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Original Research Article

Parental knowledge, attitude and practice regarding antibiotic use in children at a municipal corporation in Northeast India

Kunal Chakraborty[1], Ananya Chakraborty[2]*, Subhashish Saha[1], Durba Deb[1]

[1]Department of Community Medicine, Agartala Government Medical College, Agartala, Tripura, India
[2]Department of Pharmacology, Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India

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***Correspondence:**
Dr Ananya Chakraborty,
E-mail: dr_ananya@yahoo.com

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ABSTRACT

Background: Parental beliefs and expectations often lead to abuse and irrational prescriptions of antibiotics in pediatric population. The goal of this study was to examine parental knowledge, attitudes, and practices (KAP) about antibiotic use in children at the Agartala Municipal Corporation (AMC) area in northeast India.
Methods: This cross- sectional study was undertaken after ethics committee approval. A questionnaire was given to parents participating in the study. The questionnaire had questions on socio-demographic profile and questions from knowledge, attitude and practice domains regarding use of antibiotics. Data was collected by house to house visit. Descriptive statistics was used to assess the knowledge and practice level and to explore the attitude about antibiotics use. Chi-square test was used to find out the determinants associated with knowledge level.
Results: A total of 254 participants responded to the study. Their mean age was 31.3 (S.D; 7.8) years. Adequate knowledge about antibiotic use was found in 59.1% (150) participants. Parental age, sex, educational level, and number of children was found to be associated with the knowledge and practice of antibiotics use. 33.5% (85) respondents felt that antibiotics should be prescribed for their child whenever they suffer from cold, ear ache, throat pain. 70.9% (180) of the respondents do not give antibiotics without consulting a doctor.
Conclusions: There is a trusted relationship between parents and their child's doctors. But many parents have insufficient knowledge related to antibiotic use in children. This results in inappropriate attitudes and practices. Educational interventions will reduce inappropriate use of antibiotics.

Keywords: Antibiotics, Antibiotic in children, KAP, Parental KAP

INTRODUCTION

Antibiotic prescribing has become a common practice in pediatrics. They are considered to provide fast relief by many parents.[1,2] Inappropriate use of antibiotics is the key factor to the development of resistance. Antibiotic resistance endangers their therapeutic effectiveness, increases treatment failures and leads to longer and more severe illness episodes with higher costs and mortality rates.[3-5]

The control of antibiotic utilization needs multifaceted interventions involving healthcare practitioners and the parents.[6,7] Previous researches have shown patterns of inappropriate use of antibiotics in India and worldwide.[8-12.] Our literature search did not reveal any population studies from the northeastern state of Tripura, India. Hence this study was undertaken to determine the parental knowledge, attitude and practice regarding antibiotic use.

METHODS

This cross- sectional study was carried out at the Agartala Municipal Corporation (AMC) area. AMC is the municipal body which governs and maintains the city of Agartala. A 30 days long study was conducted in the month of April, 2018. Ethical approval was taken from the Institutional Ethics Committee, Agartala Government Medical College, Tripura.

Informed consent was taken from each participant and confidentiality maintained. The parents of children below the age of eighteen years who were residing in that area for a minimum of one year were included in this study. Those who refused to participate in the study and those who were not available for correspondence or contact even after two successive visits were excluded from the study. Sampling was done by stratified random sampling method. Sampling frame was prepared. Parents who were residing in each zone of AMC formed one stratum. From each stratum, required number of samples were taken.

A questionnaire was given to parents participating in the study. It had questions on socio-demographic profile and questions from knowledge, attitude and practice domains regarding use of antibiotics. A maximum score of 8 was given to questions from knowledge and practice domains each. The scoring range of the questionnaire was 8 (maximum) to 0 (minimum). Participants who obtained scores equal or more than the median score of knowledge or practice were considered as having adequate knowledge or practice respectively. Data collection was done by house to house visit. The investigators were divided into groups for data collection purpose. Data so collected was checked for their accuracy, consistency and completeness.

