Research Article

Assessment of Parents' Knowledge, Attitude and Practice about Child Vaccination in Rural areas

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ABSTRACT

Background: Vaccines have thrived as one of the most successful health interventions that have diminished occurrence of infectious diseases and improved quality of life in the population. Although the vaccination coverage has been gradually increasing, the average total immunization coverage is far less than the desired outcome. Parental decisions regarding vaccination are very vital for increasing the vaccination rate and parent compliance to the immunization schedule.

Objective: To analyze the extent of parents' Knowledge, Attitude and Practice(KAP) about child vaccination in rural areas such that it can be correlated with the immunization status of their child amongst native participants of Bangalore.

Methodology: A prospective cross-sectional study was carried out on 110 Parents residing in rural areas of Bangalore who had children below 5 years of age. The sociodemographic details of the parents were collected and they were made to fill a KAP Questionnaire. Each question under Knowledge and Attitude was scored to assess their KAP level regarding child vaccination. The immunization status of the child was assessed by counting on the parents' word for it.

Results: A total of 110 parents participated in the study from different rural clusters of Bangalore. Assessment of the extent of Knowledge, attitude and practice about child vaccination showed that a majority of them (72.7 %,) had good knowledge score followed by average (21.8%) and poor (5.4%) whereas 85.4% of the respondents were found to have good attitude towards child vaccination. The immunization status of the child was assessed by counting on the parents' word for it and.68.1% children were completely immunized whereas 7.2 % received incomplete immunization. The immunization status of the remaining 24.5% of the children was uncertain as assessment was not possible due to lack of surety in the parents part regarding the immunization status of their child. Although parental knowledge was not found to be significantly associated with the immunization status of their child, there was a significant association between the attitude of parents towards child vaccination and the immunization status of their child. A very significant correlation was also seen between the parental knowledge and attitude score with $p \leq 0.0001$.

Conclusion: The parental Knowledge, Attitude and Practice about child vaccination are important determinants of the immunization status of their child. A combined effort from the members of the healthcare team and social health workers can definitely make the attainment of the targeted immunization coverage rate in the country possible.

Keywords: Immunization, Knowledge, Attitude, Practice, Vaccines

INTRODUCTION

As per WHO, 'A vaccine is a biological preparation that improves immunity to a particular disease. It contains an agent resembling a disease-causing microorganism, and is made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune

system to recognize the agent as foreign, destroy it, and "remember" it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters'[1].

Vaccines are one of the most thriving health interventions that have diminished occurrence of infectious diseases and improved quality of life in the population along with reducing avoidable human suffering, costs of care and treatment. Over the course of time, more and more diseases have attained the status of being vaccine preventable; including the ones like pneumonia and diarrhea.[2]

Although in the past few decades developed countries have seen sufficient improvement in vaccination coverage, low rates of complete vaccination still pose a problem in the developing countries. Surveys have shown that almost one third of the deaths among the children under the age of five can be prevented by vaccine.[3]

Despite India being a leading producer of vaccines, a significantly high number of children are still not completely immunized in India.[4]

In India, Expanded Program of Immunization was started on 1978 but it had the limited reach to mostly urban areas.[5] Despite the introduction of several programs to

take care of the urban-rural differences in child vaccination, it still poses a daunting challenge to India's public health plan.[5]

India adapted Universal Immunization Program (UIP) in 1985 with the aim to exponentially increase vaccination coverage by 1990. Although lot of energy and money has been spent on the program, it has yet not been able to achieve the much hyped result.[6] The NFHS-3(National Family Health survey) survey reported that 57.6% of urban infants were fully vaccinated compared to 38.6% in rural areas of India. The percentage of infants who were not vaccinated was 5.7% in rural areas compared to 3.3% in urban areas of India. A survey done by the UNICEF (United Nations International Children's Emergency Fund) on 2009-10 recorded complete vaccination in 58.5% rural infants compared to 67.4% urban infants whereas the data for unvaccinated infants were 8.5% and 5.2% respectively[7].Still less than 44 per cent of the infants in India are fullyvaccinated as per NFHS-III[8].

Parental decisions regarding vaccination are very vital for increasing the vaccinationrate and parent compliance to the immunization schedule. Worldwide studies show that besides other factors, parental knowledge and beliefs have major influence on starting and continuing of child vaccination[9].

