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AWARNESS AND KNOWLEDGE ABOUT NEW VACCINES AMONG PARENTS

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Abstract: *Vaccination is one of the most important preventive health care interventions which play a key role in protecting children from major life threatening infections in the childhood. Parenteral awareness plays a key role in delivering this intervention to children .Our study was performed to assess the awareness, perception and knowledge about newer vaccines currently available in the market among parents attending the OPD. We also looked into the variables which influenced the knowledge so as to identify solutions to address the knowledge gap. This cross-sectional study was conducted at Saveetha medical college and hospital, India from June 2018-June 2020. Immunization knowledge and attitude among 600 parents was evaluated through a questionnaire. Majority of the parents are aware of the vaccines which are administered as a part of the national immunization schedule.84 % of parents are unaware of the other optional vaccines which are recommended by the IAP but which are not a part of national immunization schedule. Treating pediatricians and family physicians are the main source of information about vaccines (60 %).The mass media, immunization campaigns are other sources of information. The side effects ,efficacy and safety of vaccines are a matter of concern to the parents .Level of knowledge directly correlated with maternal literacy ($P \leq 0.05$) and to a lesser extent with fathers' literacy and advancing age was associated with better knowledge ($P \leq 0.05$). There is limited knowledge among parents regarding newer vaccines. Every opportunity of contact with the parents should be utilized by the doctors for imparting health education. It is prudent to target young parents and especially mothers. Vaccine awareness should be enhanced through the use of mass media. Government must include these newer vaccines in the national immunization program in a phase wise manner.*

Keywords: *Immunization, Knowledge and perception, newer vaccines, Parental education*

I. INTRODUCTION

Immunization is an important health care intervention which plays a key role in prevention of infectious diseases .Protection against vaccine preventable diseases is also birth right of every child. Vaccination of

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children is influenced by several factors which include the demographic background of the parents, education, income, awareness etc.[1]

Vaccination awareness programs in our country should target the parents providing them with information about safety, efficacy, benefits and also the problems that the child would face if unimmunized. There exists a huge knowledge gap about immunization even among the well-educated let alone the illiterate parents.

There isa urgent need for studies to understand the parent's perception towards immunization. This information can be utilized for taking corrective actions which would improve the immunization coverage.

This study was done to determine the awareness and knowledge regarding newer vaccines among parents/caretakers and understand their perception towards immunization, to determine the association of knowledge and perception of parents with selected demographic variables, and to identify the solutions to address the knowledge gap.

II. MATERIAL AND METHODS

A prospective descriptive study was conducted in the Department of Pediatrics, Saveetha medical college and hospital,teaching hospital located in suburban part of Chennai between June 2018 and June 2020. The hospital is visited by children from all socioeconomic strata for vaccination and other illness .The study was conducted at Lots children's hospital, Hyderabad, India which is a tertiary care center.

Study population wereParents/attendees who visit the hospital to immunize their children and Parents/attendees of in-patient children.

Based on the previous studies and assuming awareness to be around 15 % which is very less and precision to be 20 % and confidence interval to be 95 % the sample size was calculated to be around 580.All the parents who enrolled in the study consented to be a part of the study.A questionnaire was given to all the parents which collected data on the demographic profile of the parents(age,religion,urban/rural,education,income), data about the child which included age,sex,birth order,number of siblings and also data regarding the parenteral knowledge and attitude about the newer vaccines which included questions on vaccine efficacy,safety,age of administration ,cost effectiveness,perceived benefits etc.

Statistical analysis was done with SPSS-21 and mean, and standard deviation and proportions were analyzed.

Categorical variables were presented as bar diagrams, pie charts, frequency and percentage

- The Chi-square test was used to measure associations between nominal variables
- Test was considered significant where p value is < 0.05

  Level of significance was obtained using T test.

