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Assessment of parental knowledge, attitude and practice towards antibiotic use in children

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ABSTRACT

Objective to assess the impact of pharmacist assisted counselling in improving Parental Knowledge, Attitude and Practice [KAP] towards antibiotic use in children. A Prospective, Educational Interventional Study was conducted in 200 subjects, from the randomly chosen communities in Bangalore. The investigators did door to door visit. The primary demographics data of parents and their children were collected using standard Case Report Form (CRF), and the baseline towards antibiotic use in Children was obtained from parents using validated Questionnaire. In the presence of both parents, only one was supposed to answer the Questionnaire. Pharmacist assisted parent centred interventional counselling was provided with the help of Patient Information Leaflet1s (PIL). Follow-up and post interventional KAP assessment were done after two months from the baseline measurement. The changes in parental KAP towards antibiotics use in children were being assessed by comparing the Pretest and Posttest responses using statistical analysis. The knowledge of parents towards antibiotic use in children was medium to good in the baseline KAP assessment; however, in the majority of the participating parents it was not satisfactory in attitude and practice domains. A statistically significant improvement was seen in the KAP of parents towards antibiotic use in children after the pharmacist assisted interventional counselling. Thus, Investigators could bring excellent changes in the knowledge part; whereas the result for changes in the Attitude and Practice was good to medium respectively.

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INTRODUCTION

When compared to adults' children are more prone to infections because of an immature immune system responsible for fighting against bacteria and viruses [1]. Hence infections are common in children, and the frequency is approximately ten times per year. However, this frequency increases when the child uses to mingle with other children which include nursery to playschool.

In most cases, antibiotics are not required because infections may be due to viruses. Some of the infectious diseases are self-limiting because of their minimal risk of complications. They can be managed by self-care and treatment can be given according to

symptoms, for example, respiratory infections [2].

Antibiotics were one of the greatest inventions of the 20th century. The discovery of penicillin bought a revolution in the era of antibiotics. Before infectious diseases used to contribute to high mortality and morbidity throughout the world [2, 3].

Worldwide, children consume considerable amounts of antibiotics. Their susceptibility causes this to infections. Most children have about four to six acute respiratory tract infections each gar, where they account for a substantial proportion of consultations from physicians. However, it has been found that most URTI is viral. So the administration of antibiotics yields minimal benefits [4].

Improper use of antibiotics is one of the major causes of the global emergency of antibiotic resistance even though it's mainly viral cause; antibiotics are frequently prescribed to children with symptoms of upper respiratory tract infection (URTI) or other acute infections 6,7. Over the past decade, the emergence of antibiotic resistance has been recognized as an essential public health problem. Prescription of antibiotics for upper respiratory tract infections (URTIS), fever,

ear infection or tooth infection is a widespread practice in paediatrics. However, there is sufficient evidence to support the viral origin of most of those illnesses. However, some of the bacterial diseases (such as otitis media and sinusitis) are usually self-limited thus antibiotic treatment is not necessary [5, 6].

Traits related to antibiotic resistance

Antibiotic resistance is the ability of bacteria to resist the antibiotic's working mechanism. Bacteria become resistant to antibiotics in several ways. Some bacteria can "neutralize" medicine to make it useless. Others have developed a way to pump an antibiotic outside of the bacteria before it can do any harm. Bacteria change their outer structure so that the antibiotics have no way to attach to the bacteria to destroy it' [7].

The danger of the antibiotic resistance is that many dangerous infectious diseases and may lead to incurable. That would put a significant and economic burden on the families and the health care system. Antibiotic resistance results in decreased ability to cure the infection in human beings, animals and plants [8].

The use of antibiotics saved millions of lives, but improper use to treat any infection leads to the increase in antibiotic resistance. Antibiotics only target bacteria, but it is most challenging to differentiate between viral and bacterial infections. Antibiotic dosages are designed to eradicate entire populations of pathogens [9, 10]. When antibiotics are not taken for the whole of the prescribed course, pathogenic bacteria can adapt to the presence of low dose antibiotics, and eventually form a population that is entirely resistant to the antibiotic regardless of the dosage" [11] Antibiotics misuse/overuse may cause several problems in addition to antibacterial resistance which, lead to increase the burden of chronic diseases and rising costs of health services). The development of various side effects (e.g. adverse gastrointestinal effects) These adverse effects are more significant in children [12].

Superbug: A superbug is defined as a microorganism that's resistant to commonly used antibioticsbut; not all superbugs are equal. The number of different antibiotics to which it is resistant determines the degree of superbug. Some are resistant to one or two, but the maximum can become resistant to multiple drugs. So, if the bug is resistant to every available antibiotic, it would be the superbug of all superbugs. If superbugs are allowed to spread, we may reach a point where it is dangerous to conduct any surgeries such as C-section and transplants because of the risk of superbug infection, which will have a massive impact in the health of people around the world [13].Present Scenario of Antibiotics: At present, antibiotics are the most commonly sold drugs in developing countries. Antibiotic resistance becconcern [2, 14]. It is found that more than 50% of antibiotics worldwide are purchased without a prescription, from different

Dispensing units. The situation in developing countries is of significant concern because the use of antibiotics without medical guidance is primarily facilitated by inadequate regulation of the distribution and sale of prescription drugs [15].

Self-medication has also been noted in the United States of America and Europe, particularly for colds and upper respiratory tract symptoms, which are self-limiting and mostly caused by viruses. Still, parents give antibiotics on their own to children. Studies from American, Asian and European countries indicate that between 22% and 70% of parents have misconceptions about the proper use of antibiotics and often use them without a prescription [16, 17].

Currently, 700,000 deaths are caused by antibiotic-resistant bacteria worldwide each year, and a UK government review on antimicrobial resistance predicted that this number might increase to 10 million by 2050 [18].

OBJECTIVE

To assess the impact of pharmacist assisted coun-

selling in improving Parental Knowledge, Attitude and Practice [KAP] towards antibiotic use in children.

METHODOLOGY

A Prospective, Educational Interventional Study was conducted in 200 subjects, from the randomly chosen communities in Bangalore. The investigators did door to door visit. The primary demographics data of parents and their children were collected using standard Case Report Form (CRF), and the baseline towards antibiotic use in Children was obtained from parents using a validated questionnaire. In the presence of both parents, only one was supposed to answer the Questionnaire. Pharmacist assisted parent-centred interventional counselling was provided with the help of Patient Information Leaflets (PIL). Follow-up and post interventional KAP assessment were done after two months from the baseline measurement. The changes in parental KAP towards antibiotics use in children were being assessed by comparing the Pretest and Posttest responses using statistical analysis.

RESULTS

The knowledge of parents towards antibiotic use in children was medium to good in the baseline KAP assessment; however, in the majority of the participating parents it was not satisfactory in attitude and practice domains. A statistically significant improvement was seen in the KAP of parents towards antibiotic use in children after the pharmacist assisted parent-centred counselling. Thus, Investigators could bring excellent changes due to interventions in the knowledge part; whereas the result for changes in the Attitude and Practice was good to medium respectively.

Pre- Test: Parental Knowledge, Attitude, and Practice towards antibiotics use in children were being assessed by noting down their responses after they filled the Questionnaire which was provided to them. The Questionnaire consists of 3 parts Knowledge, Attitude and Practice. The reactions were framed as Strongly Agree, Agree, Neutral, Disagree and Strongly disagree which were allotted with a score of 1-5 where five represents excellent,4 represents good, 3 represents medium, 2 represents poor, and 1 represents bad. For Practice Never, Rare, Often, Sometimes, Always and scoring remains the same.

Educational intervention: After the pretest, parents were given one to one parent-centred counselling using leaf 147, which contained information about the antibiotic use in children. Investigators explained about the importance of safe use of antibiotics in children and even cleared all their doubts about the use of the antibiotic in children.

After two months Investigators gave the door to door visit for follow up, and responses were being taken.

Post-Test: After two months of baseline assessment followed by parent-centred counselling, follow up was done again by taking responses for the same Questionnaire.

The percentage of changes brought in Knowledge, Attitude and Practice of parents due to Pharmacist Assisted Parent Centered Counseling are mentioned below Tables 1, 2, 3 and 4Tables 5 and 6 :

STATISTICAL ANALYSIS

The statistical analysis was done to visualize the impact of pharmacist assisted parent-centred counselling on Parents' knowledge, Attitude and Practice towards antibiotic use in children. It was calculated by Non-parametric method using JMP version 13.0 (Trial version) SAS inc-USA. The responses from pretest and posttest were being plotted in a contingency table. Changes in the study responses were calculated using the Likely hood ratio, and Pearson's correlation where Confidence Interval= 0.05, sample size (n=200).