Data was entered in Statistical Package for the Social Sciences or SPSS v.16.0 for Windows (SPSS, Chicago, IL, USA). Descriptive statistics like percentage, mean, median, standard deviation was used to assess the knowledge and practice level and to explore the attitude about antibiotics use. Test of significance like chi-square test was used to find out the determinants associated with this knowledge level.

RESULTS

Demographic details and information about antibiotic use

A total of 258 participants were available based on the inclusion criteria after the house to house visit. Out of them 98.44% responded to the questionnaire. The number of non-respondents was 1.56%. The mean age of the respondents was 31.3 (S.D; 7.8) years. 66.9% respondents mentioned that their child/children required antibiotics 1-3 times/year. The details are shown in Table 1.

Knowledge regarding antibiotics

It was observed 59.1% participants had adequate knowledge, whereas 40.9% had inadequate knowledge regarding antibiotics.

Table 1: Demographic details and information about antibiotic use.

Variable	N (%)	P value
Age in years		
<30	58 (22.8)	X^2=38.212 p<0.05
30-39	155 (61.1)	
>40	41 (16.1)	
Sex		
Male	112 (44.1)	X^2=13.442 p<0.05
Female	142 (55.9)	
Educational status		
Illiterate	12 (4.7)	X^2=69.483 p<0.05
Primary school	30 (11.8)	
Secondary school	111 (43.8)	
Higher secondary school	58 (22.8)	
Graduate	32 (12.6)	
Post graduate and above	11 (4.3)	
Occupation		
Housewives	126 (49.6)	
Service	28 (11.1)	
Business	42 (16.5)	
Others	58 (22.8)	
Number of children		
1	130 (51.2)	X^2=87.422 p<0.05
2	124 (48.8)	
Number of times child required antibiotic		
0	11 (4.3)	
1-3	170 (66.9)	
>3	28.8% (73)	
Child suffered from ADR to antibiotics		
Yes	5 (2.4)	
No	249 (97.6)	
Source of information about antibiotics		
Doctor	238 (93.8)	
Friends	8 (3.1)	
Pharmacist	8 (3.1)	

Association of knowledge with age and sex

When compared knowledge with age, it was observed that knowledge was adequate in 24.1%, 68.4%, and 73.2% participants of ages less than 30 years, 30-39 years, and 40 years and above respectively (Chi square value: 38.212; p<0.05). When compared with sex, it was observed that 71.4% males had adequate knowledge and 28.6% (32) had inadequate knowledge. And, 49.3%

females had adequate knowledge and 50.7% had inadequate knowledge. Overall males had overall more knowledge than females regarding antibiotics (Chi square value: 13.442, p<0.05).

Association of knowledge with educational status

When compared knowledge with educational status it was found out that 41.2% participants who studied up to secondary had adequate knowledge and 58.8% had inadequate knowledge. And, 86.1% who studied more than secondary had adequate knowledge and 13.9% had inadequate knowledge. The difference was found to be statistically significant (Chi square value: 69.483; p value<0.05).

Association of knowledge with number of children

It was observed that 30.8% participants with one child and 88.7% with more than one child were found to have adequate knowledge. The difference was found to be statistically significant (Chi square value: 87.422; p value <0.05).

Knowledge based on the 8-point questionnaire

62.6% participants believed that administration of antibiotics during viral fever leads to quicker recovery. They also mentioned that antibiotics cause prevent serious illness, spread of infection, and recurrence of infections in case of viral fever. The results are shown in Figure 1.