III. RESULTS

Demographic data

A total of 580 parents were included in the study. Out of them, majority of the fathers 45.8% were school graduates and among the mothers majority of them were graduates (49.6%). Majority of the fathers (66.9%) of them fell in the age group between 25 to 35 years while majority of the mothers were less than 25 years

(53.7%).Most of the children were second order by birth (66.4%)and per capita income of most of the family was between Rs70137 and Rs273098 annually

Level of knowledge among parents

Parents were given a questionnaire about the vaccines. Majority of the parents (93.44%)are aware of the vaccines that are given as a part of the national immunization schedule .On the contrary almost 76.2% of the parents were unaware that there are few vaccines which are in the IAP recommended immunization calendar, but are not given under national immunization program, and that these vaccines are optional vaccines.

Parents were provided with the names of 9 optional vaccines(Rotavirus, Pneumococcal conjugate vaccine ,Typhoid conjugate vaccine ,Influenza vaccine, Meningococcal conjugate vaccine, Hepatitis A vaccine ,Cervical cancer vaccine ,Japanese encephalitis vaccine and Varicella vaccine)asked if they have either heard about them or if they are aware of them. Most of the parents have heard of Rotavirus vaccine (55.5%), Influenza (53.7%) Varicella vaccine (51.7%) followed by cervical cancer (HPV) vaccine (44.5%) and typhoid vaccine (43.1%). The other vaccines were known by only around 28.1% to 39.1 % of the parents .Japanese encephalitis vaccines was the least known vaccine. (Figure 1)

Of the 9 vaccines which were shown to the parents, 28.1 % of the participants have heard of only 1 vaccine. An average of 34.1% parents is aware of 2-4 vaccines. All the 9 vaccines were known only by a meagre 5.1% percent of the parents (Figure 2).

Majority of the parents who knew about the optional vaccines also were aware of the disease it prevents exceptions being Japanese encephalitis and Meningococcal vaccines (Figure 3).

Overall awareness about the vaccines among parents is depicted in the Table 2.It is seen that around 37.9 % believe vaccination prevents disease 100% and only 3.7 % vaccine efficacy is dependent on the type of vaccine and the disease against which it is administered. Majority 55.1% believed that vaccine once given provides lifelong immunity against the disease. Majority of them believed that vaccines are for children less than 5 years (67.2%) and only 10.7% knew that certain vaccines need to be given for adults and adolescents also .Majority of the parents (76.4%) believed that if the child has any minor illness like cough or cold or fever vaccination should be deferred. The parents also knew that vaccination would be followed by fever or swelling at the site of injection .Very few of the parents were concerned about the safety of the vaccines as such.