Here we found Probable value 'p' < Chi-square value which is opposite to the assumption (Probable > chi-square) thus proving our study statistically significant. Even Fisher' Exact Test was being done for some responses to determine the level of significance as the sample size was small.Table 4.The knowledge related traits showing a significant level of significance after follow-up response:

Contingency Analysis for Knowledge level

1. Antibiotics are given for treating infection (knowledge) POSTEST by Antibiotics are provided for treating disease (knowledge) PRETEST (Figure 1).

2. Antibiotics are used mainly to treat infections caused by bacteria. (Knowledge) POSTEST Antibiotics are primarily used to treat infections caused by bacteria (Knowledge) PRETEST (Figure 2)

3. The antibiotics should be given to all children who develop various infections and disease condition. (knowledge)POSTESTby The antibiotics should be given to all children who develop multiple infections and disease condition. (knowledge) PRETEST (Figure 3)

4. Children with flu-like symptoms get better faster whenantibioticsare given. (Knowl-

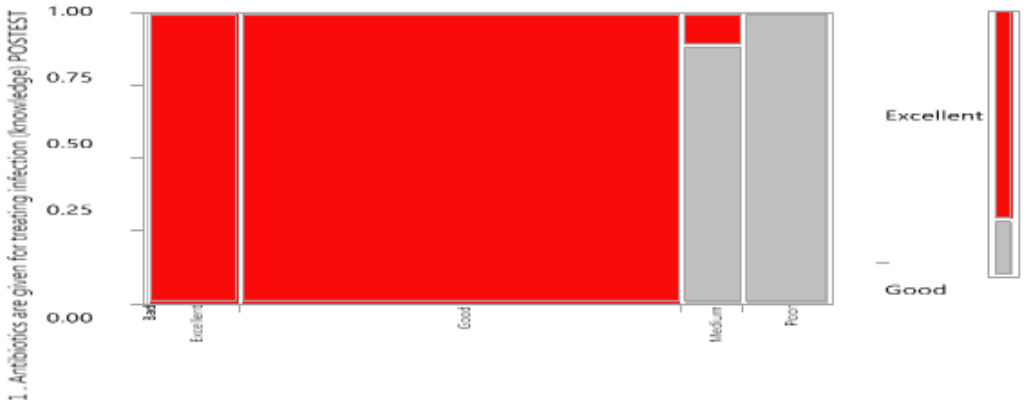

Figure 1: Antibiotics are given for treating infection (knowledge) PRETEST

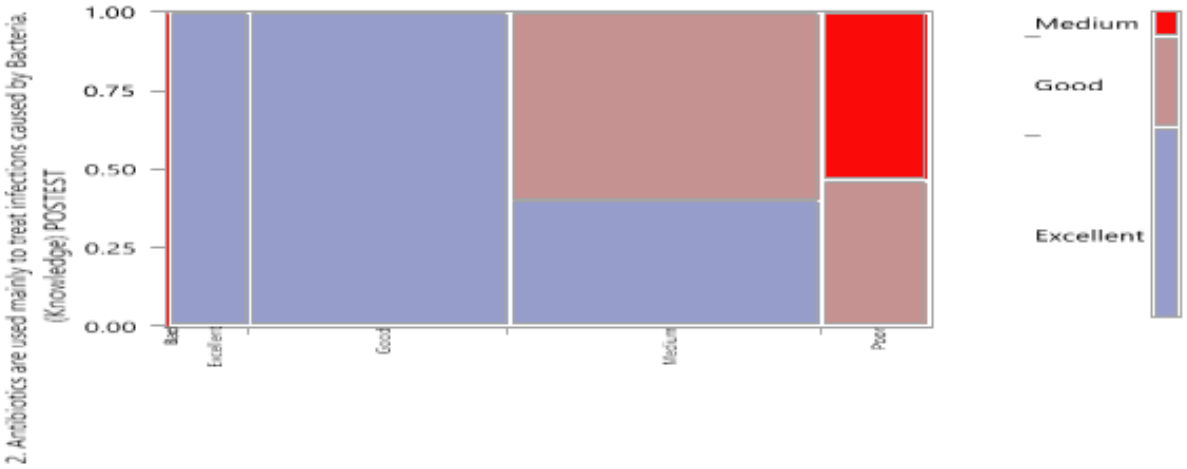

Figure 2: Antibiotics are used mainly to treat infections caused by bacteria. (Knowledge) PRETEST

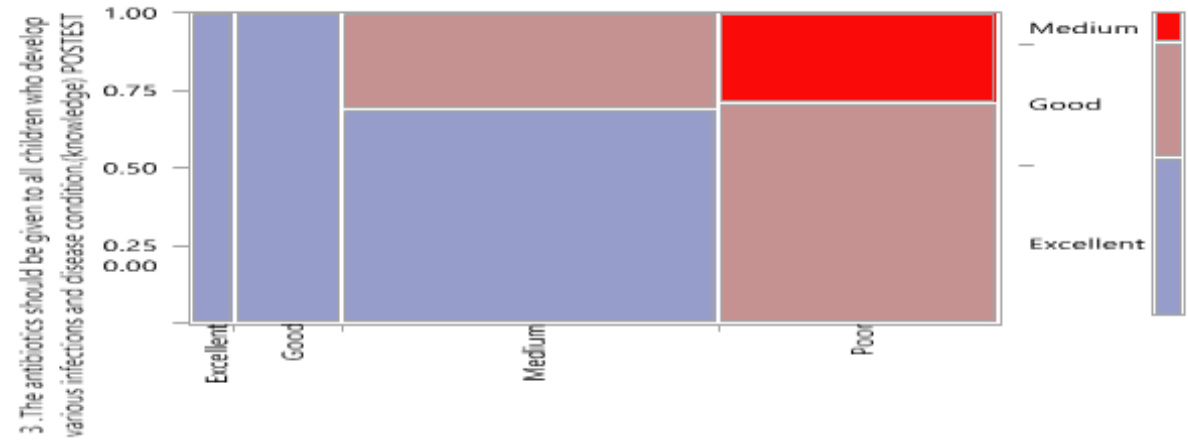

Figure 3: The antibiotics should be given to all children who develop various infections and disease condition. (Knowledge) PRETEST

Table 1: Changes Brought in Knowledge of Parents towards Antibiotic use in children due to Pharmacist Assisted Parent Centered Counseling:

Sl. No	Questions	Changes Brought in percentage(%)
1.	Antibiotics are given for treating infection.	93.89
2.	Antibiotics are used mainly to treat infections caused by bacteria.	56.96
3.	The antibiotics should be given to all children who develop various infections and disease condition.	47.26
4.	Children with flu-like symptoms get better faster when antibiotics are given.	59.49
5.	Full courses of antibiotics should be completed even if the patient condition is improved.	53.28
6.	Antibiotics resistances occur by misuse of antibiotics in humans.	60.32

Table 2: Changes Brought in Attitude of parents towardsAntibiotic use in children due to Pharmacist Assisted Parent CenteredCounseling

Sl. No	Questions	
1.	The reasons for which you give your child antibiotics without the medical doctor's advice: Answer: Because	
	a) You did not have enough spare time to visit the doctor.	91.37
	b) You did not have enough money to pay for the visit.	8.7
	c) You thought that your child condition was not severe enough.	12.06
	d) Your medical doctor had prescribed the same antibiotic in the Past for the same symptoms.	21.7
	e) Pharmacist recommended antibiotics for your child.	91.4
2.	Any leftover antibiotics can be used whenever your child has similar symptoms of various infections and disease conditions like sore throat, cold, flu, fever etc	65.98
3.	Various infections are self-cured even without the use of antibiotics.	44.83
4.	Parents and Medical doctors should be informed about judicious antibiotic use.	59.83
5.	You can request for an antibiotic prescription to physicians if your child suffers from frequent infections.	45.62

edge)POSTESTby Children with flu-like symptoms get better more quickly when antibiotics are given. (Knowledge) PRETEST (Figure 4)

5. Full courses of antibiotics should be completed even if the patient condition is improved (knowledge) POSTEST by

Full courses of antibiotics should also be completed if the patient condition is improved (experience) PRETEST (Figure 5)

6. Antibiotics resistances occur by misuse of antibiotics in humans. (Knowledge) POSTTEST

Antibiotics resistances occur by misuse of antibiotics in humans. (Knowledge) PRETEST (Figure 6)

Contingency Analysis for Attitude

You did not have enough spare time to visit a doctor(Attitude)POSTEST by You did not have enough spare time to visit the doctor. (Attitude)PRETEST (Figure 7)

