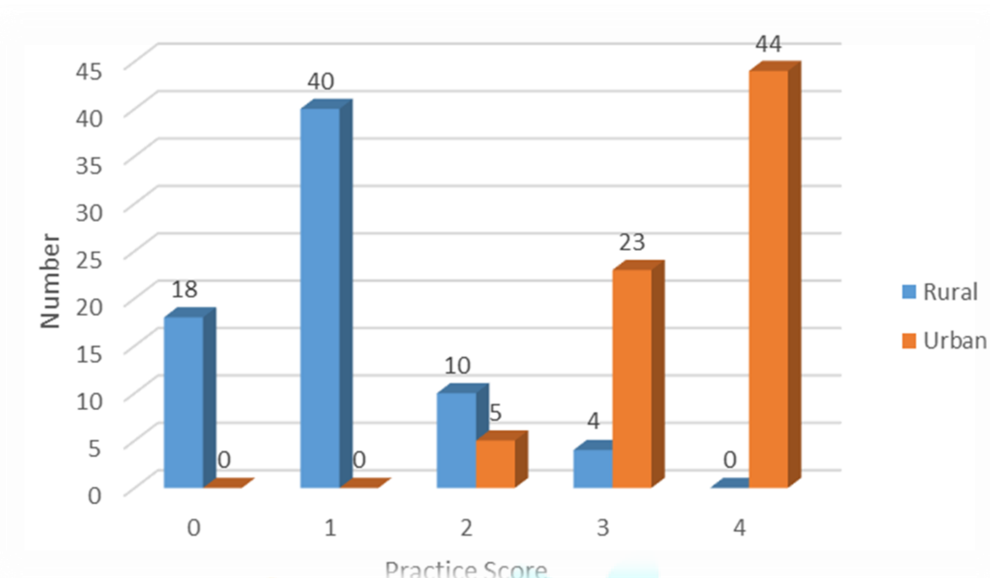


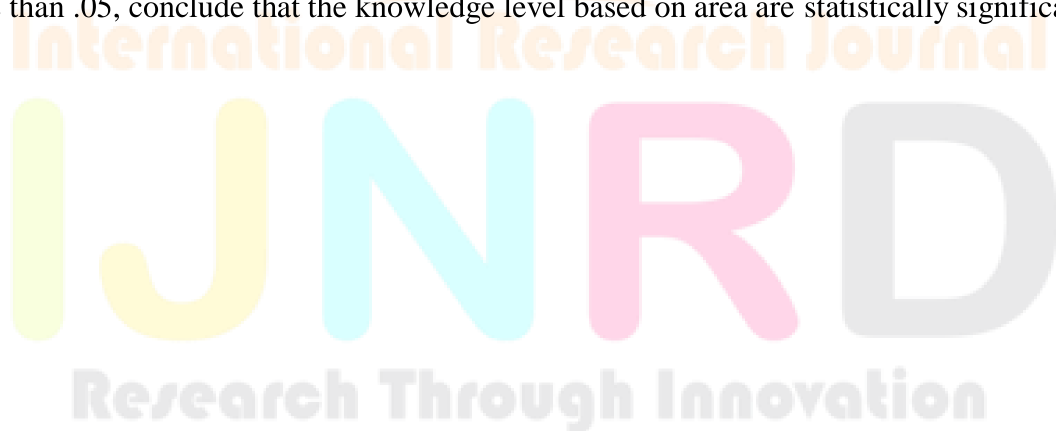
figure 22 : Diagrammatic representation of percentage distribution of level of practice on antibiotic use

COMPARISON OF KNOWLEDGE IN RURAL AND URBAN AREA

Table 12: Comparison of knowledge in rural and urban area

Knowledge	Area	N	Mean	SD	t-value	p-value
	Rural	72	2.60	1.46	20.73	.001*
	Urban	72	6.96	1.03		

From the above table it is found that the mean value of the knowledge score for rural area is 2.60 and theurban area is 6.96. the independent t-test value is 20.73 and the p-value is .001, which is significant at 5% level of significance. The p-value is less than .05, conclude that the knowledge level based on area are statistically significant.