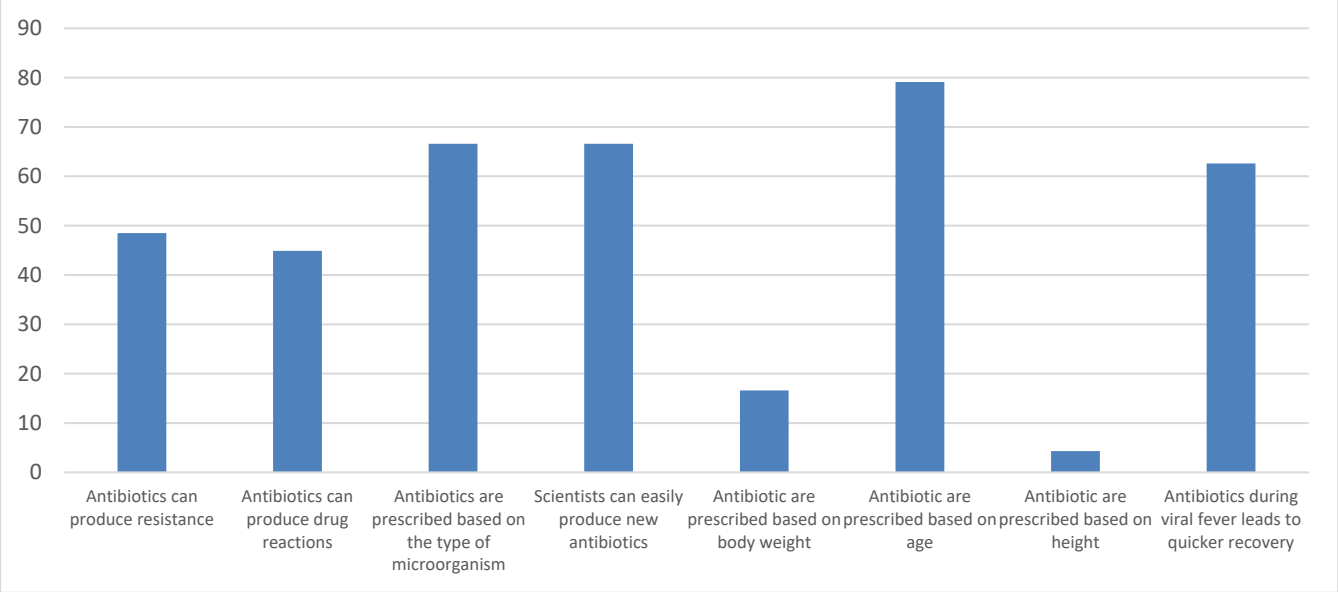

Figure 1: Knowledge of participants regarding antibiotic use.