You did not have enough money to pay for the visit (Attitude)POSTEST by You did not have enough money to pay for the visit. (Attitude) PRETEST (Figure 8)

You thought that your child condition was not severe

Table 3: Changes brought in Practice of Parents towards Antibiotic use in children due to Pharmacist Assisted Parent CenteredCounseling

Sl. No	Questions	Changes Brought in percentage(%)
1.	How often do you insist doctor prescribe antibiotics as a precaution, even if a diagnosis is not confirmed?	88.39
2.	How often do you follow entirely all the medical doctor's instructions and advice?	64.52
3.	How often do you consult the doctor over the phone for antibiotic therapy?	72.68
4.	Would you be unhappy if the doctor does not prescribe an antibiotic for your child in various infections and disease conditions?	79.35
5.	How often do you neglect to buy all medicines as prescribed by the doctor?	85.92

Table 4: The knowledge related traits showing asignificant level of significance after follow-up response

S. No	Positive findings related to knowledge	Likelihood ratio	Pearson's Correlation
1	Antibiotics are given for treating infection.	P<0.0001	P<0.0001
2	Antibiotics are used to treat infections caused by bacteria.	P<0.0001	P<0.0001
3	The antibiotics should be given to children who develop various infections and disease condition.	P<0.0001	P<0.0001
4	Children with flu-like symptoms get better when antibiotics are given.	P<0.0001	P<0.0001
5	Full courses of antibiotics should be completed even if the condition is improved.	P<0.0001	P<0.0001
6	Antibiotic resistance occurs by misuse of antibiotics in humans	P<0.0001	P<0.0001

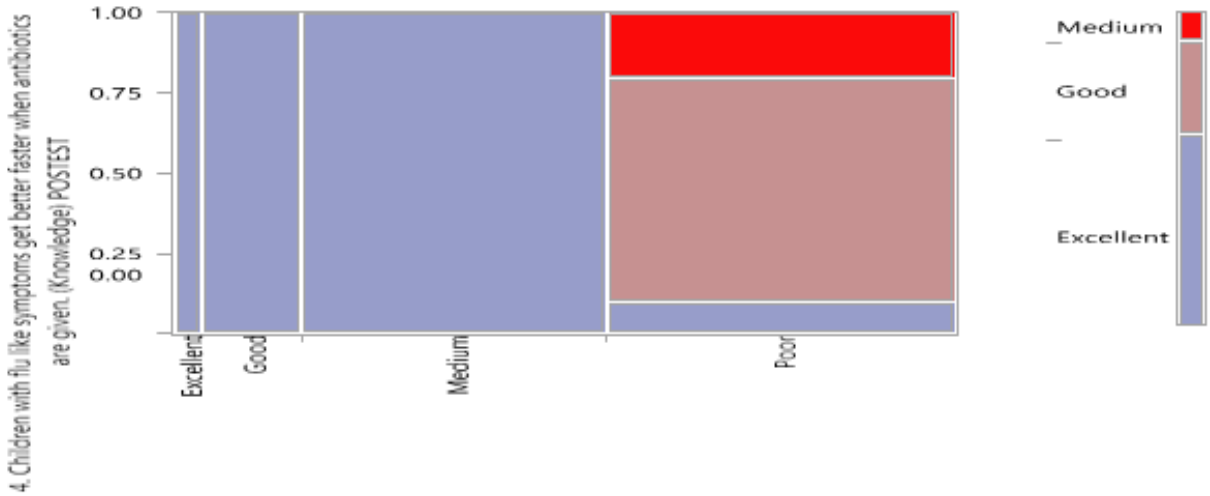

Figure 4: Children with flu like symptoms get better faster when antibiotics are given. Knowledge (PRETEST)

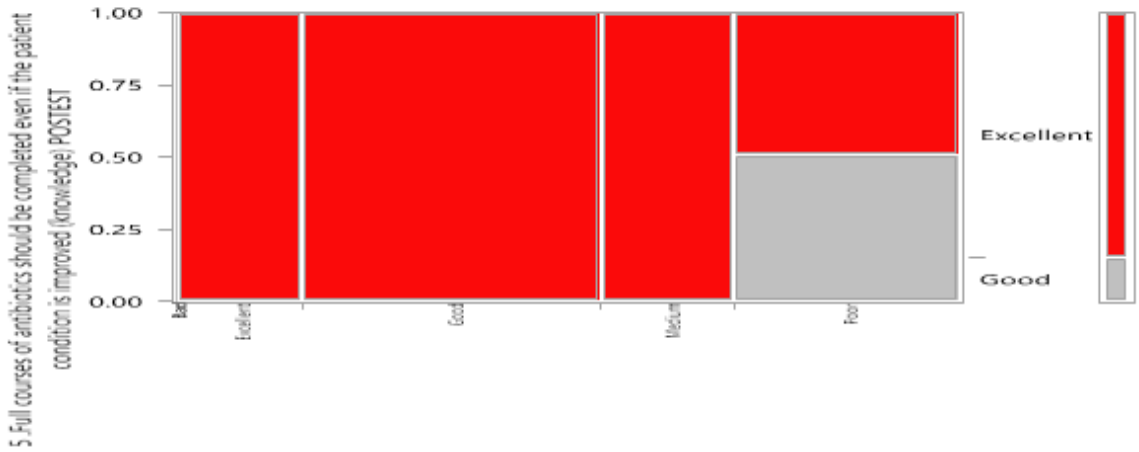

Figure 5: Full courses of antibiotics should be completed even if the patient condition is improved (knowledge) PRETEST

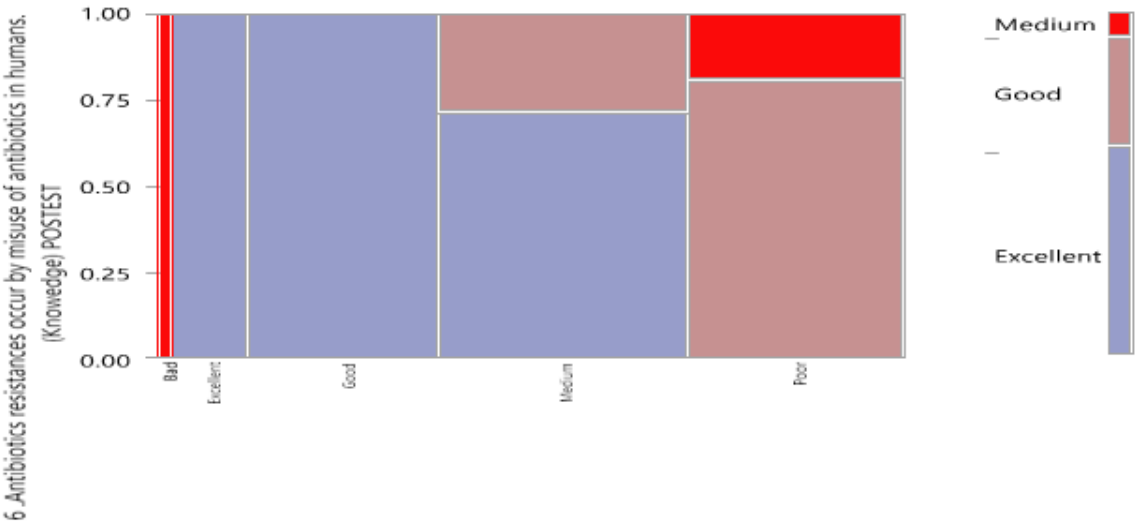

Figure 6: Antibiotics resistances occur by misuse of antibiotics in humans. (knowledge) PRETEST