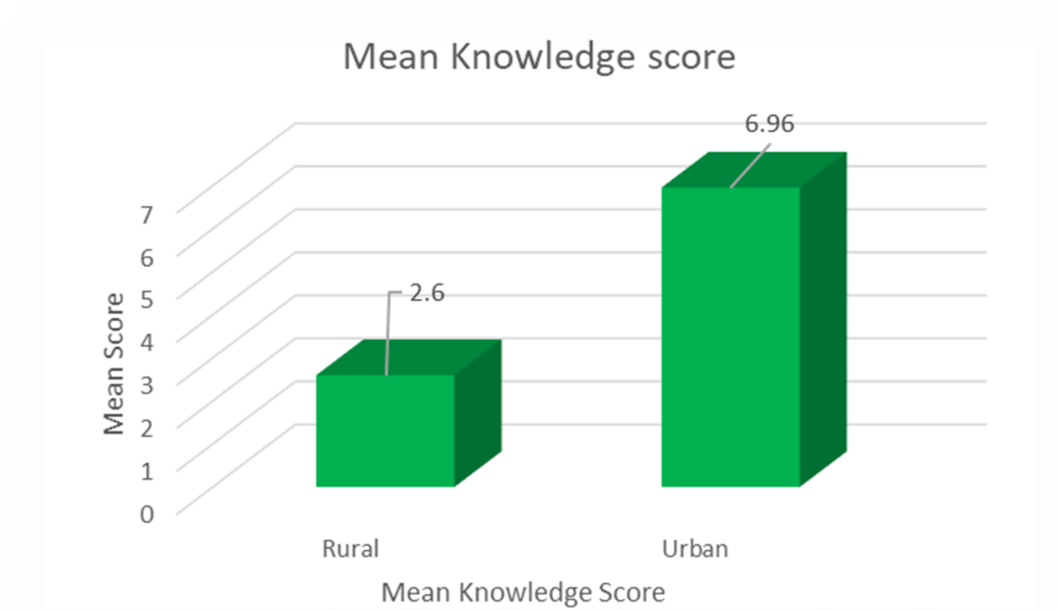


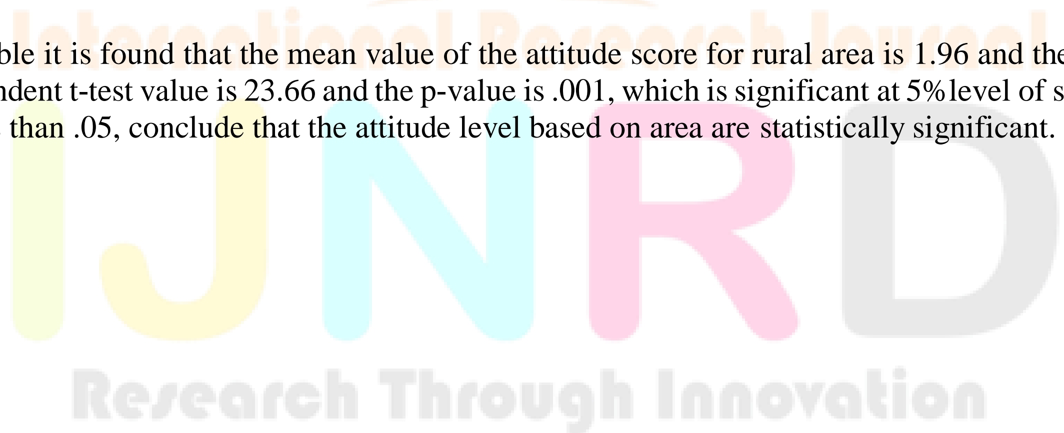
Figure 23: Comparison of knowledge in rural and urban area

COMPARISON OF ATTITUDE IN URBAN AND RURAL POPULATION

Table 14: Comparison of attitude in urban and rural population

Attitude	Area	N	Mean	SD	t-value	p-value
	Rural	72	1.96	0.90	23.66	.001*
	Urban	72	5.68	0.99		

From the above table it is found that the mean value of the attitude score for rural area is 1.96 and the urban area is 5.68. the independent t-test value is 23.66 and the p-value is .001, which is significant at 5% level of significance. The p-value is less than .05, conclude that the attitude level based on area are statistically significant.