The knowledge, attitude, and practice (KAP) survey is preferred more in studies like these because of the simple design, ease in collection of quantifiable data, and ease in interpretation and concise presentation of results as well as the possibility for extrapolation of results from smaller sample size to a larger population, comparison between different cultures, fast implementation, and easy training of the enumerators[10].

Pharmacists are slowly creating identity as vaccination providers in the developed countries and are those members of the healthcare team who can educate and motivate patients on a daily basis. As per ASHP (American Society of Health-System Pharmacists) guidelines on pharmacist's role in immunization, pharmacists can play an important role in disease prevention by promoting awareness and administering vaccines[11].

In India, the responsibility of promotion and administration of vaccine still rests upon the shoulders of the nurses and social workers to a great extent. Looking at the current scenario, it would be right to suggest that it is high time that Indian pharmacists take up the opportunity to use their skill in the society and advocate importance of vaccination amongst the public, thereby relieving their professional counterparts from this burden to some extent and also help improve the vaccination coverage in as many parts of the country as possible.

OBJECTIVES

Objectives:

- To analyze the extent of knowledge, attitude and practice of child vaccination amongst parents.

Sub-objective:

- To provide verbal information to parents about vaccination and the diseases against which vaccines are given.

METHODOLOGY

We conducted a study to assess the knowledge, attitude and practice of parents about child immunization in an attempt to better understand the extent of Knowledge, Attitude and Practice(KAP) amongst parents in rural areas of Bangalore.

Ethical Approval:

This study protocol was submitted for ethical approval to the members of the ethical committee in MVJ Medical College and Research Hospital, Hoskote. The study was accepted by the board of members and the ethical clearance certificate was issued

Study Design: Prospective, cross sectional, community based study

Study Period: Six months

Study Sites: Rural Villages of Bangalore

Study Population: The study population was included from various rural villages of Bangalore.

Sample Size: 110 participants

Study Criteria:

Inclusion Criteria:

- Parents (natives residing in rural areas of Bangalore) having child or children whose age is less than five years.

Exclusion Criteria:

- Parents of children below 5 years of age living in partially urban area.
- Parents who are unwilling to participate in the study at any given time.

Instruments Used:

1. Informed Consent Form
2. Case Report Form consisting of two parts:
   a) Parents' socio-demographic details along with child immunization status
   b) KAP questionnaire

Study Procedure:

- A prospective – cross sectional study was conducted in few rural villages of Bangalore.
- The study was begun on gaining approval from the ethical committee present in MVJ Medical College and Research Hospital.
- All the parents were screened house to house in different rural villages. The parents meeting the study criteria and agreeing to spare a few minutes were given the informed consent form. The informed consent forms that were duly signed by the participant/ representative were enrolled into our study.
- The data was collected using a Case Report Form consisting of two parts: the first part contained parents' socio-demographic data and vaccination status of their child and the second part consisted of Knowledge, Attitude and Practice (KAP) questionnaire.
- The data collection form was either self-filled by the parents.
- Parents were educated by verbal education to inform them about the importance of vaccination and the diseases against which vaccines are provided free of cost by the government for their children.

Analysis of Data:

- The questionnaires were evaluated by scoring the parents' responses to each question and they were categorized as having poor, average or good knowledge, attitude and practice relating to child vaccination.

Assessment of Knowledge:

Each question answered by the parents under the knowledge section of the questionnaire was scored. A score of 3 was given for correct answer, negative answer was scored 2 and each uncertain answer was weighed as 1. The scores were totaled and categorized as:

Score: 8-13= Poor Knowledge

Score: 14- 19= Average Knowledge

Score: 20-24 = Good knowledge

Assessment of Attitude:

Each question answered by the parents under the attitude section of the questionnaire was scored. A score of 3 was given for correct answer, negative answer was scored 2 and each uncertain answer was weighed as 1. The scores were totaled and categorized as:

Score: 7-11= Poor Attitude

Score: 12- 16= Average Attitude

Score: 17-21 = Good Attitude

Assessment of Practice:

The practice of Parents' regarding child vaccination was assessed by asking the parents about the immunization status of the child based on the child's age. The immunization status was categorized in to complete, incomplete and uncertain.

- Statistics: A thorough statistical study using SAS JMP version 12.2.0 was done and by applying statistical tools like Chi-square test with 5% significance level, it was inferred that the objectives of the study were fulfilled.

