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Parent related factors influencing the improper use of antibiotics in children

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ABSTRACT

Objective to determine the parent related factors which are influencing the improper use of antibiotics in children. Antibiotics are the most commonly used drugs for treating infections. Parents' knowledge and practices to use medicines have important effects on the management of childhood illness. Improper use of the antibiotics could be because of some strongly influenced parent related factors. A prospective study was conducted in 200 subjects from the randomly chosen communities in Bangalore. Door to door visit was done by the investigators. Demographic data were collected using CRF [Case Report Form] and Questionnaires were used to assess parental knowledge and practice of antibiotic use in children. Questionnaires were validated and either of the parents was asked to answer the questionnaire. Answers collected using the questionnaire was correlated with some of the parent related demographic factors. Our study revealed that majority of the responders were mother and most of them are of middle age and have myth about the antibiotic use in children. Education level of the parents has a direct impact on knowledge about antibiotic use. Increase in number of children in a family have a correlation in improper practice of antibiotic use. Income status is related with the practise of the antibiotic use. Occupation also plays an important role in the practice of antibiotic use in children. Residing area also influences in antibiotic use by parents. Parents' non-adherence towards antibiotics for their children is also governed by various adverse drug reactions like allergic conditions, nausea, vomiting, fever etc.

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INTRODUCTION

Antibiotics are the drugs used for treating most of the infections. Parents' knowledge and practices to use medicines mainly antibiotics as prescribed by physicians have important effects on the management of childhood illness. Improper use of the antibiotics could be because of some strongly influenced parent related factors. Some factors like residing area, parent's age, education level of parents plays important role in the knowledge level of parents on antibiotic use and some other factors like

income status, occupation level increase in number of children may influence on practice of antibiotic use in children. Improper use of antibiotics may result to antibiotic resistance and many other side effects for children. Hence our study aims to analyze the parent related factor leading to inappropriate use of antibiotic in children [1] .

Objective

To determine the parent related factors which are influencing the improper use of antibiotics in children.

METHODOLOGY

A prospective study was conducted in 200 subjects from the randomly chosen communities in Bangalore. CRF and questionnaire were prepared along with ICF. CRF contains the demographic data and KAP questionnaire which was prepared by using likert scale. Questionnaire was prepared in both English and local language Kannada in accordance with previously available literatures. Questionnaire consisted of questions to assess Knowledge and Practice of parents towards antibiotic use in children. Questionnaires were validated and either of the parents was asked to answer the questionnaire. The responses were framed as strongly agree, Agree, Neutral, Disagree and strongly disagree to allot in categories like good, medium and poor. Door to door visit was done by the investigators. All parents who met the inclusion criteria were enrolled in the study after taking the informed consent form(IC).Parents of children below 12 years were selected by convenience sampling technique. The basic demographic data of parents and their children including other details were collected by researcher. CRF was given to parents who are educated and were asked to fill. However Investigators interviewed and filled CRF for parents who were uneducated or who had difficulty in reading. If both parents were present, only one of them was supposed to answer the questionnaire and was selected based on who was responding more.Answers collected using the questionnaire was correlated with some of the parent related demographic factors [2, 3] .

RESULTS

Our study revealed that majority of the responders were mother and most of them are of middle age and have myth about the antibiotic use in children. Education level of the parents has a direct impact on knowledge about antibiotic use. Increase in number of children in a family have a correlation in improper practice of antibiotic use. Income status is related with the practice of the antibiotic use. Occupation also plays an important role in the practice of antibiotic use in children. Residing area also influences in antibiotic use by parents. Parents' non-adherence towards antibiotics for their children is also governed by various adverse drug reactions like allergic conditions, nausea, vomiting l etc. Improper guidance by retail pharmacist in choosing alternative antibiotic based on availability of the prescribed one also controls parents' practice of antibiotics [4, 5] .