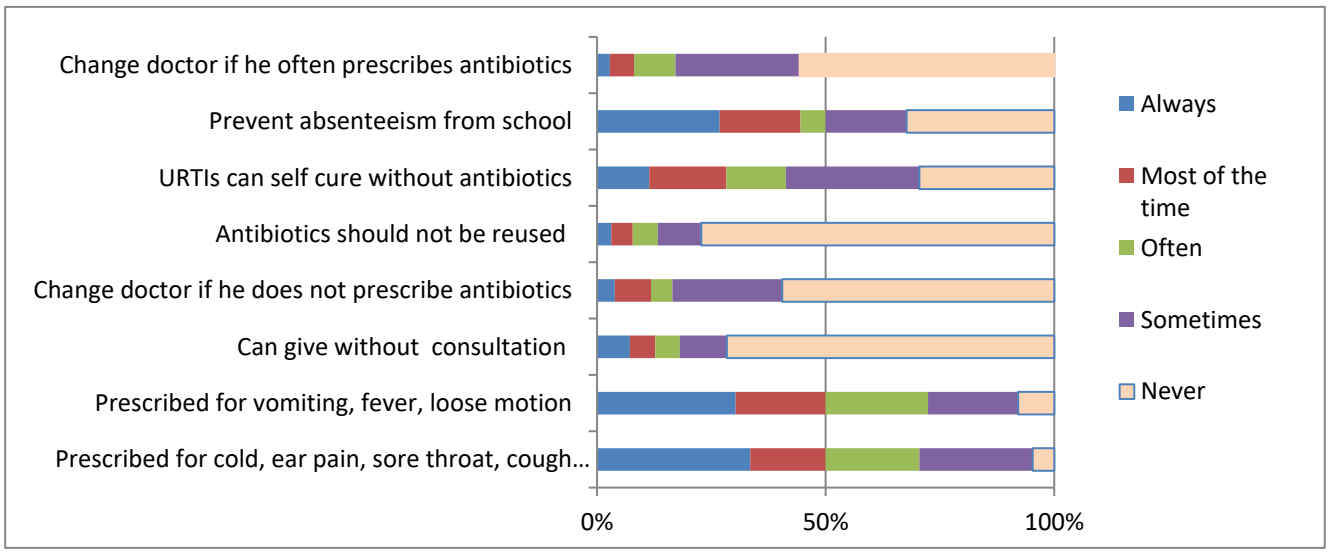

Figure 2: Attitude of participants regarding antibiotic use.

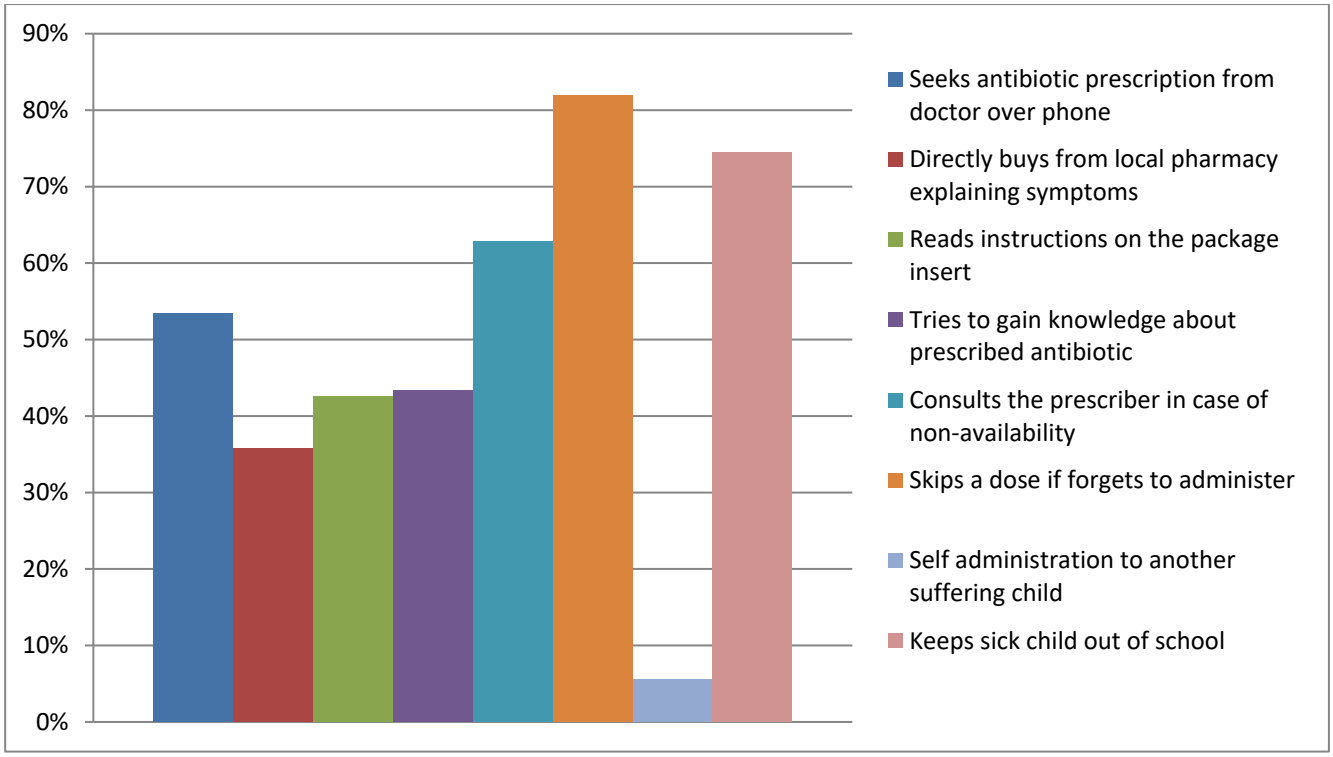

Figure 3: Practice of participants regarding antibiotic use.

