ejpmr, 2020,7(3), 274-281

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

EXPLORATION OF PARENTS KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS THE USE OF ANTIBIOTICS AND ITS RESISTANCE IN PAEDIATRICS IN A RURAL AREA - NAMAKKAL, TAMILNADU

[1]Dr. N. SenthilKumar, [2]Dr. Sivasakthi, [3]*Sirajul Muneer M. A., [4]Aswin P. Raj, Abhirami Jayachandran, Annmary Joseph

Department of Pharmacy Practice, JKKMMRF's AJKKSA College of Pharmacy, Komarapalayam, Nammakkal-638183, Tamilnadu, India.

***Corresponding Author: Sirajul Muneer M. A.**

Department of Pharmacy Practice, JKKMMRF's AJKKSA College of Pharmacy, Komarapalayam, Nammakkal-638183, Tamilnadu, India.

Article Received on 07/01/2020 **Article Revised on 28/01/2020** **Article Accepted on 18/02/2020**

ABSTRACT

Antimicrobial resistance is an increasing global problem. Misuse and overuse of antibiotics is the major contribution to the emergence of resistant bacteria in humans. The purpose of the study is to describe the parents knowledge about when and how to use antibiotics for an infection, their attitude towards doctor and antibiotic use in general. The objective of the study was to evaluate the knowledge, attitude and practice of parents towards the use of antibiotics and its resistance, factors associated with parents self-medicating their children with antibiotics, interaction between parents and physician regarding antibiotic treatments. 150 parents of pediatrics qualifying the study criteria were enrolled in the study for a period of 6 months. Self-made questionnaire had been used in the study. most of the parents were uneducated (69%) had not been attended any medical training (84%). Most of the parents rely on antibiotic as over the counter drugs for common diseases without proper knowledge (58%). 77.30% parents were unaware about the antibiotic resistance respectively. 72% parents believe that antibiotics are used for viral infection. 96% were unaware about overuse and misuse of antibiotic increase the risk of antibiotics resistance. 51% of parents wish to further informed about judicious use of antibiotics. 62.6% parents never give antibiotics to their children with less dose than drug instruction in consideration of safety. Only 23% were always follows pediatrician's instructions and advice regarding the antibiotics. Pharmacist can play an active role in making a better interaction with parents, leads to proper guidance of their children to antibiotic usage. Strategies of effective counselling, appropriate prescriptions, periodic upgraded training programs for health care team, strengthening and application of regulations related to OTC sale of antibiotics in community level can eventually reduce these unhealthy practices and improving the knowledge and attitude regarding antibiotic use. Develop educational programs to improve awareness of population about rational antibiotic usage.

INTRODUCTION

Antibiotics also known as antibacterial are medications that destroy or slow down the growth of bacteria. They include a wide range of powerful drugs and are used to treat diseases caused by bacteria. They work by either selectively killing (bactericidal) or inhibiting the growth (bacteriostatic) of bacteria. Antibiotic prescribed for the treatment of a bacterial infection, It is not effective against viruses. So it is important to know whether it is bacterial or viral infection. If people overuseontibiotics or use them incorrectly, there is a risk that the bacteria will become resistant. This means that the antibiotic becomes less effective against that type of bacterium, as the bacterium has been able to improve its defence. The antibiotics are classified into different group based on different criteria.

Antibiotic resistance is the ability of a microorganism to survive and resist exposure to antimicrobial drugs, threatening the effectiveness of successful treatment of infection Resistance can be transferred genetically from one microorganism to another. Prevalence of antibiotic resistance varies among countries but in general it is positively correlated with prescribed outpatient antibiotic use at the national level. However, Antibiotic consumption can also include self-medication, (i.e. antibiotic use without prescription) This occurs through the use of leftover antibiotics from previously prescribed courses, antibiotics obtained from relatives or friends or bought without prescription, and antibiotics obtained both legally and illegally. At present antibiotic resistance especially multidrug resistance has become a worldwide problem.