Influence of parent related demographic factors in improper use of antibiotics in children:

Figure 1: Population distribution in different locations/residing area

Out of 200 parents taken as sample for study 55% parents were from Urban sector and the remaining 45% were residing in rural areas. It was found that 86% of the total parents from urban sector were having good level of knowledge 11% parents were having medium level of knowledge and 3% parents were having poor level of knowledge towards antibiotic use in children. However in case of practice for parents residing in urban sectors 77% parents were having a good practice,15% parents were having medium practice and 8% parents were having poor practice towards antibiotic use in children. In case of parents residing in rural areas 93% of them had poor level of knowledge and 7% parents had medium level of knowledge. However in case of practice the parents residing in rural areas showed much better practice than parents of urban areas. Thus 84% of the total parents residing in rural areas had good practice, 12% parents were having medium practice and 4% were having poor practice towards antibiotic use in children (Tables 1 and 2). Thus from the above data we can conclude that residing area influences the knowledge and practice of antibiotic use by parents in children [6, 7] .

Out of 200 parents taken as sample for study 63% of the responding parent was found to be mother and the remaining 37% father. However based on our survey it was found that even though mothers

Table 1: Questions used to assess knowledge level of parents and categorize them into Poor, Medium and Good:

Sl. No	Questions	Poor	Medium	
1.	Antibiotics are given for treating infection.	19%	36%	45%
2.	Antibiotics are used mainly to treat infections caused by Bacteria.	44%	27%	29%
3.	The antibiotics should be given to all children who develop various infections and disease condition.	34%	15%	51%
4.	Full courses of antibiotics should be completed even if the patient condition is improved.	54%	22%	24%
5.	Antibiotics resistances occur by misuse of antibiotics in humans.	58%	33%	9%

Table 2: Questions used to assess the practice of parents and categorize them into Poor, Medium and Good:

Sl. No	Questions	Poor	Medium	
1.	How often do you insist doctor to prescribe antibiotics as a precaution, even if a diagnosis is not confirmed?	44%	32%	24%
2.	How often do you completely follow all the medical doctor's instructions and advice?	52%	17%	31%
3.	How often do you consult doctor over the phone for antibiotic therapy?	23%	11%	66%
4.	Would you be unhappy if doctor does not prescribe antibiotic for your child in various infections and disease conditions?	34%	27%	39%
5.	How often do you neglect buying all medicines as prescribed by doctor?	36%	17%	47%

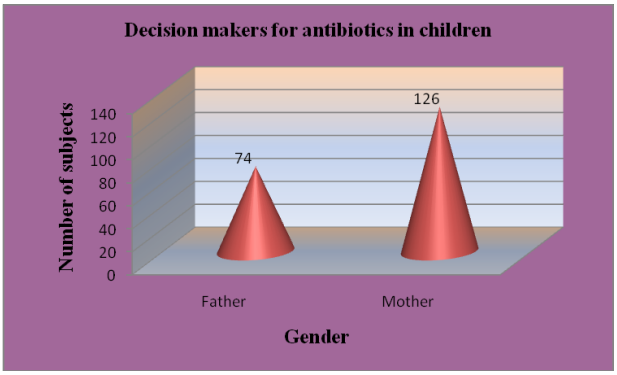

Figure 2: Decision makers for antibiotics in children

were more as responders but they were not the sole decision maker. Based on the data collected from our study it was found that 76% of the total parents who were actually the decision makers were father and the remaining 24% i.e. mothers were found to be the decision makers of antibiotic use in children (Figures 1 and 2). It was found that even though in majority mothers were found to handle medicines in family specially for children but the purchase and continuation of antibiotics for completing the course of antibiotics was governed mostly by father as they were the dominant decision maker in family which turn leads to improper practice [8, 9] .