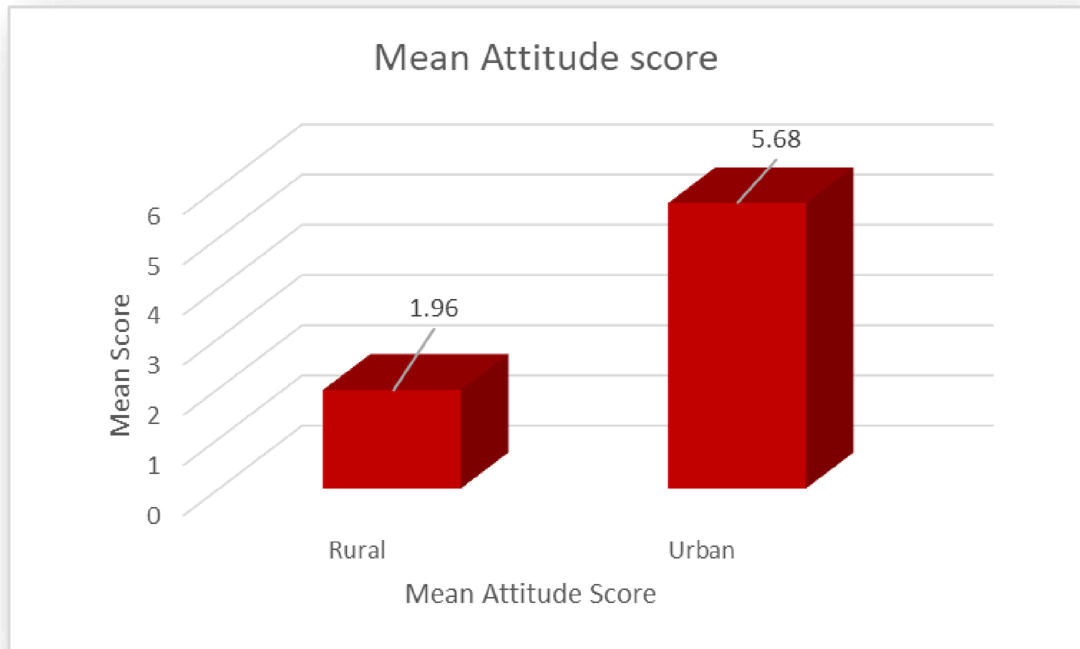
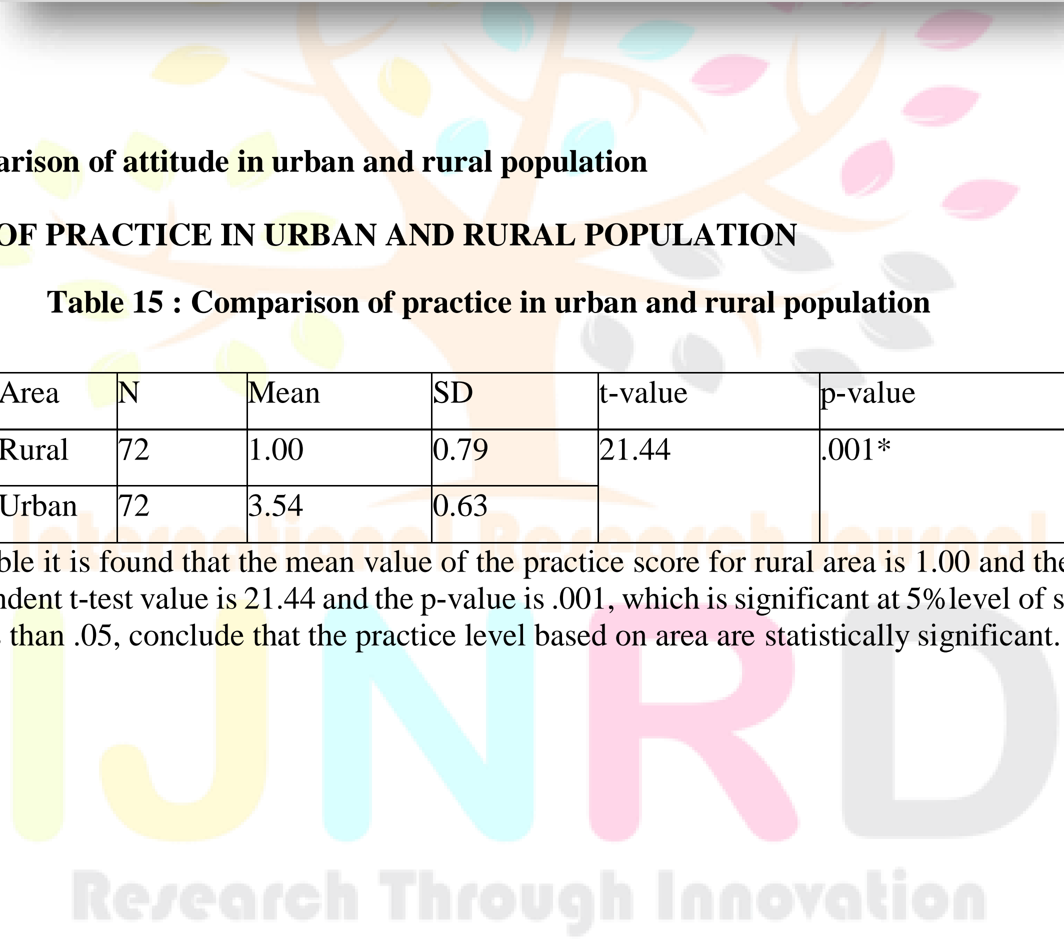