Antimicrobials are probably one of the most successful forms of chemotherapy in the history of medicine. It is not necessary to reiterate here how many lives they have saved and how significantly they have contributed to the

control of infectious diseases that were the leading causes of human morbidity and mortality for most of human existence.

ANTIBIOTIC USE IN PEDIATRICS

The use of antimicrobial agents, especially antibiotics, has become a routine practice for the treatment of paediatric illnesses. A substantial portion of prescribed antibiotics is considered nonessential, and such prescribing may be due to reasons related to: patients, parents or guardians, or the physicians. Studies from American, Asian and European countries indicate that between 22% and 70% of parents have misconceptions about the appropriate applications and efficacy of antibiotics and often use them without a prescription. It is estimated that more than 50% of antibiotics worldwide are purchased privately without a prescription, from pharmacies or street vendors in the informal sector. (Haung et al., 2008) revealed that while most antibiotics about 66.66% is given to children according to prescriptions, the rest of antibiotics are given without prescriptions. misconceptions about the appropriate applications and efficacy of antibiotics and often use them without a prescription.[1] It is estimated that more than 50% of antibiotics worldwide are purchased privately without a prescription, from pharmacies or street vendors in the informal sector. (Haung et al., 2008) revealed that while most antibiotics about 66.66% is given to children according to prescriptions, the rest of antibiotics are given without prescriptions.[1]

THE KAP STUDIES AND PHARMACIST BASED COUNSELLING

Studies investigating parental knowledge (K; what people know), attitudes (A; how they feel) and practices (P; how they behave) regarding the use of antibiotics (KAP studies) may enhance our understanding and contribute to the design of effective intervention and education towards judicious antibiotic use. These surveys may either be distributed by mail or filled in during face-to-face interviews. Although the latter has increased response rates, direct parental interviewing might involve both interviewee influence as well as interviewer bias in the interpretation of the parental answers. Pharmacist based counselling can play a vital role in improving the better antibiotic usage and improved quality of life of patients. It can change the knowledge, attitude and practice of parents regarding the antibiotic treatment and also improves a better relationship between parents and pediatricians.

SCOPE OF STUDY

- The World Health Organization, in its late report released in April 2014, revealed that antibiotic resistance is a serious and growing global problem. Several studies reported the relationship between antibiotic use and the development of resistance. Countries consuming the highest amounts of antibiotics have the highest rates of resistance
- Globally, young children consume considerable amounts of antibiotics. This is likely caused by their susceptibility to infections
- Inappropriate use of antibiotics is one of the major causes of the global emergency of antibiotic resistance. The problem of the unnecessary use of antibiotics among children is of special concern in low- and middle-income countries because of the higher prevalence of infectious diseases and shortcomings in hygiene, sanitation, and public health in these contexts.

METHODOLOGY

Study design and setting

This is a community based observational study design was conducted to assess the knowledge, attitude and practice towards the use of antibiotics and its resistance in parents of pediatrics in a rural area during a period of six months from Feb, 2018-July 2018.

Sample size

A total of 150 Parents were included. The inclusion criteria for the study subjects includes adults who were parents of children aged between 0 to 10 years. Parents of children who were not willing to participate and parents of specially abled children were excluded from the study.

Data collection

The data collection was done by using questionnaire comprising of questions related to the antibiotic usage and its resistance. The questionnaire was adapted from previous similar literatures. The initial part of the questionnaire was consisting of the patient's demographic data and their health related information, while the remaining part of the questionnaire classified into three groups on the basis of objectives like knowledge, attitude, and practice of antimicrobial use and its resistance. A patient information leaflet was given to provide awareness about antibiotics and antibiotics resistance.

ETHICAL CONSIDERATIONS

Ethical approval was obtained before conducting the study. The study participants were informed about the purpose of the study and written informed consent was obtained before the questionnaire was administered.

RESULT AND DISCUSSION

Table 1: Demographic Characteristics of the respondents.