RESULTS

The study was carried out to assess Parents' Knowledge, Attitude and Practice (KAP) about their child vaccination in rural areas among 110 parents. The results after analysis of data are contained in this chapter.

Table 1. Distribution of Socio-demographic properties

Sample Characteristics	Frequency	Percentage (%)
Sample Distribution		
Kattigenahalli	40	36.3
Thippasandra	38	34.5
Muthasandra	32	29.0
Child Age Group		
0-12 months	34	30.9
13-24 months	20	18.1
25-36 months	48	43.6
37-60 months	10	9.0
Child gender		
Male	79	71.8
Female	31	28.1
Level of education of parent participant		
Primary	8	7.3
Secondary	24	21.8
Pre-university college	28	25.4
Graduate	37	33.6
Post graduates	13	11.8
Distribution of employment		
Self employed	53	48.1
Private services	35	31.8
Government services	17	15.4
Unemployed	5	4.5
Source of Information about immunization		
Maternity hospital/Health care provider	80	71.7
Radio/television	7	6.3
Family	23	20.9
Neighbours	0	0

Table 2: Distribution of vaccination knowledge in respondents

Level of knowledge about vaccination	No. of respondents	% represented
Good	80	72.7
Average	24	21.8
Poor	6	5.4

Table 3: Distribution of attitude towards vaccination among respondents

Level of attitude towards vaccination	No. of respondents	% represented
Good	94	85.4
Average	13	11.8
Poor	3	2.7

Table 4: Distribution of side effects

Side effects	No. of Children	% represented
Fever	45	80.3
Pain	10	17.8
Rash	1	1.7

Table 5: Distribution of completeness of immunization

Level of completeness of immunization	No. of children	% represented
Complete	75	68.1
Incomplete	8	7.2
Uncertain	27	24.5

DISCUSSION

Child immunization is a nationwide program in India. Despite the several efforts from the government, the target immunization coverage has not been achieved[12]. There are many factors contributing to it and this study has tried to look upon some of those aspects. The Knowledge Attitude and Practice (KAP) survey was done amongst parents who had children below five years of age in rural areas of Bangalore. A total of 110 responses were obtained from the respondents of different rural clusters of Bangalore The source from where the participants get information about immunization can play a pivotal role in adherence to child immunization schedule by the parents[13]. Previous studies have shown that the major source about immunization was usually the Healthcare providers in rural areas of India as in a study done at Mangalore by Mahalingam S. et al14 showing 49.2% of the participants got the information about child immunization from Anganwadi workers[14]. In our study, a similar pattern was seen where the information provider about immunization to a majority of the respondents was Maternity hospital/Healthcare provider (71.7%).Furthermore, there are also previous studies done which show that Health Personnel and Anganwadi workers make the source of information about immunization to majority of the participants who are adherent to the child immunization schedule[13]. The reason could be that a majority of the parents from rural areas avail the immunization service from primary and secondary health care centers as these are more accessible to the people and hence, the heath personnel at primary level can play an important role in improving the knowledge and changing the attitude of people about immunization[15].

Parental knowledge, attitude and practice about child vaccination have been regarded as one of the most important determinants for improving the immunization rate[16]. A study in Iraq suggested that there is a positive association between completeness of immunization and knowledge-practice among parents about child vaccination[16]. In our study, the assessment of level of knowledge about child vaccination amongst the parents showed that a majority of them (72.2 %,) had good knowledge score followed by average (21.8%) and poor as per [Table 6.2]. The level of knowledge about child vaccination amongst parents is often determined by their education level and several studies have tried to find association between these two variables. A study done by Yu Hu in China showed significant association between the education level and knowledge of the respondents about child vaccination. He found that more the level of education, more was the knowledge about child vaccination amongst the parents[17]. Similar findings were seen in our study as well, where the level of education amongst parents and their knowledge about child vaccination showed significant association (P 0.0026). The knowledge amongst parents about child vaccination reflects upon the immunization status of their children and this has been supported significantly by several studies some of it being a study done in Libya[18] and another in Iraq[16]. In our study, however, we could not find any significant association between the knowledge level of parents and the immunization status of their child. A major reason for this can be the fact that out of the 80 parents with good knowledge score, 15 of were not sure if their children had been immunized completely as per the schedule. Hence, the immunization status of their children could not be ascertained and this has affected our findings and can well be a limitation of the study.