Figure 24: Comparison of attitude in urban and rural population

COMPARISON OF PRACTICE IN URBAN AND RURAL POPULATION

Table 15 : Comparison of practice in urban and rural population

PRACTICE	Area	N	Mean	SD	t-value	p-value
	Rural	72	1.00	0.79	21.44	.001*
	Urban	72	3.54	0.63		



From the above table it is found that the mean value of the practice score for rural area is 1.00 and the urban area is 3.54. the independent t-test value is 21.44 and the p-value is .001, which is significant at 5% level of significance. The p-value is less than .05, conclude that the practice level based on area are statistically significant.

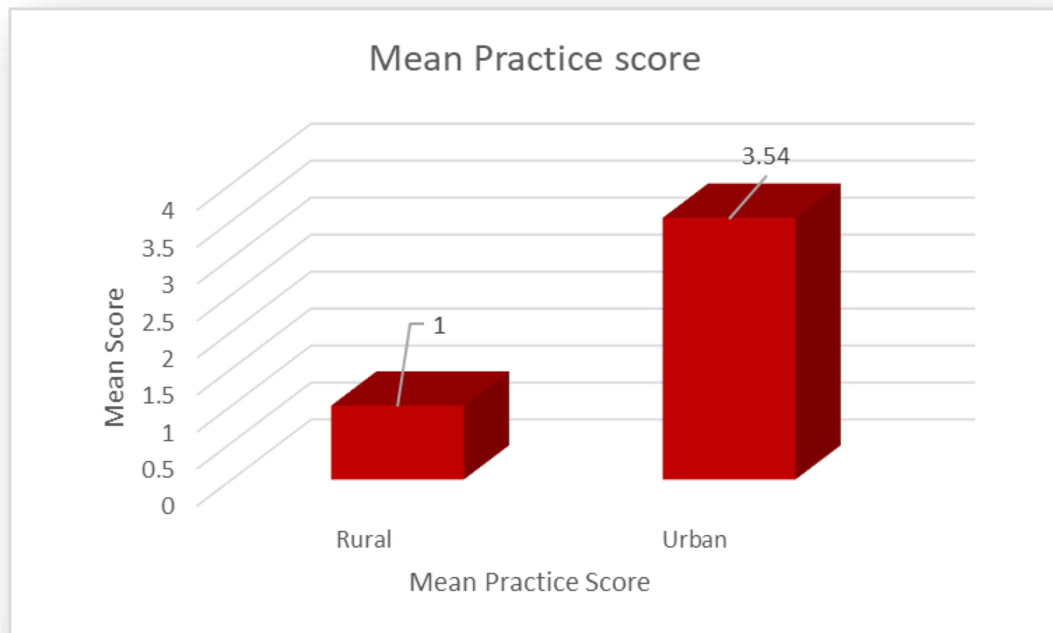


Figure 25 :Comparison of practice in rural and urban area

CONCLUSION:

The present study was conducted to assess the knowledge, attitude and practice regardingthe drug use pattern and behavior of antibiotics in urban and rural population in southern Kerala. The knowledge, attitude, practice regarding the drug use pattern of antibiotics in urban and rural population were assessed among the public using the structured questionnaire. In terms of age and gender, both the males and females in rural have equalproportion while in urban, males are more proportionate than in females. It is found that 98% of respondents have knowledge about antibiotics.