Characteristics	Number (n=150)	Percentage(%)
Sex		
Male	61	40.6
Female	89	59.6
Age of parents, years		
21-30	16	10.6
31-40	99	66
>40	35	23.3
Age of children, years		
0-2	8	5.3
2-4	16	10.7
4-6	27	18
6-8	51	34
8-10	48	32
Education		
Primary school	31	20.6
Secondary school	73	48.6
Higher secondary	24	16
Graduate	22	14.6
Prior medical training		
Attended	24	16
Did not attended	126	84

In this study it was found that 89(59.6%) of the responders were females and males were 61(40.6%). Age wise distribution of Responders shows that out of 150 patients, the most of them are from the age group 31-40 years and the least number were from 21-30 years. Table out of 150 patients higher number of the patients were from the age group 6-10 years (75.3%) and the least from the age group 0-5 years (24.7%). Among these 150 subjects, 73(48.67%) of them had secondary education, followed by 31(20.66%) were primary educated, 24 (16%) were HSC and 22 (14.67%) were graduated from the college. BalajiChinnasami (2016) revealed that majority of responders were having completed college-level education or higher (87%) and only (14%) were reported high school education or less.[3] But in our study most of responders were educated upto secondary education (48.6%) or primary education (20.6%) only. And (16%) 0.00% 20.00% 40.00% 60.00% 80.00% 100.00% PRIMARY SECONDARY HSC GRADUATE 31 (20.66) 73 (48.67) 24 (16) 22 (14.67) EDUCATIONAL STATUS Chapter 6 Results and Discussion Dept. of Pharmacy Practice 42 JKKMMRF College of Pharmacy having H.Sc education and (14.6%) are graduated from college. When comparing, our study contains major number of illiterate responders, which affects their awareness in a higher level.

5 It showed that 126 (84%) of parents had never attended a medical training and 24 (16%) of parents had attended a medical training program. In a study conducted by Lauren Havens, et-al (2016), 25% identified as being trained in medical, nursing, or paramedical field. But in this study only 16% of parents had attended a medical training program.[4] The above comparison shows the lack of knowledge among people.

USAGE OF ANTIBIOTICS WITHOUT PRESCRIPTION

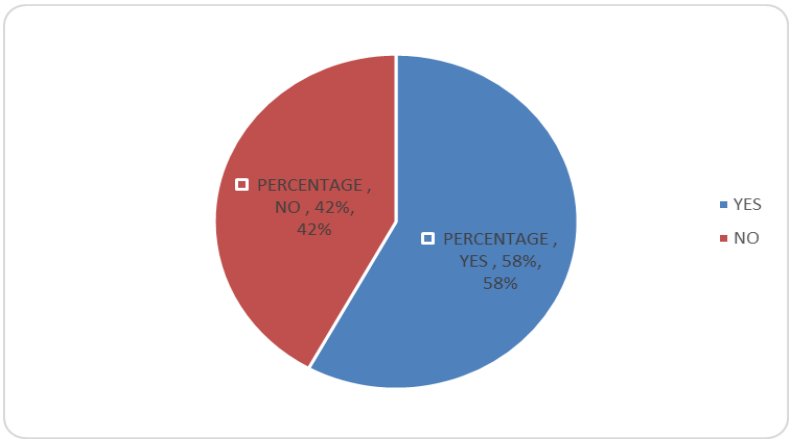

Figure 1: Usage of antibiotics without prescription.

Among the 150 respondents, 87 (58%) of them had given antibiotics without a prescription (OTC) to their children and 63 (42%) of them had given the medication after consulting a physician. Most of the parents rely on antibiotics OTC for fever, cough, running nose and sore throat. They purchased antibiotics from retail pharmacy (68%) and shops (32%). During last three months 40% of them given it occasionally and 10.70% of them used antibiotics always.

AWARENESS AMONG PARENTS ON ANTIBIOTICS AND ITS RESISTANCE

Table 2: awareness among parents on antibiotics and its resistance.