The more the number of children in a family the

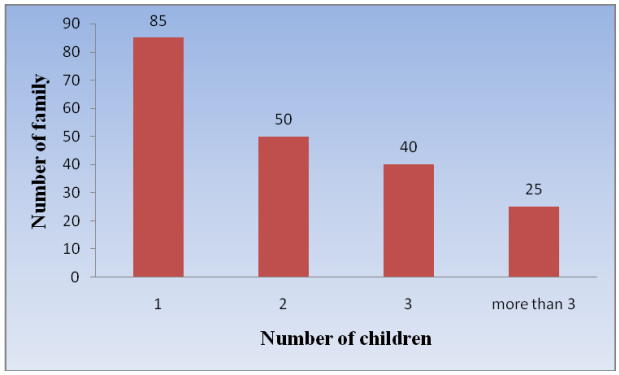

Figure 3: Number of children in a family

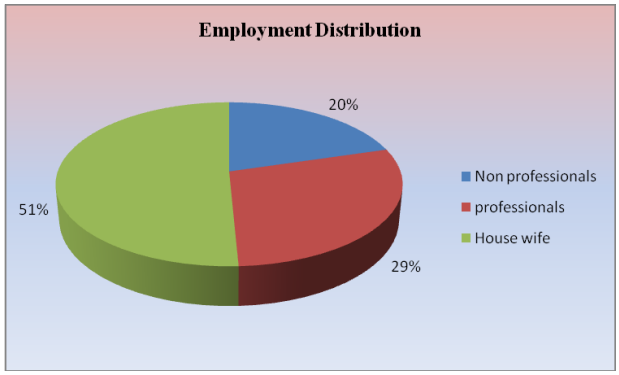

Figure 5: Employment Distribution

worse is the practice of Antibiotic use by parents in children. The data collected in CRF for number of children in a family can be correlated with the practice towards Antibiotic use in children. According to our study it was found that 38% of the total families in our sample population were having more than two children at different age groups and the remaining 62% of the families were having 1-2 children (Figure 3). It was observed that families bearing more than two children had an improper practice by parents towards antibiotic use in children [10, 11] .

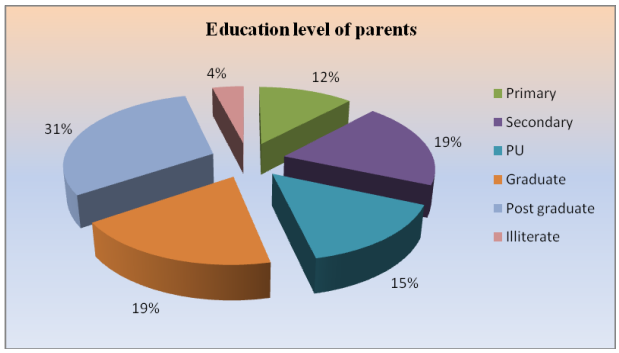

Figure 4: Education level of parents

Our study reveals that education level of the respondents can be illustrated as post graduates carrying 31% being the majority which is followed by graduates 19%, secondary 19% , pre University College 15%, Primary schooling 12% and illiterates were 4% From our study we found that Parents who are highly educated were having good level of knowledge but still they were having improper practice towards antibiotic use in children (Figure 4). However it was found to be different in case of parents with low education level, here even though they were having low level of knowledge towards antibiotic use in children, but they were having a better practice then parents with high education level [12, 13] .

Out of the total respondents' majority were House wife 51% (102) followed by professionals 40% (58) and Non professionals were 9% (18). Our study reveals that housewives were found to be those amongst subjects who were actual guides for antibiotic use in children in their families rather than those who were employed. Thus there remains a gap between the person purchasing the medicines and the person administering with the availability (Figure 5). Thus it leads to improper practice right from selection of antibiotics from the prescribed one to continuation of the treatment for completing the course [14, 15] .