On assessing, parental attitude towards child vaccination amongst the respondents we found that a majority of them, 94%, had good attitude [Table 6.3] which is a finding similar to that of a study done by Bofarraj M in Libya[18] and that by Ms.Mereena, Shamila Hameed in Mangalore[19] and many others in various countries where the majority of the participating

parents in their studies had adequate/ positive attitude towards child vaccination. Attitude influences an individual's choice of action, thus, it was essential to look into the association between attitude of parents about child vaccination and the immunization status of their child. In our study the association was significant (P 0.0135). Studies done worldwide have also reported similar findings[18].

Knowledge can help mold attitude and this relation between the two variables has been studied by several studies. Jamman Al-Zahrani found that there was a significant positive correlation between the knowledge and attitude scores of child vaccination amongst parents in Saudi Arabia, which was in accordance with what was reported in a study conducted in Iraq[20]. Similar was with our study where we have found that a significant correlation exists between the knowledge and attitude of the respondents ($p \leq 0.0001$).

Furthermore, although Zelaya et al. has warned in his study that positive attitude does not guarantee the parent's compliance with immunization schedule[21],our findings show that there is a significant association between attitudes of parents towards vaccination and the immunization status of their child(P 0.0135). It is in accordance with the findings from many other studies which state that the positive attitude of parents towards vaccination reflects higher significance for their compliance to the immunization schedule.[17, 22, 23]

The practice related to child vaccination amongst the participating parents was assessed majorly by questioning the parents about the immunization status of their children and gathering information about the practice of informing the healthcare provider of the side effects that might

I) The study shows that out of 110 children, 75 of them were immunized completely as per the schedule based on their age, while 8 were incompletely immunized and the immunization status of the remaining 27 could not be known. The whole idea of counting on upon the parents' word to decide whether their children were completely immunized or not was based on the fact and belief that it is imperative for parents to be aware and sure about such things. During the course of study, we, however, came to realize that there are still parents in quite a number, who seem oblivious towards the need of being updated and aware of the immunization status of each child to ensure no one misses a dose. It just reinforces the fact that ignorance over the topic still prevails in quite a huge extent in our rural areas amongst parents regarding how important it is to take interest in vaccinating their children and ensuring complete immunization.

ii) Since the appearance of side effects can prompt parents to discontinue vaccination[24], it was essential to have insight upon how many cases of side-effects were seen out of the 110 participants during the assessment of parental practice of child vaccination. We found that 56 respondents (50.9%) said that their child suffered from side effects after vaccination. The figure was lesser than that reported by K.Ravishankar and Mereena MR, where they found that of 81% and 66% of their participants said that their child experienced side-effects after vaccination, respectivey[10,22]. In our study, out of the side-effects that appeared, fever was the most common one followed by pain at the site of injection and rash [Table 6.5] which were in accordance with the findings by Jamman Al-Zahrani[20] although comparatively higher percentage was reported for fever and lower for pain in our study.

It is a common expectation that appearance of side-effects in child after vaccination can influence parental decision to continue or discontinue the vaccination. Several studies in the past have also justified this as a fact. In our attempt to correlate between appearance of side-effect and status of immunization amongst children, we found that the two were significantly correlated (P 0.0296). This sheds light on the need to have a more comprehensive plan for educating the parents about the side-effects of vaccine along with other aspects of child vaccination so that the immunization coverage rate can be improved.

LIMITATIONS OF THE STUDY

Although this study has been able to meet all its objectives successfully, it comes with its own limitations. First and foremost, since this was a questionnaire based study, it is, hence, difficult to assure that the respondents gave honest replies and furthermore selection of one option over the other could merely be a matter of chance. Another limitation was the way in which we have categorized the status of child immunization. Since, there were many children grouped as having uncertain immunization status due to the lack of surety about the same shown by their parents, there is, however, a chance that majority of them could have actually been compliant or non-compliant to the schedule. Both of which would affect our findings to some extent.

CONCLUSION

This study has revealed that although the extent of Knowledge, Attitude and Practice(KAP) of parents about child vaccination is good in the majority of the participating parents, the immunization coverage is not satisfactory and needs to be brought up. The study reflects upon the idea that knowledge molds attitude and attitude drives proper practice .Hence, there is a need that a comprehensive plan to improve immunization coverage should work upon the different domains that determine the parental KAP about child vaccination with equal emphasis on each.

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CONFLICT OF INTEREST

The authors declare no Conflict of Interest.

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