Figure 1.Awareness about vaccines

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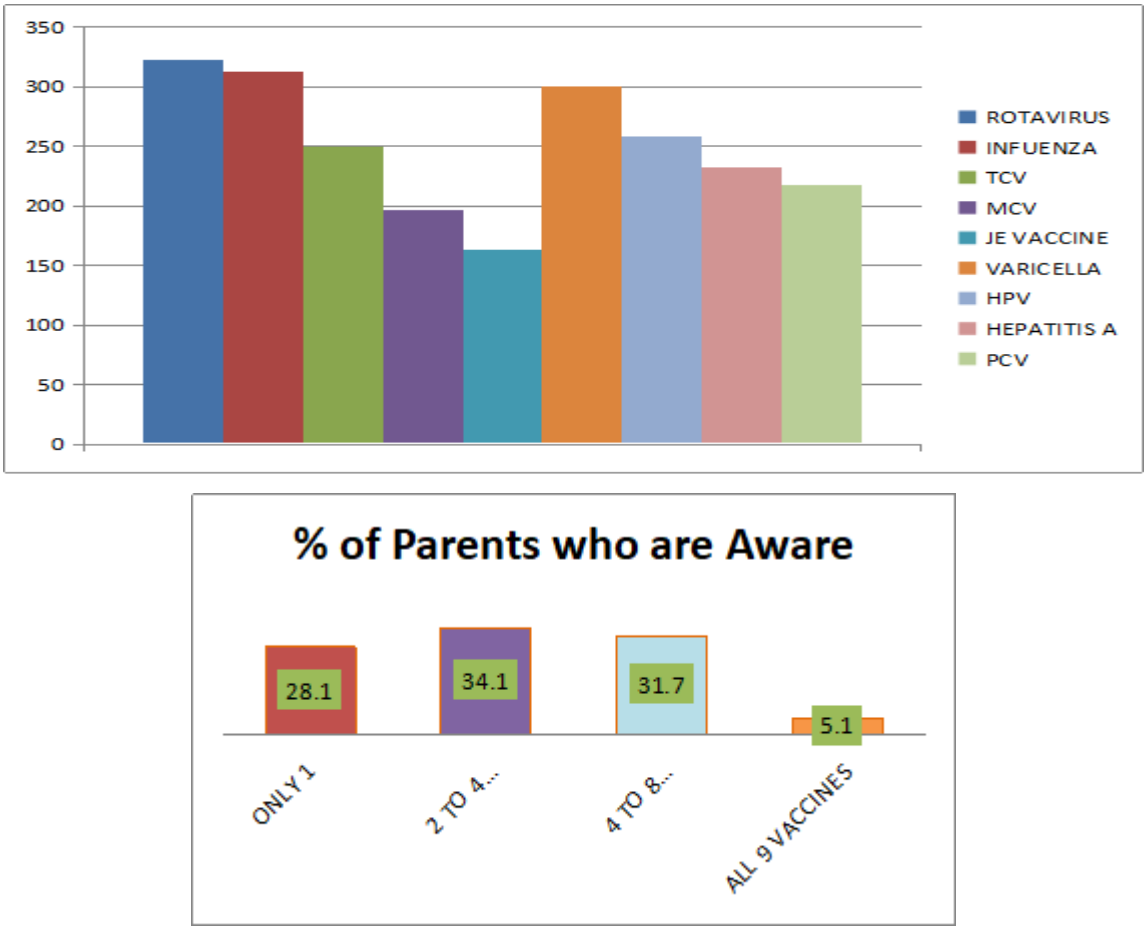