KNOWLEDGE OF PARENTS	YES		N	O
	Frequency	%	Frequency	%
ANTIBIOTICS	84	56%	66	44%
ANTIBIOTIC RESISTANCE	34	23%	116	77.30%

The table clearly showed that 56% (84) of parents had knowledge about antibiotics and 23% (34) of them had knowledge about the antibiotic resistance where 44% (66) and 77.30% (116) of parents were unaware about antibiotics and antibiotics resistance respectively.

SOURCE OF INFORMATION ABOUT THE JUDICIOUS USE OF ANTIBIOTICS

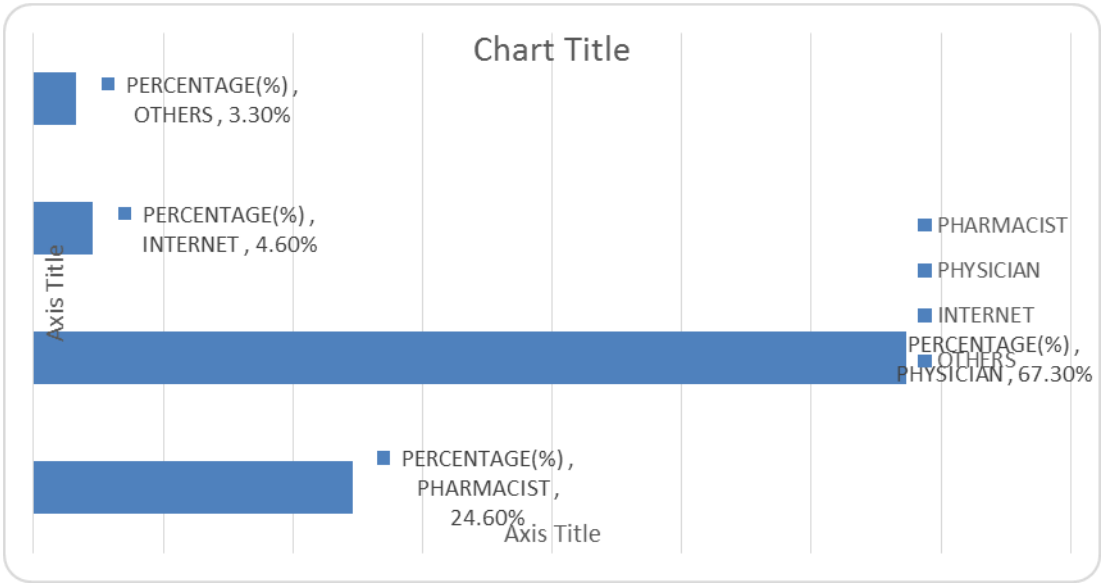

Fig. 2: Source of information about the judicious use of antibiotics.

According to the respondents, the main source of information about the judicious use of antibiotics was obtained from physician (67.3%), followed by the pharmacist (24.6%), internet (4.6%) and others (3.3%). K.A. Hammour et al. found out that main source of information was physician (65.2%) followed by television(18.5%) and family relative (17.6%).[5]

REASONS FOR ANTIBIOTICS SELFADMINISTRATION BY PARENTS

Table 3: Reasons for antibiotics self-administration by parents.

RESPONSE	FREQUENCY	PERCENTAGE(%)
Some antibiotics previously prescribed by physicians for the similar symptoms were left over at home.	57	38
It is convenient to purchase antibiotics from retail pharmacies.	56	37.30
I didn't have enough money to pay the hospital visit	22	14.6
Financial problems	15	10

Among 150 subjects, 57(38%) parents gave antibiotics that were previously prescribed by the physician for similar symptoms were left over at home, while 56(37.3%) gave antibiotics to their child without physician advice because they were more convenient to purchase antibiotics from retail pharmacies, remaining 15(10%) have no enough money for hospital visits. These are the reasons for them to give their children antibiotics without pediatrician's advice.