The attitude of participants regarding antibiotic use

Attitude was evaluated based on 8- item knowledge questionnaire. The responses were measured using the 5-point Likert scale. 33.5% participants felt that antibiotics should be always given when child suffers from cold, ear pain, sore throat, cough or runny nose. 30.3% felt that antibiotics should be always given when child suffers from vomiting, fever, loose motion. Only 3.1% believe that antibiotics can be reused without consultation. 55.8% felt that doctor should never be changed if he prescribes antibiotic very often; and 59.5% participants felt that doctor should never be changed in case a doctor does not prescribe antibiotics. The results are shown in Figure 2.

Practice of participants regarding antibiotic use: It was evaluated that 56.9% participants had adequate practice, whereas 43.1% had inadequate practice regarding antibiotic use in children. It was also found out that 53.4% of the participants try to seek antibiotic prescription from doctor over phone whenever their child is sick, 35.8% directly buys antibiotics from local pharmacy explaining symptoms, 42.5% reads instructions mentioned on the package insert, and 74.4% keeps sick child out of school in case of sickness. The results are shown in Figure 3.

Correlation between knowledge score and practice score of the respondents: When knowledge scores were associated with the practice scores of the participants, it was found out that there was 86% correlation between the scores. The results are shown in Table 2.

Table 2: Correlation between knowledge score and practice score of the respondents.

Score	Knowledge	Practice	Sig (2-tailed)
Knowledge	1.000	0.860	R^2 = 344.764, p=0.000

DISCUSSION

The present study was conducted in AMC area to assess parental knowledge, attitude and practice level about antibiotic use. In the study, 55.9% respondents were mothers. It can be due to the fact that our data collection time coincided with the working hours of the fathers. 49.6% participants were housewives, 11.1% were employed in government service. 43.8% of participants studied up to secondary level. 51.2% had one child. This may be due to the acceptance of family planning methods in a municipality area. It was also found out that 66.9% of the respondent's child suffered from infection one to three times during last year and for majority of the participants, 93.8%, the source of information regarding antibiotics is their doctor followed by pharmacists and friends (3.1%). The results coincide with previous studies.[13,14] Adequate knowledge level about antibiotic use was found to be in 59.1% participants. This is high compared to other studies. This may due to the higher education level and taking more interest about health related issues of their children. Also, this study revealed that parental demographics such as age, sex, educational level, number of children etc. is associated with the knowledge and practice of antibiotics use. It was found

out that older participants knew more about antibiotics use than the younger one. This may be due to the fact that human beings gain experience from different events of life. Sex was also found to be significantly associated with knowledge level. It was found that males had better knowledge than females. It may be due to the fact that literacy rate of males is more than females in Tripura. As educational status increases, people are expected to become more knowledgeable. Hence, it was seen that participants with higher educational status had higher knowledge about antibiotics use. Parents having more than one child were also found to be significantly associated with more knowledge level than who had only one child. This may be due to the fact that people with more number of children make more visits to doctors, and gain more knowledge about antibiotics use. The results are similar to previous studies.[2,8,15]

From attitude questions, we can infer that the participants prefer to go to the doctors whenever their child needs treatment. They do not perceive that their doctors prescribe too much or too less antibiotics for their child. They do not prefer to change their doctor or self-medicate. The results coincide with previous studies.[8,16,17]

Regarding practice, self-medication and reuse of left over drugs was found to be lower compared to previous studies.[8] This may be because of the educational status of the participants, availability of doctors over phone and access to consultation. As the study was conducted in an urban municipality area, the improved knowledge of participants about antibiotic use translated into practice about their use.