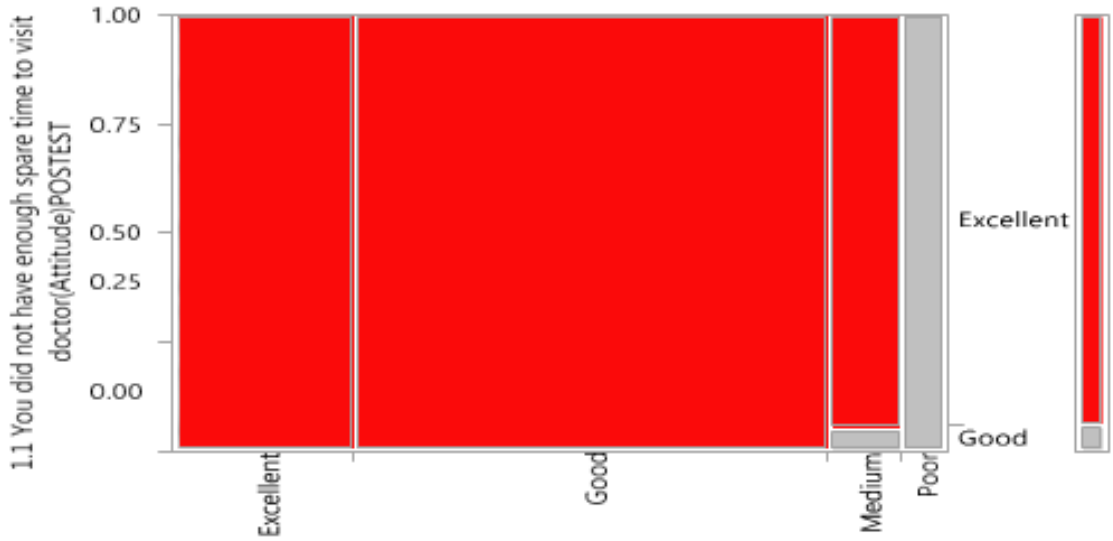

Figure 7: You did not have enough spare time to visit doctor (Attitude) PRETEST

Table 5: The Attitude related traits showing a significant level of significance after follow-up response

Sl.No	Positive findings related to Attitude	Likelihood ratio	Pearson's Correlation	
	The reasons for which you give your child antibiotics without the medical doctor's advice:			
1.1	a) You do not have enough spare time to visit a doctor.	P<0.0001	P<0.0001	<0.0001
1.2	b) You do not have enough money to pay for the visit.	P=0.0063	P=0.0334	Left =1.0000 Right =0.0241 2-Tail=0.0364
1.3	c) You thought that your children conditions were not serious enough.	P<0.0001	P<0.0001	<0.0001
1.4	d) Your medical doctor had prescribed the same antibiotic in the past for the same symptoms.	P<0.0001	P<0.0001	<0.0001
1.5	e) Pharmacist recommended antibiotics for your children.	P<0.0001	P<0.0001	<0.0001
1.6	Any leftover antibiotics can be used whenever your child has similar signs and symptoms of various infections and disease conditions like sore throat, cold, flu, fever etc	P<0.0001	P<0.0001	<0.0001
2	Any leftover antibiotics can be used whenever your child has similar symptoms of various infections and disease conditions like sore throat, cold, flu, fever etc	P<0.0001	P<0.0001	<0.0001
3	Various infections are self- cured without the use of antibiotics.	P<0.0001	P<0.0001	<0.0001
4	Parents and Physicians should be informed about judicious antibiotic use.	P<0.0001	P<0.0001	<0.0001
5	You can request for an antibiotic prescription to doctors if your child suffers from frequent infections.	P<0.0001	P<0.0001	<0.0001

enough (attitude) POSTEST by You felt that your child condition was not severe enough. (Attitude) PRETEST (Figure 9)

Your medical doctor had prescribed the same antibiotic in the past for the same symptoms (Attitude) POSTTEST by Your medical doctor had prescribed the same antibiotic in the past for the same symptoms (Attitude) PRETEST. (Figure 10)

Pharmacist recommended antibiotics for your child (ATTITUDE) POST TEST by Pharmacist recommended antibiotics for your child (ATTITUDE) PRETEST. (Figure 11)

A friend/family relative recommended the antibiotic for your child. (ATTITUDE)POST TEST by A friend/family relative prescribed the antibiotic for your child. (Attitude) PRETEST (Figure 12)

Any leftover antibiotics can be used whenever your child has similar symptoms of various infections and

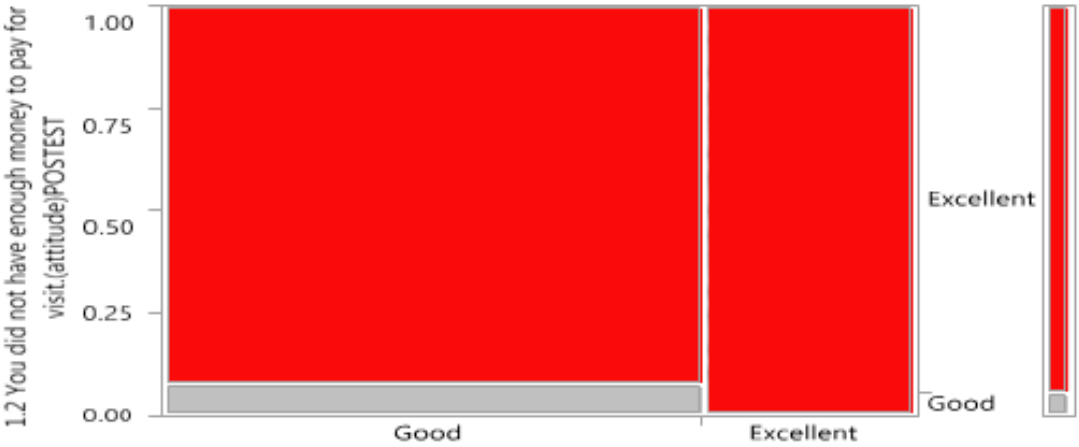

Figure 8: You did have enough money to pay for the visit (Attitude) PRETEST

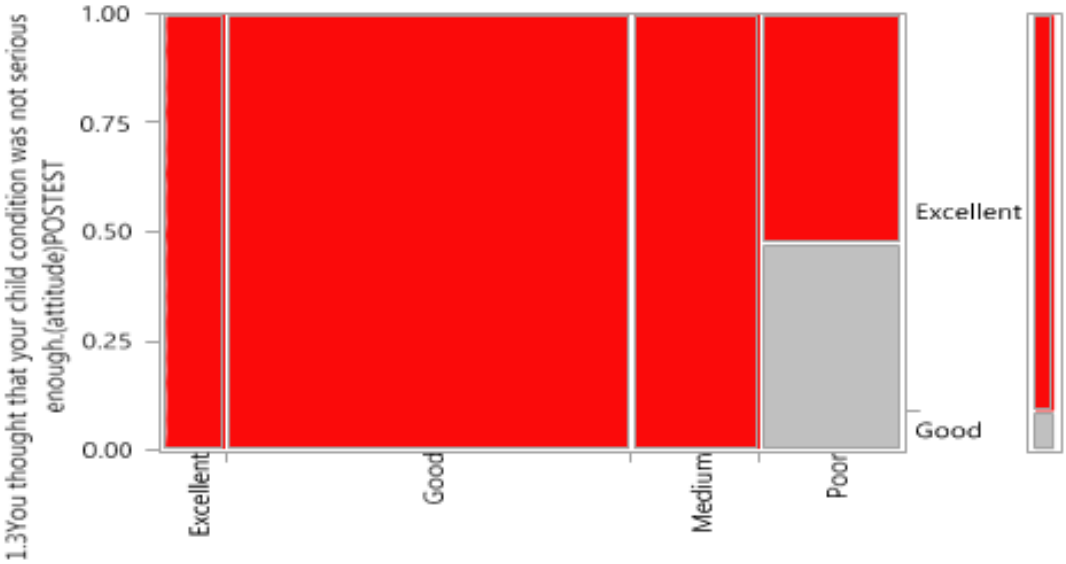

Figure 9: You thought that your child condition was not serious enough (Attitude) PRETEST

disease conditions like sore throat, cold, flu, fever etc. (ATTITUDE) POST TEST by Any leftover antibiotics can be used whenever your child has similar symptoms of various infections and disease conditions like sore throat, cold, flu, fever etc. (ATTITUDE) PRETEST. (Figure 13)

Various infections are self-cured even without the use of antibiotics. (ATTITUDE)POST TEST by Various infections is self-cured even without the use of antibiotics. (ATTITUDE)PRE TEST (Figure 14)

Parents and Medical doctors should be informed about judicious antibiotic use (ATTITUDE) POSTTEST by Parents, and Medical doctors should be informed about judicious antibiotic use (ATTITUDE) PRETEST (Figure 15)

You can request for an antibiotic prescription to physicians if your child suffers from frequent infections. (ATTITUDE) POSTTEST by You can request for an antibiotic prescription to physicians if your child suffers from recurrent infections. (ATTITUDE)PRETEST (Figure 16)

Contingency Analysis of Practice

How often do you insist doctor prescribe antibiotics as a precaution, even if a diagnosis is not confirmed? (PRACTICE)POST TEST by How often do you insist doctor prescribe antibiotics as a precaution, yet if a diagnosis is not approved?(PRACTICE)PRE TEST (Figure 17)

How often do you completely follow all the medical doctor's instructions and advice? (PRACTICE)POST TEST by How often do you completely follow all the medical doctor's instructions and advice? (PRAC-