Figure 2.Awareness about vaccines

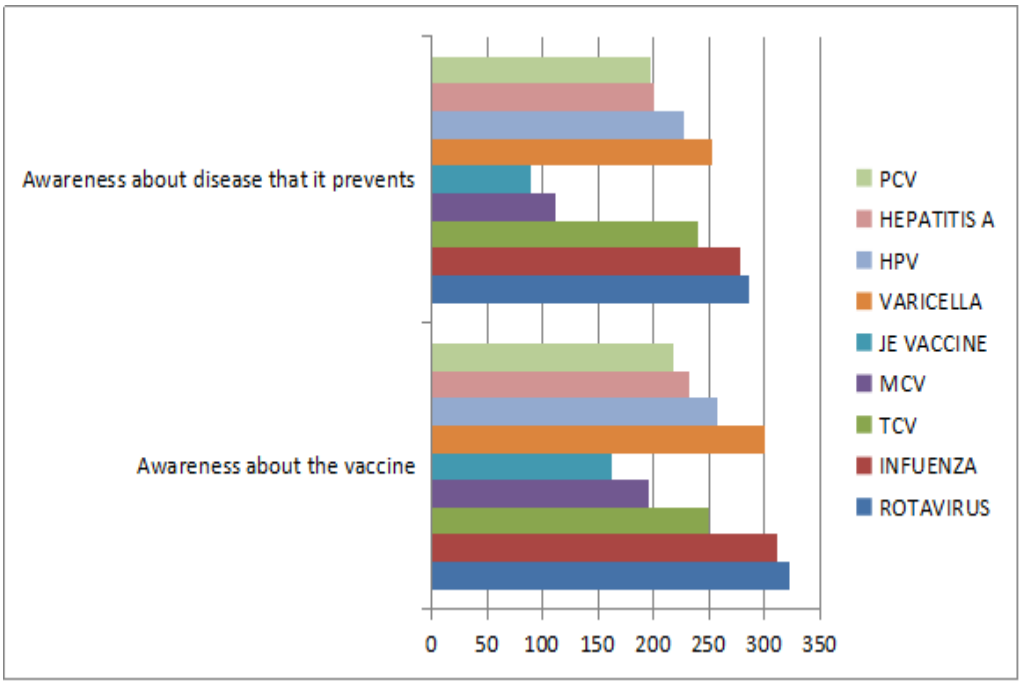

Figure 3 .Awareness about disease vaccine prevents

Table 1.Demographic characteristics

Parameter	n% (n -580)
Fathers education	
School education	45.8%(266)
Graduate	43.3%(199)
Post graduate	19.8%(115)
Mothers education	
School education	32.4%(188)
Graduate	49.6%(288)
Post graduate	17.9%(104)
Fathers age	
<25 years	18.6%(108)
25 to 35 years	66.9%(388)
>35 years	14.5%(84)
Mothers age	
25 years	53.7%(312)
25 to 35 years	37.9%(220)
>35 years	8.3%(48)
Per capita income	
<Rs 70069	31.5%(183)
Rs 70,137 to Rs 2,73,098	44.7%(259)
Rs 2,73,167 to Rs 8,45,955	20.3%(118)
>Rs 8,46,023	3.5%(20)
Birth order	
1st	19.3%(112)
2nd	66.4%(385)
3rd	14.3%(83)

Table 2.General awareness

General awareness	% of n (n =580)
Are the diseases 100% preventable by administering vaccines	
Yes	37.9(220)
No	34.4(200)
Don't know	27.6(160)

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Duration of vaccine efficacy	
Lifelong	55.1%(320)
Few years	37.9%(220)
Depends on vaccine and the disease which	3.7%(22)
it prevents	3.1%(18)
Don't know	
Maximum age the vaccines can be administered	
5 years	67.2%(390)
10 years	22.1%(128)
Adolescents and adults	10.7%(62)
Can vaccines be administered in presence of minor illness like cough, cold	
Yes	
No	20.1%(112)
Don't know	76.4%(443)
	6.5%(35)
Side effects of vaccine	
Fever	84.8%(492)
Redness	80.2%(465)
Pain	79.1%(459)
Excess cry	49.1%(285)
Convulsions	5.5%(32)

Parental attitude towards vaccines

The Pediatrician or the family physician were the main source of information about immunization in most of the cases and accounted for 55%. Friends (19.3%) Internet (1.9%) and pamphlets at hospital (3.5%) were other sources of information. Television (10%) and newspaper (10.3%) which is utilized by few vaccine manufactures were also source of information about vaccines among parents.

Majority of the parents said that cost of the vaccine plays an important role in decision regarding vaccination or not (50%). Further the decision to vaccinate was influenced by the doctor according to 43.4% of the parents. Majority of the parents said if the cost of the vaccine is lower than the current price they would vaccinate the child (91.7%).

There was also misconception that vaccines administered at private setup is superior to the vaccines given at government facility among 56.5% of the parents.

Majority of the parents felt that vaccination is a cost effective strategy to prevent diseases(53.8%).Majority of the parents also were of the opinion that these optional vaccines have to be incorporated in the national immunization schedule (56.7%) so that all children are protected.

Relationship between education of the parent and knowledge about immunization

A direct relationship between the mother's education status and knowledge about the vaccine was noted and it was statistically significant also.

Relationship of parental age and knowledge of immunization

There was a significant association between the parent's age (both fathers and mothers) and vaccination awareness among them. Parents more than 35 years of age had a higher level of knowledge regarding vaccines when compared to the 25-35 year age group parents. Parents younger than 25 years had the least awareness among all the groups. The difference between the three groups is statistically significant with a $p < 0.05$.

Relationship of birth order and knowledge of immunization

Parents with 3 children were found to have better knowledge ($p < 0.05$) than parents with 1 or 2 children about vaccines.