CONCLUSION

The study showed a strong association between knowledge and practice of parents about antibiotic use in children. The study was conducted over a short duration, and depended on active recall of information. Yet, it showed that education is the key towards proper use of antibiotics and thus prevention of resistance.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Adiga SMN, Alwar MC, Pai RSM, Adiga US. Pattern of antimicrobial agents use in hospital deliveries: a prospective comparative study. Online J Health Allied Sci. 2009;8(4):1-4.
2. Zyoud SH, Taha A, Araj KF, Abahri IA, Sawalha AF, Sweileh WM et al. Parental knowledge, attitudes and practices regarding antibiotic use for acute upper respiratory tract infections in children: a cross-sectional study in Palestine. BMC Pedia. 2015;15:176.
3. Nasrin D, Collignon PJ, Roberts L, Wilson EJ, Pilotto LS, Douglas RM. Effect of beta lactam antibiotic use in children on pneumococcal resistance to penicillin: prospective cohort study. BMJ. 2002;324(7328):28-30.
4. Yagupsky P. Selection of antibiotic-resistant pathogens in the community. Pedia Infect Dis J. 2006;25(10):974-6.
5. Davey P, Pagliari C, Hayes A. The patient's role in the spread and control of bacterial resistance to antibiotics. Clin Microbiol Infect. 2002;8:43-68.
6. Franco BE, Martinez AM, Rodriguez MA, Wertheimer AI. The determinants of the antibiotic resistance process. Infect Drug Resist. 2009;2:1-11.
7. Mortahejri S, Hong PJ, Yu AM, Hong BY, Stacey D, Bhatia RS, et al. Systematic review of patient-oriented interventions to reduce unnecessary use of antibiotics for upper respiratory tract infections. Syst Rev. 2020;9(1):106.
8. Agarwal S, Yewale VN, Dharmapalan D. Antibiotics use and misuse in children: a knowledge, attitude and practice survey of parents in India. J Clin Diag Res. 2015;9(11):21-4.
9. McNulty CA, Boyle P, Nichols T, Clappison P, Davey P. The public's attitudes to and compliance with antibiotics. J Antimicrob Chemother. 2007;60:63-8.
10. Andre M, Vernby A, Berg J, Lundborg CS. A survey of public knowledge and awareness related to antibiotic use and resistance in Sweden. J Antimicrob Chemother. 2010;65:1292-6.
11. Eng JV, Marcus R, Hadler JL, Imhoff B, Vugia DJ, Cieslak PR et al. Consumer attitudes and use of antibiotics. Emerg Infect Dis. 2003;9:1128-35.
12. Chan YH, Fan MM, Fok CM, Lok ZL, Ni M, Sin CF, et al. Antibiotics non-adherence and knowledge in a community with the world's leading prevalence of antibiotics resistance: implications for public health intervention. Am J Infect Cont. 2012;40:113-7.
13. Al-Ayed MSZ. Parents' knowledge, attitudes and practices on antibiotic use by children. Saudi J Med Med Sci. 2019;7(2):93-9.
14. Panagakou SG, Spyridis N, Papaevangelou V, Theodoridou KM, Gouitzana GP, Theodoridou MN, et al. Antibiotic use for upper respiratory tract infections in children: a cross-sectional survey of knowledge, attitudes, and practices (KAP) of parents in Greece. BMC Pediatr. 2011;11:60.
15. Rousounidis A, Papaevangelou V, Hadjipanayis A, Panagakou S, Theodoridou M, Syrogiannopoulos G, et al. Descriptive study on parents' knowledge, attitudes and practices on antibiotic use and misuse in children with upper respiratory tract infections in Cyprus. Int J Environ Res Public Health. 2011;8(8):3246-62.
16. Pavydė E, Veikutis V, Mačiulienė A, Mačiulis V, Petrikonis K, Stankevičius E. Public knowledge, beliefs and behavior on antibiotic use and self-

medication in Lithuania. Int J Environ Res Public Health. 2015;12:7002-16.
17. Zahreddine L, Hallit S, Shakaroun S, Al-Hajje A, Awada S, Lahoud N. Knowledge of pharmacists and parents towards antibiotic use in pediatrics: a cross-sectional study in Lebanon. Pharm Pract. 2018;16(3):1194.

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