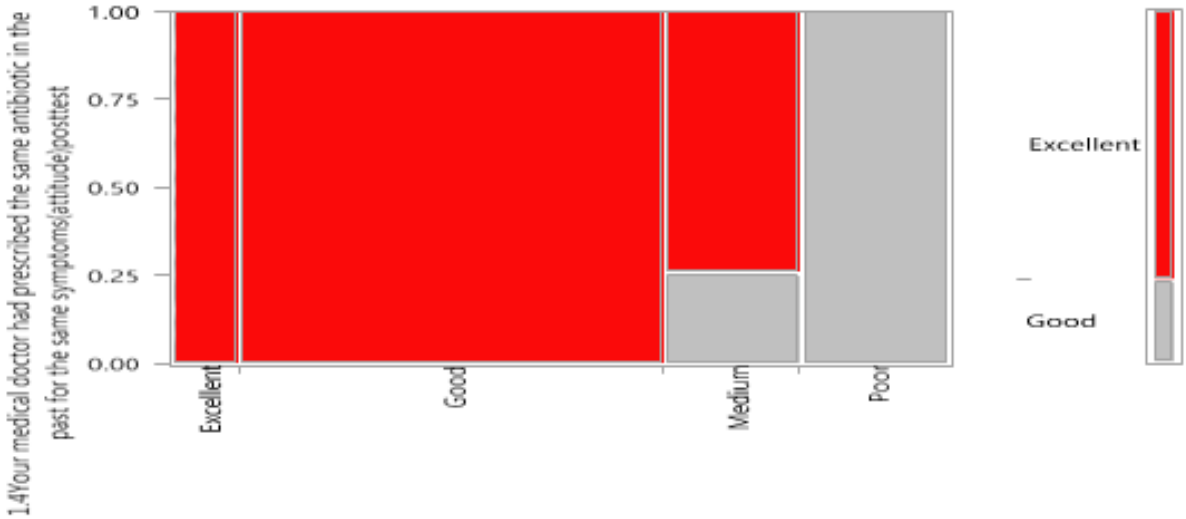

Figure 10: Your medical doctor has prescribed the same antibiotic in the past for the same symptoms (Attitude) PRETEST

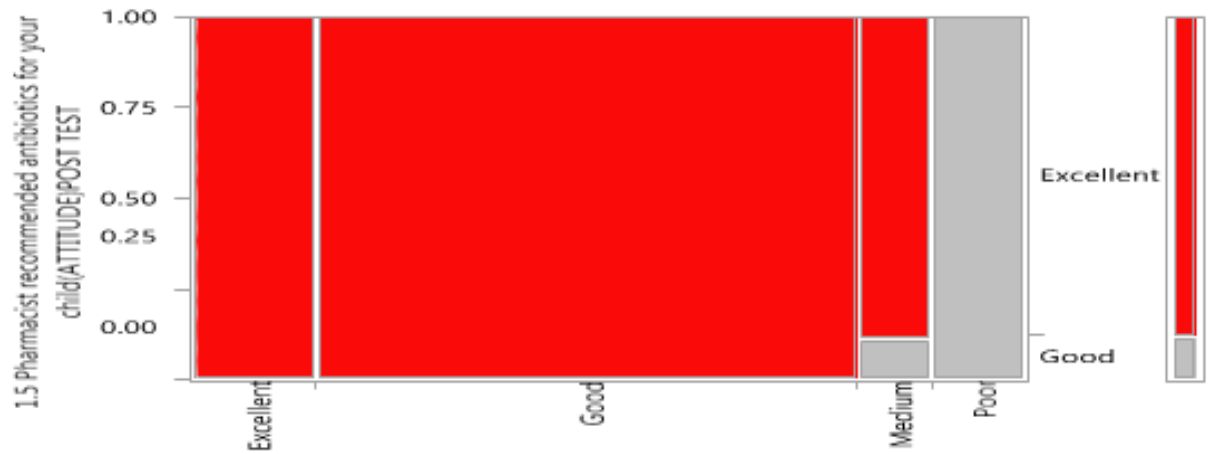

Figure 11: Pharmacist recommended antibiotics for your child (Attitude) PRETEST

TICE)PRE TEST (Figure 18)

How often do you consult the doctor over the phone for antibiotic therapy? (PRACTICE)POST TEST by How regularly do you consult a doctor over the phone for antibiotic therapy? (PRACTICE)PRE TEST (Figure 19)

You be unhappy if the doctor does not prescribe an antibiotic for your child in various infections and disease conditions? (PRACTICE)POST TEST by Would you be unfortunate if the doctor does not prescribe an antibiotic for your child in multiple infections and disease conditions? (PRACTICE)PRETEST (Figure 20)

How often do you neglect to buy all medicines as prescribed by the doctor? (PRACTICE)POST TEST by How often do you neglect to buy all medication as prescribed by a doctor? (PRACTICE)PRE TEST (Figure 21)

DISCUSSION

The improper use of antibiotics for treating infections became a prominent global cause which in turn is leading to several health hazards related to antibiotic resistance. Here it's the same in the Indian scenario and thus influenced us to work in few urban neighbourhoods in Bangalore. Antibiotics are not the correct choice of all infections like in case of sore throat, cough, cold or even flu. Even many antibiotics cause various side effects like stomach upset or other gastrointestinal disturbances.

Even after knowing all these facts, at present antibiotics are the most commonly sold medicines in the developing countries. The excessive use of antibi-

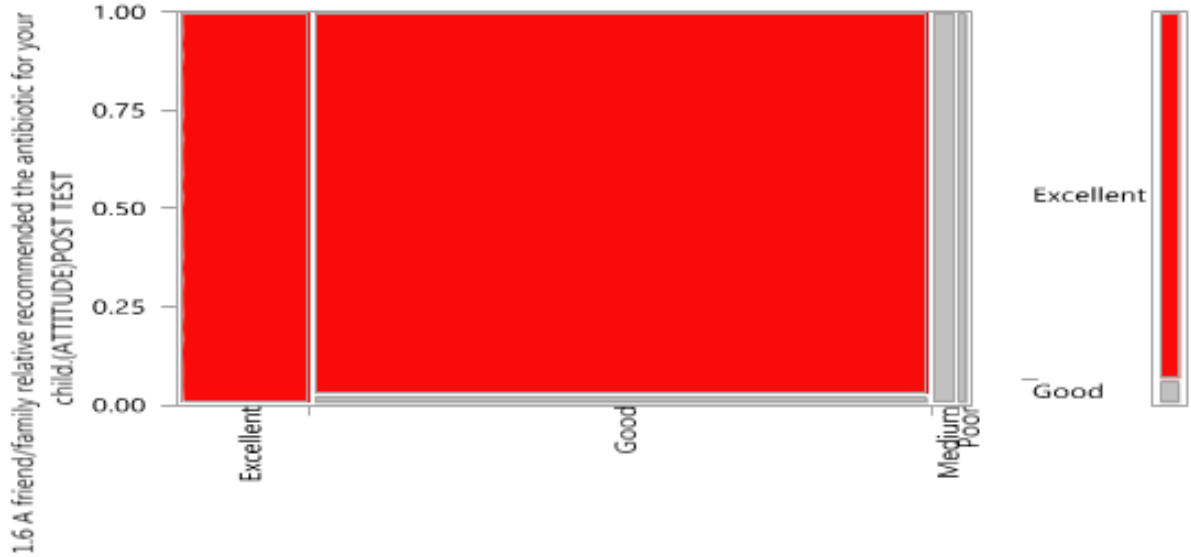

Figure 12: A friend/family relative recommended that antibioticfor your child. (Attitude) PRETEST

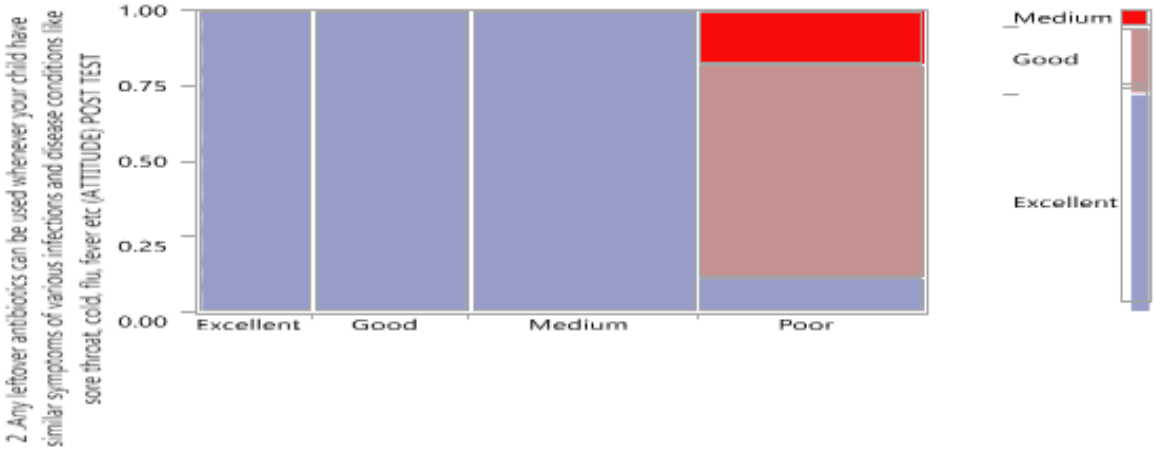

Figure 13: Any leftover antibiotics can be used whenever your child has similar symptoms of various infections and disease conditions like sore throat, cold, flu, fever etc. (ATTITUDE) PRETEST.

otics has escalated for the problem of antibiotic resistance. WHO set the theme of World Health day as "Combat antimicrobial resistance, no action today, no cure tomorrow" and thus encouraged us to work with the aim of "Assessment of Parental Knowledge, Attitude and Practice towards antibiotic use in children."