SUMMARY OF RESPONSE ABOUT PARENTS KNOWLEDGE REGARDING ANTIBIOTICS

More than one third of responders (72.6%) believes that antibiotics are used for the treatment infection caused by viruses only remaining (27.3%) have the correct knowledge that antibiotics are not used to treat viral infections. Miao Yu et al., found out that 79% of parents thought that antibiotics could cure infections caused by viruses, which was similar to our study results.[6] More than half (57%) of responders believes that antibiotics didn't cause any side effects only remaining 40% have the correct knowledge .Miao Yu et al., found out that the participants 64% of rural areas believes that, Antibiotics do not have any side effects, while we also have a similar result.[6] Thus a need of proper awareness arises. In this study majority of people 114 (76%) responded wrongly that if a child suffers from cough, running nose and sore throat, child will be cure more quickly if they receive antibiotics as early as possible only 36 (24%) parents have proper knowledge. Most of the parents 144(96%) were unaware about the risk of antibiotic resistance or they don't have proper knowledge, while only 6(4%) parents had answered it correctly. They believed that over use or misuse of antibiotics increase risk of antibiotic resistance. Sotiria et al., found a result that total of 88% of the parents were aware of the fact that antibiotic misuse drovebacterial resistance.[7] But this study shows that 96% of study subjects were un aware about the same. Medical practitioners should give them proper education.

Table 4: Summary of response about parents knowledge regarding antibiotics.

Sl. No	Basic Concepts	Correct Response		Wrong Response	
		Number	%	Frequency	%
1	Antibiotics and antiinflammatory drugs are the same drug.	63	42%	87	58%
2	Antibiotics could cure the infections caused by virus.	41	27.30%	109	72.60%
3	Antibiotics do not have side effects.	64	42.60%	86	57.30%
4	If a child suffers from a cough, running nose, and a sore throat, he/she will be cured more quickly if he/she receives antibiotic as early as possible.	36	24%	114	76%
5	Antibiotics should be withdrawn as soon as the symptoms disappear.	49	32.60%	101	67.30%
6	Overuse and misuse of antibiotics increases the risk of antibiotic resistance.	6	4%	144	96%
7	Antibiotics should only be obtained with a doctors prescription	27	18%	123	82%
8	In most cases, it is not necessary to treat a common cold with antibiotics.	29	19.33%	121	80.66%
9	Administration of multiple antibiotics has better efficacy than that of single one	35	23.30%	115	77%
10	Taking antibiotics in advance can protect children from a common cold.	44	29.30%	106	70.60%
11	The more expensive the antibiotic, the more effective it will be.	61	40.60%	89	59.30%

SUMMARY OF RESPONSE ABOUT PARENTS ATTITUDE REGARDING ANTIBIOTICS

Table no: shows that 15(10%) samples strongly agreed to the opinion that they would decide the antibiotic for their child according to his or her condition, followed by 13(9%) agreed, 57(38%) disagreed and 57(38%) strongly disagree, the remaining 8(5%) parents were uncertain on this opinion. From 150 parents 30(20%) parents strongly agreed that they give antibiotics to their children as prevention when other children around catch cold, whereas other parents 80(53%) agreed to that opinion. Miao Yu et.,al found that parents were more likely to give their children prophylactic antibiotics than those who knew that antibiotics could not prevent the common cold (30 vs. 11%). Here 53% were agreed for response "I Should Get My Child To Take Antibiotics In Prevention Once Other Children Around Catch Cold", shows that most of the parents believes that the antibiotics have a prophylactic action on common cold. Among 150 parents, 15(10%) parents were disagreed to the opinion the pediatrician should confirm cause of illness according to physical or laboratory examination and the 16(11%) parents agreed to the opinion and the most of parents 105 (70%) are strongly agreed to the opinion that pediatrician should confirm cause of illness according to physical or laboratory examinations. The remaining14(9%) are uncertain on the opinion.[6] Out of 150 parents, 77(51.3%) strongly agreed to the opinion

