A Cross Sectional Study to Assess the Impact of Knowledge, Attitude and Practice (KAP) of Parents on Immunization Coverage of their Children

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Abstract

Background: Many studies proved that, parents' knowledge on the risks and benefits of vaccination is directly proportional to the attitude and practice in immunizing their children. As parents are the decision makers, their KAP towards vaccination play a major role in achieving adequate immunization coverage of the community.

Objective: To assess the impact of parent's KAP on immunization coverage of their children.

Method: A cross sectional study enrolled parents of children aged 2-5 years visiting the pediatric department of JSS Hospital, Mysuru. A validated KAP questionnaire in local language was used as the study tool. Median split method was used to categorize the parent's KAP into adequate and inadequate. Statistical analysis was performed using independent t-test and One Way ANOVA.

Results: The mean KAP score of the study population was 15.25 and 56.54% (n=95) of them scored more than the mean KAP. The adequate KAP score was observed among 51.19% of the study population and 48.81% had inadequate KAP scores. The study identified a statistically significant association between the KAP scores of the parents and the immunization coverage of their children. Significant association was also observed between the KAP scores and factors such as number of kids, place of stay , educational and socioeconomic status of the parent.

Conclusion: It is important to understand the KAP of parents towards immunization of their children and develop and implement suitable interventions/strategies to improve the immunization coverage.

Key words: *Immunization coverage, Impact of education, Knowledge Attitude and Practice, Parental KAP, Vaccination*

Introduction

Immunization prevents 2-3 million deaths globally and an additional 1.5 million deaths could be avoided if the global immunization coverage improves.[1,2] With the exception of safe water, no other modality, have had such a contributing effect on population growth and reduction in mortality.[2] Globally, the number of infants missing basic vaccines were estimated as 21.8 million.[3]

Though there is slight improvement in the immunization coverage in recent years, still India, have 7.4 million unimmunized children and is responsible for more than five lakh deaths annually.[4] According to the United Nations International Children's Emergency

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Fund and National Family Health Survey-4 (NFHS-4), the percentages of children fully vaccinated between the age groups of 12 to 23 months were only 62% in India and 55% in one of the south Indian state, Karnataka.[5,6]

Lack of awareness on benefits of vaccination and completion of vaccination schedule, wrong ideas on vaccination, child sickness, cultural diversity and conflicting priorities of parents and Adverse Events Following Immunizations (AEFIs) are some of the important barriers for India to lag behind in immunization coverage.[3] Another important reason for vaccine hesitancy among the parents is anti-vaccine movements, which encourage them to refuse vaccination for their children and lead to a reduction in the expected herd immunity.[7] Previous studies proved that the parents' knowledge on the risks and benefits of vaccination will directly influence the attitude and practice in immunizing their children.[8] This study was conducted to assess the impact of knowledge, attitude and practice (KAP) of parents on the immunization coverage of their children.

Materials and Method

This cross sectional study was conducted over a period of six months at the pediatric department of Jagadguru Sri Shivarathreeshwara Hospital, Mysuru, Karnataka, India. Ethical clearance was obtained from institutional human ethics committee before the commencement of the study. Study enrolled either of the parents of children aged between two to five years visiting the study site for any reason and who are able to provide the immunization card to the researcher. Eligible parents were counseled and enrolled in to the study after taking the informed consent.

Validated self-administered KAP questionnaire[9] was used as the tool to collect the data from the enrolled parents. If the child had received all immunizations required until the age of two as per the immunization card was classified under 'complete immunization' and others were under 'partial immunization'.[10] KAP questionnaire scoring was done by allotting zero and one point for each incorrect and correct answer respectively. Median split method was used to categorize the parent's KAP into adequate and inadequate.[9,11] Parents having an aggregate KAP score lower than 17, the calculated median, were categorized under inadequate KAP on immunization. Independent t test and one-way ANOVA were performed wherever necessary. *P* value of <0.05 was considered statistically significant with 95% confidence interval.

Results

From the total 168 parents enrolled in the study, 57.14% were males, 80.95% were from the rural area and 37.50% belonged to upper middle socioeconomic class. Mean age of the fathers and mothers enrolled in this study were 32.7 5.58 and 27.9 5.86 years respectively. Among the study population, 80.95% completed the vaccination schedule of their children as per the age of two years.