For this study, we have selected a convenience sampling technique and enrolled 200 Subjects who were willing to participate and signed the ICF. To know the baseline Knowledge, Attitude and Practice towards antibiotic use in children, we framed the protocol accordingly. We got ethically cleared where we planned of conducting a Pretest screening and then providing them with parent-centred counselling which is finally followed by a Posttest selection as a part of Follow-up after two months to understand the pharmacist intervention and to analyze the improvement if shown. To assess the parental knowledge about antibiotic use in children, a set of questions were framed in relevance towards knowledge about antibiotic use.

The response for the statement "Antibiotics are given for treating infection" showed that a majority (129) of them had the right knowledge level. The majority (82) of the parents had a medium level of knowledge for the statement that "Antibiotics are used mainly to treat infections caused by Bacteria" wherein others had average to a poor level of knowledge.

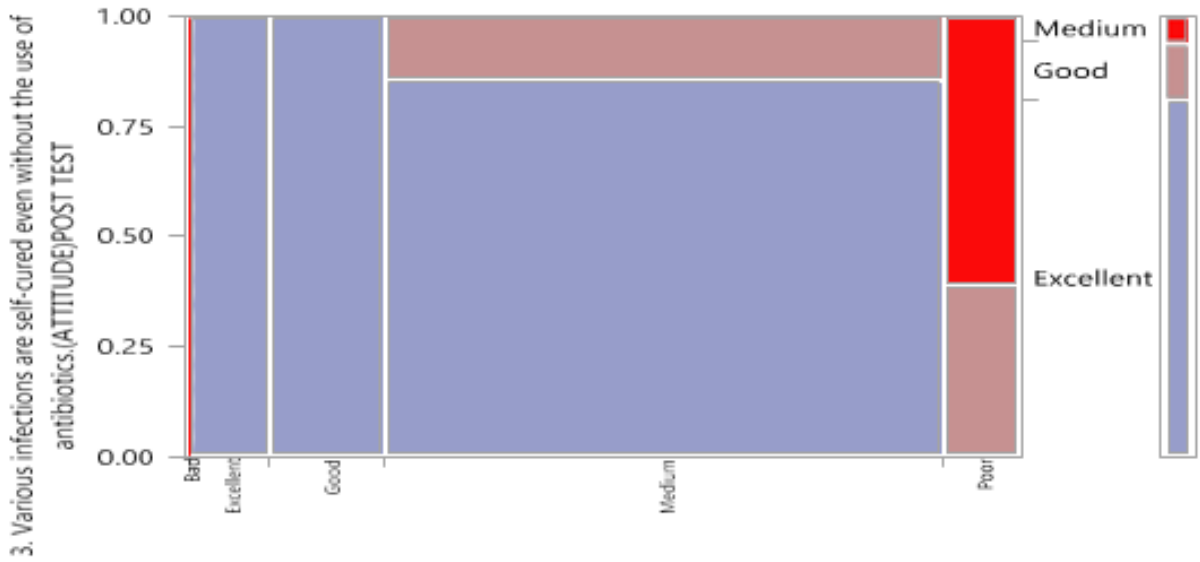

Figure 14: Various infections is self-cured even without the use of antibiotics. (ATTITUDE)PRE TEST

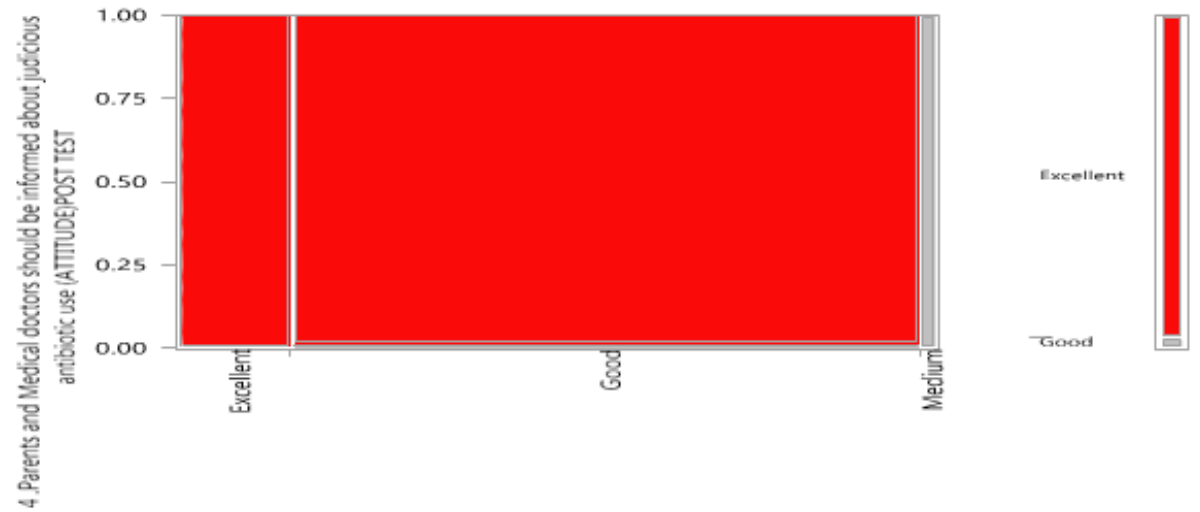

Figure 15: Parents and Medical doctors should be informed about judicious antibiotic use(ATTITUDE) PRETEST

A medium level of knowledge was found to be in the majority for the response "The antibiotics should be given to all children who develop various infections and disease condition". Majority of the parents (89) had a poor level of knowledge followed by medium level (78) for the response "Children having flue like symptoms will be improved faster after giving antibiotics." Parents had a good (76) to poor (57) level of knowledge for the statement "Full courses of antibiotics should be completed even if the patient condition is improved". A medium (67) to poor (58) level of knowledge was found to be maximum for the statement ". Antibiotics resistances occur by misuse of antibiotics in humans".

On assessing parental Attitude for the reasons for which they gave their child antibiotics without the medical doctor advice was found to be good to medium in the majority. The Attitude towards the response "Any leftover antibiotics can be used whenever your child has similar symptoms of various infections and disease conditions like sore throat, cold, flu, fever etc." showed maximum had an attitude which falls in the medium category (63) to poor (62). View towards the response "Various infections are self-cured even without the use of antibiotics". Showed that maximum (134) had an attitude of medium category. For the response, "Parents and Medical doctors should be informed about judicious antibiotic use". Maximum (166) had the