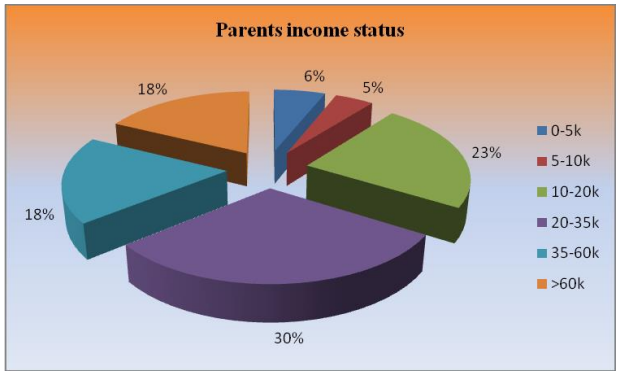

Figure 6: Parent's income status

Majority of the parents were having income of 20-35k i.e. 30% (60) followed by 10-20k 23% (46), 35-60k 18% (36), >60k 18% (35), 0-5K 6% (12) and 5-10K 5% (9).According to our study we have findings that people with low income status were found to be reluctant towards buying all the medicines including antibiotics as prescribed by physician and even avoid completing the course of antibiotics after symptomatic relief (Figure 6). It was even found that by looking at the prices of some medicines they randomly ask retail pharmacist and prefer for alternative cheap medicines at the cost of efficacy which in turn leads to improper practice towards antibiotic use in children [16, 17] .

Parent's adherence towards antibiotic use in children completely governs the practice of antibiotics by parents in children. According to our study it

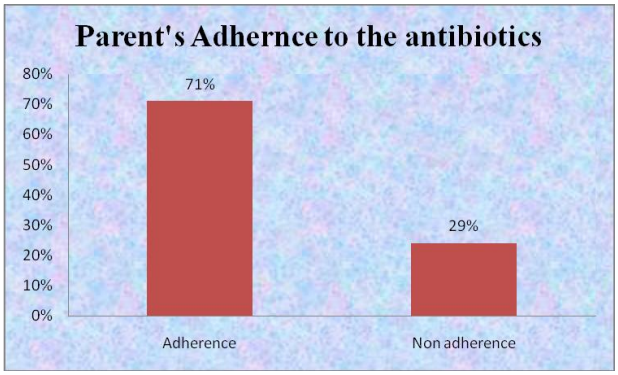

Figure 7: Parent's Adherence to the antibiotics

was found that 71% of total parents had proper adherence towards antibiotic use in children. However the remaining 29% were having non adherence towards antibiotic use in children. The reason for non adherence can easily be linked with income status of parents to a major extent and reluctant attitude of parents after symptomatic relief of their children in other extent as it was found that out of these 29% of parents falling under the category of non adherence around 87% are from low economic background with more than two children in family and 11% parents even though they were having a decent income source still they were reluctant after symptomatic relief of their children to the advises given by physicians to them for completing the course of antibiotics in their children to avoid antibiotic resistance (Figure 7). The remaining 2% parents showed careless nature in handling medications prescribed by physicians for their children [18, 19] .

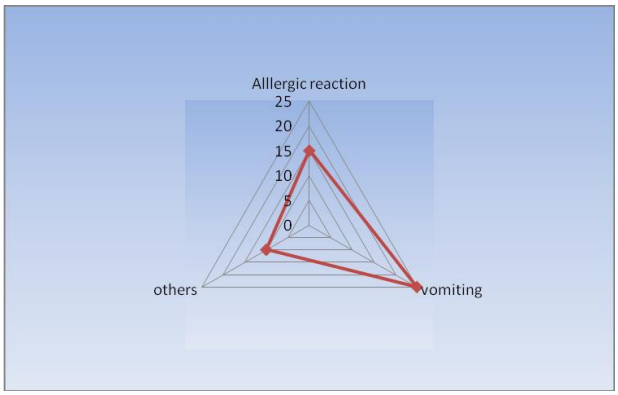

Figure 8: Various adverse effects

Based on the data collected in our study it was found that various adverse effects which are of mild to moderate extent can also alter the proper practice of antibiotics in children by their parents. According to our survey it was found that out of 200 parents various adverse effects like vomiting in children after antibiotic administration altered the practice of 25 parents, allergic conditions altered 15 parents and other adverse effects altered practice of 10 parents (Figure 8). Thus this data can be correlated in such a way that various adverse effects directly govern the practice of parents towards antibiotic use in children to a greater extent and can be because of lack of awareness.