that parents should have compliance with pediatrician advice and its not appropriate to make further request and 35(23.3%) parents agreed, 15(10%) of parents Disagreed and the remaining parents 77(51%) strongly agreed to the opinion that they should compliance with pediatrician advice and its not appropriate to make further request. It is found that 53 (35.30%) parents strongly disagree to the opinion that they wish their child to receive antibiotics but get dissatisfied if pediatricians refused to prescribe antibiotics, and 33(22%) were disagreed on the opinion and 15(10%) parents strongly agreed on the opinion and the remaining 44(29.4%) subjects agreed to the opinion. Sotiria G Panagakou et.al, found that (13.4%)of parents stated that they would be dissatisfied if the paediatrician did not give an antibiotic prescription for URTI symptoms and here it is (30%). This focuses that most of parents believes that antibiotics are necessary for treatment of all conditions. 37(25%) of parents strongly disagreed that their knowledge on appropriate use of antibiotics is enough, 40(27%) disagreed on above opinion and 27(18%) agreedand the remaining 8(5%) strongly agreed that their knowledge on appropriate use of antibiotics was enough.[7]

Table 5: Summary of response about parent's attitude regarding antibiotics.

S.No.	Basic concepts	Wrong Response / Unaware			Correct Response	
		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	Parents need not to further informed about judicious use of antibiotics.	15	19	0	51	65
2	I could decide which antibiotics my child should receive according his/her condition	15	13	8	57	57
3	I should get my child to take antibiotics in prevention, once other children around catch cold	30	80	16	21	3
4	Paediatricians should confirm the cause of illness according to physical or laboratory examination before prescribing antibiotics for my child.	105	16	14	15	0
5	I should be in compliance with paediatricians' advice and it's not appropriate to make further request.	77	35	0	15	23
6	I wish my child to receive antibiotics, I will be dissatisfied if the paediatrician refused my request for antibiotics	15	44	5	33	53
7	I think that my knowledge on appropriate use of antibiotics has been enough.	8	27	38	40	37

SUMMARY OF RESPONSE ABOUT PARENTS PRACTICE REGARDING ANTIBIOTICS

The Table revealed that 101(67.30%) parents never requested the pediatrician to prescribe antibiotics to their child when parent strongly wish to give antibiotics to their child,27 (18%) parents occasionally request 3(2%) often and 65(43.4%) parents requested pediatrician to prescribe antibiotics.K.A. Hammour et.al,nearly one-quarter of the respondents claimed that most of the time they asked for antibiotics directly from the pediatrician in case they strongly wanted their child to take it (26.3%).[5]

From 150 samples, 94(62.6%) parents never give antibiotics to their child with less dose than drug instruction in consideration of safety, 10(7%) parents occasionally and 20(13%) often and 25(16%) of them mostly give antibiotics. Out of 150 parents, 59 (39%) never store antibiotics at home for future need, 28(19%)parent do that in occasionally, 24(16%) are often, and remaining 35 (23%) parents store antibiotics on home for case of future need most of the time. The data given below shows that the 62(41.3%) of parents never give antibiotics to their child with dosage more than drug instruction in consideration of efficacy,

followed by 43(29%) parents occasionally, 27(18%) parents often, the remaining 16(10.7%). Andreas Rouusounides et.al, found in his study that 90%, agreed that misuse reduces their efficacy and increases bacterial resistance.[8] Similarly, here 41% never gave antibiotics with dose more than drug instruction in consideration of efficacy. Among 150 parents, 55(37%) responded that always their pediatrician explains about their child condition, 48(32%) parent's opinion that most of time, 14(9.33%) parents responded that their pediatrician never explain about their child condition.