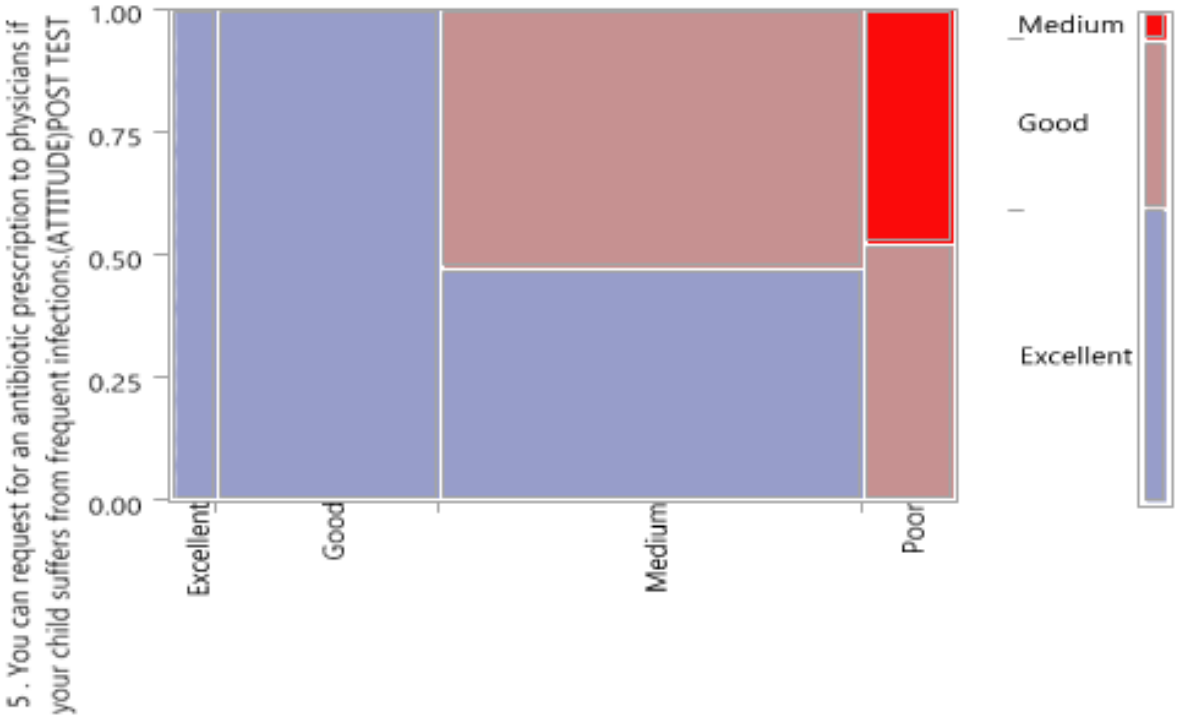

Figure 16: Youcan request for an antibiotic prescription to physicians if your child suffersfrom recurrent infections. (ATTITUDE)PRETEST

Table 6: The Practice related traits showing asignificant level of significance after follow-up response

Sl. No	Positive findings related to Practice	Likelihood ratio	Pearson's Correlation	
1	How often do you insist doctor prescribe antibiotics as a precaution, even if a is a diagnosis not confirmed?	P<0.0001	P<0.0001	<0.0001
2	How often do you completely follow all the medical doctor's instructions and advice?	P<0.0001	P<0.0001	<0.0001
3	How often do you consult a doctor over the phone for antibiotic therapy?	P<0.0001	P<0.0001	<0.0001
4	Would you be unhappy if the doctor does not prescribe an antibiotic for your child in various infections and disease conditions?	P<0.0001	P<0.0001	<0.0001
5	How often do you neglect buying all medicines as prescribed by the doctor?	P<0.0001	P<0.0001	<0.0001

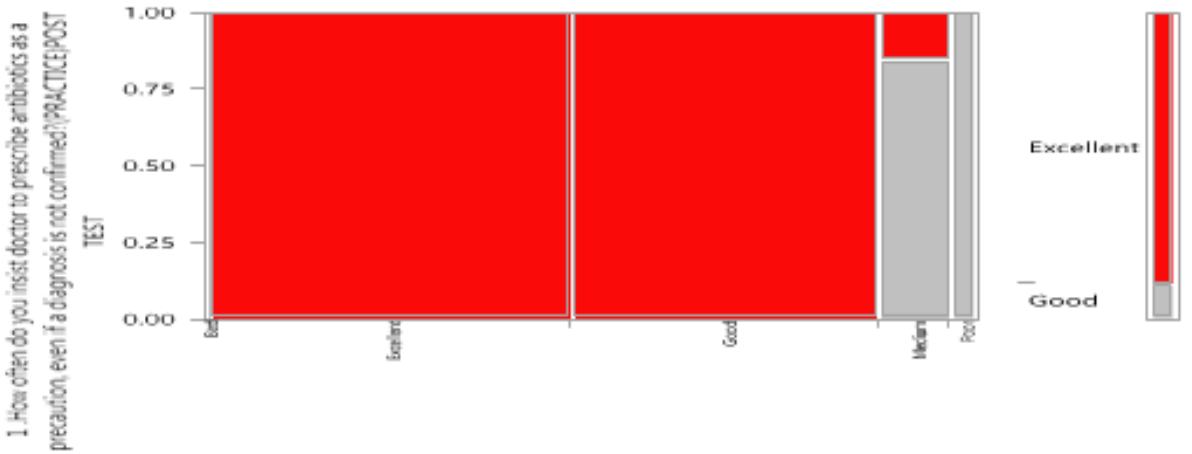

Figure 17: How often do you insist doctor prescribe antibiotics as a precaution, yet if a diagnosis is not approved?(PRACTICE)PRE TEST

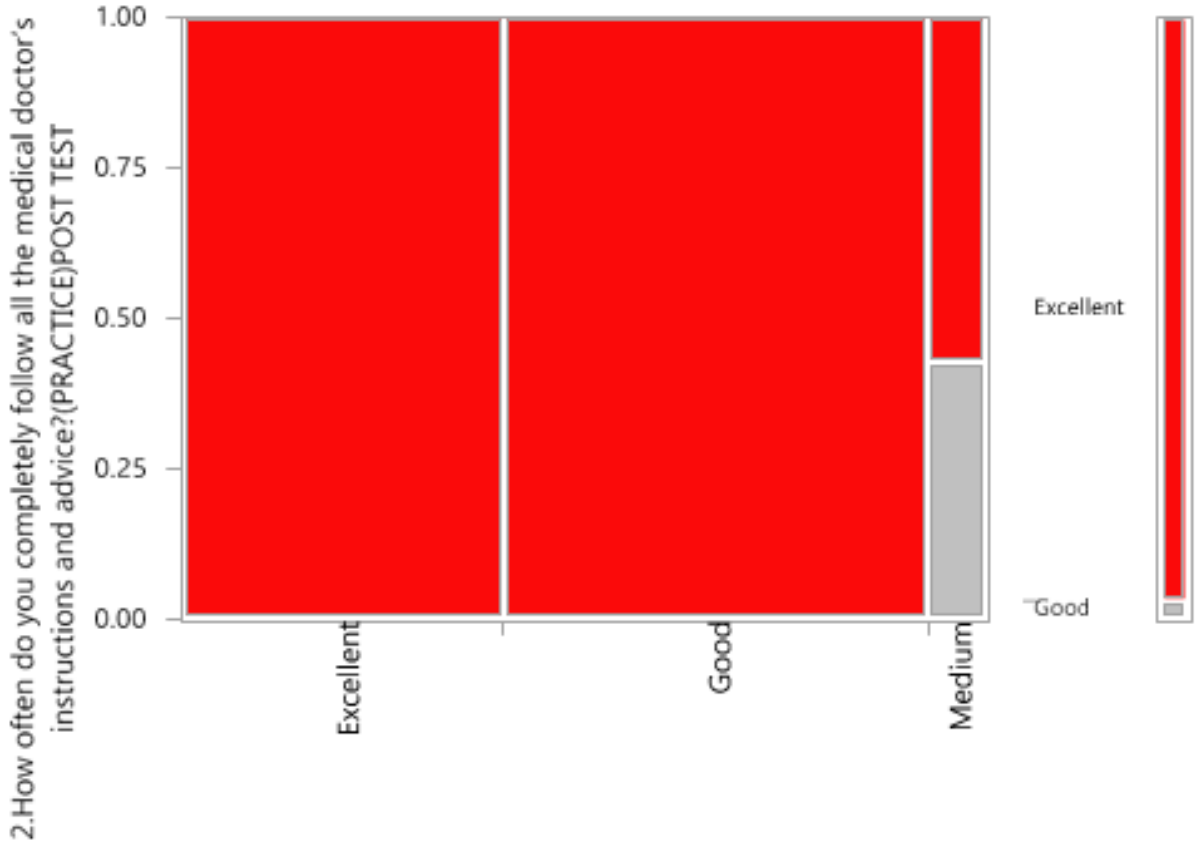

Figure 18: How often do you completely follow all the medical doctor's instructions and advice? (PRACTICE)PRE TEST