Knowledge Domain

The mean knowledge score of the study population was 9.79, which was 65.2% of the total score. The knowledge (11.61) level was high among the parents who had two children whereas the knowledge (5.84) scores were less among the parents having three children. People living in urban residential area (15.59) and the parents who were graduates or postgraduates (19.0) had better Knowledge scores when compared to others.

Practice domain

Among the study population, partial immunization coverage was identified in 19.05% of the study population. Various reasons for non- completion of immunization schedule was news about AEFIs [n=16(09.52%)], child sickness [n=08(04.76%)], child receiving many injections [n=08(04.76%)], forgetfulness [n=02(01.19%)] social or religion reasons/ lack of transport facilities / non availability of vaccines [n=01 (0.59%)each] and there was no specific reason among 02.97% of the study population.

Attitude Domain

Only 82.92% of population answered that they support immunization program of the country and 23.80% answered that they do not recommend immunization to others. Also, 82.15% of parents answered that they are favoring the immunization program of the country.

KAP Scores of study population

The mean KAP score of the study population was 15.25 and 56.54% (n=56.54%) of the study participants scored more than the mean KAP. The adequate KAP score was observed among 51.19% of the study population, whereas 48.81% had inadequate

KAP scores. 68.45% of parents who completed the immunization schedule had adequate knowledge and 31.54% of the parents who completed the immunization schedule had inadequate knowledge. The adequate KAP score was observed for the parents whose children completed the vaccination schedule [80.35%(n=135)] as per their age where as very low level KAP [07.73%(n=13)] was observed among the parents whose children didn't complete the schedule. KAP scores of the study population are presented in table I. There was statistically insignificant difference in the KAP scores of both parents, where as a significant association was identified between the KAP scores and the number of children, place of stay and the immunization status of the children (table II).

Table I: KAP scores of study population

Particulars		Mean Knowledge Score ± SD	Mean Practice Score ± SD	Mean Attitude Score ± SD
Parent Enrolled	Father	9.7±4.69	2.4±1.05	3.3±1.39
	Mother	9.9 ± 4.69	2.3±1.03	3.1±1.37
Age of the parent	21–30 years	9.01±4.70	2.41±1.03	3.32±1.37
	31-40 years	9.58 ±4.70	2.05±1.06	2.85±1.40
	41-50 years	13.47±4.66	2.9±1.03	3.85±1.37
Number of children	One child	9.2 ±4.67	2.6 ±1.03	3.67± 1.37
	Two children	11.61±4.71	2.62±1.03	3.54±1.36
	Three children	5.84 ±4.66	0.84±1.06	1.0±1.41
Place	Rural	8.62 ±4.75	2.43±0.96	3.45±1.28
	Urban	10.07±4.67	2.33±1.05	3.14 ±1.39
Educational status	Graduate or post-graduate	12.2 ± 4.72	2.88±1.03	3.91±1.36
	Intermediate or post high school diploma	12.27±4.80	2.81±0.98	3.72±1.30
	High school certificate	8.83±4.70	2.35±1.04	3.75±1.38
	Middle school certificate	5.5±4.72	1.5±0.97	3.0±1.33
	Primary school certificate	6.74±4.67	1.53±1.05	1.63±1.39
Socioeconomic Class	Lower	09.0	1	1
	Lower middle	7.73±4.67	1.57±1.03	2.16±1.37
	Upper Lower	8.32±4.70	2.32±1.04	3.27±1.40
	Upper Middle	11.36±4.67	2.87±1.03	3.87±1.37
	Upper	13.0 ± 4.70	2.77± 0.95	3.66 ±1.27
Status of immunization	Complete Immunization	11.16±4.68	2.92±1.03	3.86±1.37
	Partial Immunization	5.69 ±4.66	1.21±1.05	0.64±1.41