Other Factors:

Improper guidance by retail pharmacist in choosing alternative antibiotic based on availability of the prescribed one:

After interviewing 200 parents it was clearly found that improper guidance by retail pharmacist in choosing alternative antibiotic based on availability of the prescribed one

misguides parents to a greater extent. It was found that around 48% parents get convinced by the drug pharmacists propose in place of the prescribed one. Thus it can be said that even though parents might have good level of knowledge still they indulge into improper practice towards antibiotic use in children.

DISCUSSION

Various infections are common in children and considered as major cause of mild morbidity. In most cases these infections are found to be virus oriented and even have seasonal occurrences.

Thus improper use of antibiotics for treating infections became a prominent global concern which is leading to antibiotic resistance. Here it's the same in Indian scenario and thus influenced us to work in different parts of Bangalore. Even after knowing all these facts at present antibiotics are the most commonly sold drugs in the developing countries. For this study we have selected convenience sampling technique and enrolled 200 Subjects who were willing to participate and signed the ICF. To know the baseline Knowledge and Practice towards antibiotic use in children we framed the protocol accordingly and got ethically cleared where we planned of conducting a survey for screening parent's knowledge and practice towards antibiotic use in children.

In order 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 45% of them had good knowledge level, 36% of the parents had a medium level of knowledge and 19% had poor level of knowledge.

The response for the statement "The antibiotics should be given to all children who develop various infections and disease condition" showed that a 29% of them had good knowledge level, 27% of the parents had a medium level of knowledge and 44% had poor level of knowledge.

For the response "The antibiotics should be given to all children who develop various infections and disease condition" 51% of them had good knowledge level, 15% of the parents had a medium level of knowledge and 34% had poor level of knowledge.

For the response "Children with flu like symptoms get better faster when antibiotics are given." 24% of them had good knowledge level, 22% of the parents had a medium level of knowledge and 54% had poor level of knowledge.

For the response to the statement ".Antibiotics resistances occur by misuse of antibiotics in humans" 9% of them had good knowledge level, 33% of the parents had a medium level of knowledge and 58% had poor level of knowledge.

The practice towards antibiotic use in children was assessed via various responses. For the response "How often do you insist doctor to prescribe antibiotics as a precaution, even if a diagnosis is not confirmed?" 24% of them had a good practice, 32% of the parents had a medium practice and 44% had a poor practice.

The practice towards the response "How often do you completely follow all the medical doctor's instructions and advice?" 31% of them had a good practice, 17% of the parents had a medium practice and 52% had a poor practice.

For the response "How often do you consult doctor over the phone for antibiotic therapy?" 66% of them had a good practice, 11% of the parents had a medium practice and 23 % had a poor practice.

For the response "Would you be unhappy if doctor does not prescribe antibiotic for your child in various infections and disease conditions?" 39% of them had a good practice, 27% of the parents had a medium practice and 34% had a poor practice.

47% of them had a good practice, 17% of the parents had a medium practice and 36% had a poor practice towards the response "How often do you neglect buying all medicines as prescribed by doctor?"

Our study revealed that various factors lead to poor knowledge and improper practice by parents towards antibiotic use in children thus a proper initiative should be taken by health care professional's including clinical pharmacists to improve knowledge and practice towards antibiotic use in children [18, 19] .

CONCLUSION

Proper education should be given to the parents regarding the use of antibiotics in children and they should be informed about the side effects due to improper use which in turn may improve the practice. With a shared diligent effort from various health care professionals in correcting the factors related to improper use of antibiotics, the Knowledge and Practice towards antibiotic use in children is possible, if not now, in the very near future.

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Conflict of Interest

Authors declared no conflict of interest.

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