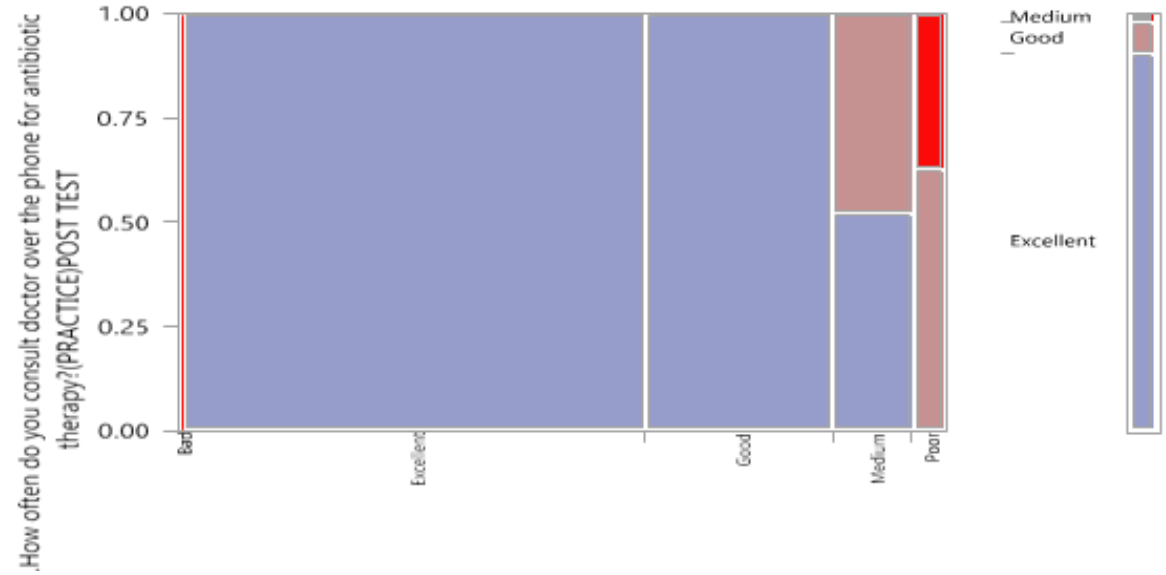

Figure 19: How regularly do you consult a doctor over the phone for antibiotic therapy? (PRACTICE)PRE TEST

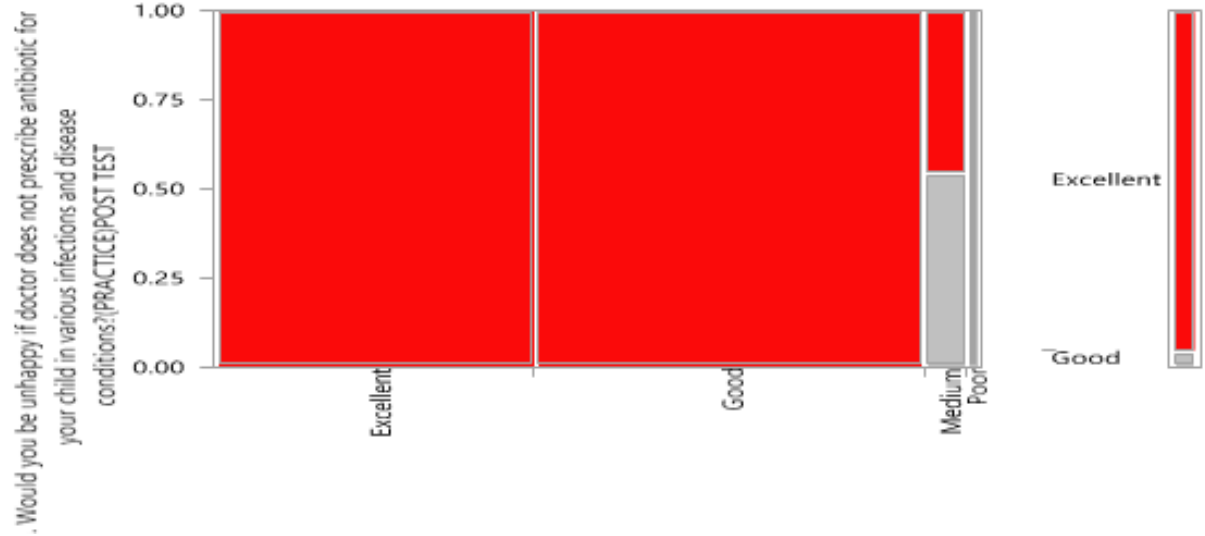

Figure 20: Would you be unfortunate if the doctor does not prescribe an antibiotic for your child in multiple infections and disease conditions? (PRACTICE)PRETEST

right Attitude. The Attitude towards the response "You can request for an antibiotic prescription to physicians if your child suffers from frequent infections" showed maximum (108) had a medium attitude.

The Practice towards antibiotic use in children was assessed via various responses. For the answer "How often do you insist doctor prescribe antibiotics as a precaution, even if a diagnosis is not confirmed?" majority had an excellent practice [18, 19]
.

The Practice towards the response "How often do you completely follow all the medical doctor's instructions and advice?" showed that maximum had a good workout. Maximum (131) had an excellent method for the response "How often do you consult the doctor over the phone for antibiotic therapy?" A good (102) practice was being shown for the reaction "Would you be unhappy if the doctor does not prescribe an antibiotic for your child in various infections and disease conditions?" A maximum (69) had excellent Practice followed by good (46) practice towards the response "How often do you neglect to buy all medicines as prescribed by a doctor?"

Our study revealed that after the pharmacist assisted parent centred counselling a significant improvement in the overall response for Knowledge, Attitude and Practiced towards antibiotic use

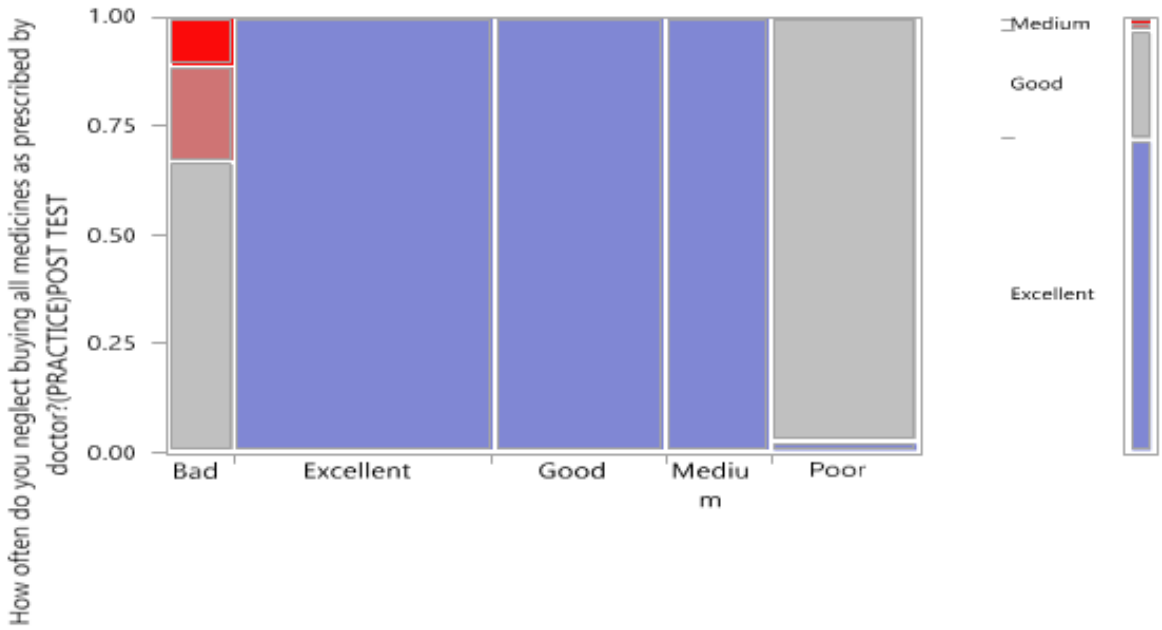

Figure 21: How often do you neglect to buy all medication as prescribed by a doctor? (PRACTICE)PRE

in children was found. Still, the extent of growth in Attitude and Practice was less as compared to the increase in knowledge level.

CONCLUSION

The study reflects upon the idea that knowledge moulds attitude; and Attitude drives proper Practice. Our study showed a significant improvement in Knowledge, Attitude and Practice of parents towards antibiotic use in their children but extending the study for up to at least a year with more numbers of follow-up, can provide better changes on antibiotic use in children.

Hence there is a need of comprehensive plan and execution to improve Knowledge, Attitude and Practice towards antibiotic use in children which can be accomplished by pharmacist assisted parent centred counselling and monitoring the changes brought in Knowledge, Attitude and Practice via follow-up. With a shared diligent effort from all, a proper Knowledge, Attitude and Practice towards antibiotic use in children is possible, if not now, very shortly.

CONFLICT OF INTEREST

Authors declared no conflict of interest.

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