Lauren Havens, et-al(2016) conducted similar study reveals half either disagreed (26%) or strongly disagreed (20%)while in our study, 37% answers "never" for the question "doctors don't inform the parents well about their child's condition."[4] There is no proper communication in between patients and pediatrician. From 150 people 1(0.67%) of parents never follow all pediatric instructions and advices, 13(9%) of people occasionally follow the pediatric instruction and advices, 36(24%) often follow, and 65(43.4%) parents follow the instructions and advices in most of time, which is a major part. Only 35(23%) parents always follow pediatrician's instruction and advices.K.A. Hammour et.al,Almost a tenth of the respondents has rarely followed pediatricians' instructions and advice (10.2%), or their pediatricians rarely explained to them if their child's condition required antibiotics (11.3%).[5]

Table 6: Summary of response about parents practice regarding antibiotics.

S.No.	Response	Correct Practice		Wrong Practice		
		Never	Occasionally	Often	Most of the times	Always
1	In case you strongly wish your child to receive antibiotics, how often do you request for it directly from the pediatrician?	101	27	3	19	0
2	How often do you give your child antibiotics with dosage less than drug instruction in consideration of safety?	94	10	20	25	1
3	How often do you store antibiotics at home in case of future need?	29	28	24	35	4
4	How often do you give your child antibiotics with dosage more than drug instruction in consideration of efficacy?	62	43	27	16	2
5	How often does the pediatrician explain to you about your child's condition?	14	18	15	48	55
6	How often do you follow all the pediatrician's instructions and advice?	1	13	36	65	35

CONCLUSION

Antibiotics usage and misusage are increasing in a parallel way nowadays. This study clearly highlighted the lack of knowledge on the use of antibiotics and its resistance can lead to improper practices and attitude among parents. Health education on the use and misuse of antibiotics is the most important and interventional step, which has to be firmly done in both community and clinical level by medical practitioners. Pharmacist can play an active role in making a better interaction with parents, leads to proper guidance of their children to antibiotic usage. Strategies of effective counselling, appropriate prescriptions, periodic upgraded training programs for health care team, strengthening and application of regulations related to OTC sale of antibiotics in community level can eventually reduce these unhealthy practices and improving the knowledge and attitude regarding antibiotic use. Develop educational programs to improve awareness of population about rational antibiotic usage.

REFERENCE

1. Cantarero-Arévalo L, Hallas MP, Kaae S. Parental knowledge of antibiotic use in children with respiratory infections: a systematic review. International Journal of Pharmacy Practice., 2017 Feb; 25(1): 31-49.
2. Haung et al., 2008).
3. Balaji Chinnasami1, KanimozhiSadasivam, BalajiRamraj, SekarPasupathy. Knowledge, attitude and practice of parents towards antibiotic usage and its resistance. International Journey of contemporary paediatrics., 2016; (3): 2349-3291.

4. Lauren Havens, BSN, RN, CEN, and Misty Schwartz, PhD, RN1 Identification of Parents' Perceptions of Antibiotic Use for Individualized Community Education. Global Pediatric Health Volume., 2016; (3): 11–17.
5. Khawla Abu Hammour, Mariam Abdel Jalil, Walid Abu Hammour. An exploration of parents' knowledge, attitudes and practices towards the use of antibiotics in childhood upper respiratory tract infections in a tertiary Jordanian Hospital. Saudi Pharmaceutical Journal. 2018; 456-472.
6. Yu M, Zhao G, Lundborg CS, Zhu Y, Zhao Q, Xu B. Knowledge, attitudes, and practices of parents in rural China on the use of antibiotics in children: a cross-sectional study. BMC infectious diseases., 2014 Dec; 14(1): 112.
7. Andreas Rouusounides, VassilikiPapaevangelou, AdamosHadjipanayis, SotiriaPanagakou Maria Theodoridou, George Syrogiannopoulos and Christos Hadjichristodoulou. Descriptive Study on Parents Knowledge, Attitudes and Practices on Antibiotic Use and Misuse in Children with Upper Respiratory Tract Infections. Cyprus International Journal of Environmental Research and Public Health., 2011; (8): 46-62.