Table II. The relationship of KAP and various parent related factors

Particulars		Mean Total Score ± Standard Deviation	*P* Value
Parent Enrolled	Father	15.32 ± 5.89	*.349*
	Mother	15.38 ± 6.80	
Age of the parent	21–30 years	14.78 ± 6.28	*.001*
	31-40 years	14.49 ± 6.33	
	41-50 years	20.23 ± 6.29	
Number of children	One child	15.59 ± 6.42	*.001*
	Two children	17.78 ± 6.29	
	Three children	7.68 ± 6.30	
Place of residence	Rural	14.50 ± 6.57	*.040*
	Urban	15.55 ± 4.88	
Educational status	Graduate or post-graduate	19.0 ± 6.31	*.001*
	Intermediate or post high school diploma	18.81± 6.30	
	High school certificate	14.94 ± 6.31	
	Middle school certificate	10.0 ± 6.22	
	Primary school certificate	9.91± 6.28	
Socioeconomic Class	Lower	9.00 ± 5.9	*.001*
	Lower middle	11.46 ± 6.24	
	Upper Lower	13.91 ± 6.26	
	Upper middle	18.11 ± 6.32	
	Upper	19.44 ± 6.30	
Status of immunization	Complete immunization	17.41 ± 5.11	*.001*
	Partial immunization	7.54 ± 0.55	

Discussion

The result of this study was similar to the findings of studies from various parts of the world.[7,11-14] Almost half of the enrolled study population had adequate knowledge on immunization. The percentage of parents in our study who knew that the vaccination prevents disease was 91.1% and a similar result was obtained from a study conducted in Pakistan (94%).[15] Studies from other Asian countries also had similar findings on knowledge of vaccination.[11,14] The study population was immunizing their children as a routine practice however their knowledge that the vaccination improves

the child's immunity against a particular Vaccine preventable diseases (VPD) was very less among the study population. One of the reasons for incomplete vaccination was the news about the occurrence of VPD even after the vaccination[15] that make them feel that the vaccine administered through EPI are not effective hence vaccination is not important.

History of severe allergic reaction during the previous dose of vaccine or to a component of vaccine is the only contraindication applicable to all vaccines.[15] The study participants, only 19.0% answered that any acute illness was a contraindication for vaccination and the remaining couldn't answer the question, similar to other published studies.[11,16] Only 65.5% of the parents answered that government provides many vaccines freely to Indian citizens, the others considered the consultation fee charged at the hospitals were the cost of the vaccinations.

The immunization status was categorized as complete vaccination among 75% of our study population and the finding is almost in line with other studies from other parts of India also categorized 78% of the children under the category of complete immunization.[10,13] In a study from Iraq, only 56.3% of the children were considered to have received complete immunization, the difference in the percentage may be due to the cultural and political situation in the country.[4,11]

Percentage of parents (82.15%) favoring the immunization program and recommending the vaccination to others (83.92%) was less in our study compared to an Iraqi study, where 94% and 96% of parents favoring the immunization program and recommending the vaccination to others respectively.[11] In a studies from Pakistan and Saudi Arabia, 57.7% and 89.3% of parents respectively recommended the vaccination to others though 96% and 100% respectively favored the vaccination program.[14,17] The difference in the attitude pattern could be related to the environmental and socioeconomic status prevailing in each of these countries.[11] There are studies published that describes the influence of religion on parental decision on vaccination as an excuse for non-vaccination.[18,19] However the current study couldn't assess the influence of religion on vaccination coverage, as there were no sufficient representative sample from different religion.

Previous studies conducted couldn't find a statistically significant association between the education status and socio-economic background of the children with the immunization coverage whereas our study showed a statistically significant correlation of KAP with educational status and socioeconomic background of parents.[17] Parents with more than three children had shown a better KAP scores in a previous study from Saudi Arabia.[20] Low education and low socio economic status might have contributed for the difference in the KAP score observed in our study when compared to the study from Saudi Arabia.[19] Similar to our study, the previous studies also found a significant association between the knowledge about vaccination and the completeness of immunization schedule.[11] This clearly describes the need of education to parents to improve the immunization coverage of the community. Study population answered that side effects of vaccines were one of the major reason for non-administration of vaccine in our population similar to previously published literatures.[20]

Conclusion

KAP of the parents about immunization is the key for the immunization coverage of their children. It is important to understand the KAP of parents towards immunization of their children and develop and implement suitable strategies to improve the immunization coverage. The strategies can vary based on the culture and education of the population. Personalized education to the parents may be useful in improving the KAP and there by the immunization coverage.

Limitations: The study represents the KAP of the parents who were literate. The illerate people were excluded from the study as the tools used for the study was a self administered questionnaire.

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