The knowledge level of antibiotics is more in urban than in rural area. According to the attitude assessment, the public in urban population take antibiotics than rural and most ofthem were not completed their antibiotic therapy for a variety of reasons. The KAP resultsuggested that the respondents in rural had poor knowledge, negative attitude and they do not depend on any antibiotics. Thus concluded that the antibiotics awareness should improve the knowledge of public in urban population

REFERENCE

1.Preeti Patel; Harrison R. Wermuth; Chara Calhoun; Gregory A. Hall,(2023) A serviceof the National Library of Medicine, National Institutes of Health.

2.Heliyon (2023) Public knowledge, attitudes, and practices (KAP) regardingantibiotics use and antimicrobial resistance (AMR) in Bangladesh. v.9(10).

3.Ebimieowei Etebu (2016) Antibiotics: Classification and mechanisms of action withemphasis on molecular perspectives 4:90-101.

4.Ebimieowei Etebu1* and Ibemologi Arikekpar (2016) INTERNATIONALJOURNEL OF APPLIED BIOLOGY AND 90-101

5.Abraham E. (1987). Cephalosporins. Drugs. 4(2):1-4.

6.Bonner D. P. & Sykes R. B. (1984). Structure activity relationships among themonobactams. J. Antimicrob. Chemother. 14:313-327.

7.Brink A. J., Feldman C., Grolman D. C., Muckart D., Pretorius J., Richards G.A., Senekal M. & Sieling W. (2004). Appropriate use of the carbapenems. SAMJ. 94(10):857-86.

8.Bozdogan B. & Appelbaum P. C. (2004). Oxazolidinones: activity, mode of action,and mechanism of resistance. Int. J. Antimicrob. Agents. 23(2):113-119.

9.Sy SK, Zhuang L, Derendorf H. Pharmacokinetics and pharmacodynamics in antibiotic dose optimization. Expert Opin Drug Metab Toxicol. 2016;12(1):93-114.

10. Ambrose PG, Bhavnani SM, Rubino CM, Louie A, Gumbo T, Forrest A, Drusano GL.Pharmacokinetics-pharmacodynamics of antimicrobial therapy: it's not just for mice anymore. Clin Infect Dis. 2007 Jan 01;44(1):79-86.

11. Shehab N, Patel PR, Srinivasan A, Budnitz DS. Emergency department visits forantibiotic-associated adverse events. Clin Infect Dis. 2008 Sep 15;47(6):735-43.

12. Tamma PD, Avdic E, Li DX, Dzintars K, Cosgrove SE. Association of Adverse
Events With Antibiotic Use in Hospitalized Patients. JAMA Intern Med. 2017 Sep01;177(9):1308-1315.

13. Granowitz EV, Brown RB. Antibiotic adverse reactions and drug interactions. Crit Care Clin. 2008 Apr;24(2):421-42.

14. Unicomb L.E., Nizame F.A., Uddin M.R., Nahar P., Lucas P.J., Khisa N., et al. Motivating antibiotic stewardship in Bangladesh: identifying audiences and target behaviours using the behaviour change wheel. BMC Publ. Health. 2021 Dec 1;(1):21.

15. Md Ragaul Azim et.al; Public knowledge, attitudes, and practices (KAP) regarding antibiotics use and antimicrobial resistance (AMR) in Bangladesh Heliyon. 2023 Oct; 9(10): e21166.
16. Elena Narcisa Pogurschi et al; Knowledge, Attitudes and Practices Regarding Antibiotic Use and Antibiotic Resistance: A Latent Class Analysis of a RomanianPopulation Int J Environ Res Public Health. 2022 Jun 14;19(12):7263..
17. Baye Sitotaw et.al; Knowledge, Attitude, and Practices (KAP) on Antibiotic Use andDisposal Ways in Sidama Region, Ethiopia: A Community-Based Cross-Sectional Survey. DOI:10.1155/2023/8774634
18. Mokhtar Shatla et.al ; Public Knowledge, Attitudes, and Practices Towards AntibioticUse and Antimicrobial Resistance in the Western Region of Saudi Arabia
Cureus. 2022 Nov 24;14(11):e31857.