IV. DISCUSSION

Our study looked into the knowledge, attitude and perception about vaccines among parents attending our hospital. It was noticed that majority of the parents were aware about the vaccines given in the national immunization schedule which can probably be explained by the extensive efforts by the government and partly by the fact that most of the parents had some level of education. What was not known to the parents was that there were optional vaccines which could be administered in addition to the routine vaccines which is similar to studies done by AkunuriS et al[2] in Andrapradesh and Inamder et al[3] in Madhya Pradesh.

Majority of the parents who knew about the optional vaccines were also aware about the disease it prevents this is in contrast to findings byAkunuriS et al[2] ,Mony PK et al[4] and Mapatano MA et al[5]

Most of the parents believed that vaccines offer lifelong immunity and should be given to children less than 5 years. Most of the parents believed that adults and adolescents need not be vaccinated. There was also a strong belief that children with cough ,cold or fever should not be given vaccines these findings are similar to previous reports.

Parents were also aware that fever, redness and pain are common following vaccination and needs to be treated with medication for a day or two. This is in contrast to findings by EKOS research associates[7], Inamderet al[3] and Tang CW et al[6]

The Pediatrician or the family physician were the main source of information about immunization in most of the cases and accounted for 55%. Friends (19.3%)Internet (1.9%) and pamphlets at hospital (3.5%) were other

sources of information these findings are similar to those obtained byConiglio MA et al[8],Inamder et al[3] andAkunuri S etal[2]. However some of the western studies have documented internet and television as the major source of information[8,9]. This may be possibly due to the nature of the study population and their demographic profile. These findings also emphasizes the need for spending time and explaining about the vaccines to the patients during every patient contact and also the need for vaccination counsellors at pediatrician outpatient clinics.

There was also a misconception that vaccines administered at private health care facility were superior to those administered at government health care facilities. This is possibly because of concerns about cold chain, nurses vaccinating in government facilities. While western literate suggest that parents there believe in public facilities more than the vaccines in private facilities[9].

Cost was the single most important determinant which influenced the parents regarding the decision to give or not give the vaccine which is similar to study by

Madhivanan P et al[10]. Similar to his findings most parents wanted these newer vaccines to be included in the national immunization.

In our study it was found that level of knowledge about vaccines was significantly influenced by the mothrs' literacy ($p < 0.05$) this is similar to reports by Patra et al[11], Inamder et al[3].In contrast, study by Garrido C et al[12] showed that parental education does not influence the awareness regarding vaccination.

There was a significant association between the parent's age (both fathers and mothers) and vaccination awareness among them. Parents more than 35 years of age had a better awareness regarding vaccines than 25-35 year age group. Parents younger than 25 years had the least awareness among all the groups ($p < 0.05$). This is similar to previous reports.

In this study, it was found that there is no difference in the level of knowledge among parents with 1 and 2 children. Parents with 3 children were found to have better knowledge, this finding however contrast to the findings by Zahrani JA[13].There is limited knowledge among parents regarding newer vaccines. Also parents have many misconceptions regarding vaccine efficacy, side effects, vaccines' safety profile, age till which they can be administered. The level of knowledge directly correlated with maternal literacy and to a lesser extent with fathers' literacy and advanced age of the parent is associated with better knowledge. This study brings about the fact that the young parents have lesser knowledge about the benefit of vaccines. Hence it is prudent to target young parents and especially mothers. As brought out in the study, the doctors were the main source of information regarding vaccines, thus every opportunity of contact with the parents should be utilized by the doctors for imparting health and vaccine education.

Vaccine awareness should be enhanced through the use of mass media like television, radio and newspaper, as these were observed to be underutilized in this study. Government must include these newer vaccines in the national immunization program in a phase wise manner.

V. CONCLUSION

The study has exposed that there are still many gaps in the knowledge and attitude of parents with respect to the available optional vaccines. Vaccination awareness needs to be promoted with the use of mass media like

television ,radio and print media .Majority of the parents believed that it is a cost effective strategy but the most important factor determining the decision to vaccinate or not was the cost of the vaccines. Efforts need to be taken by manufactures to cut down on the cost of the vaccines wherever possible as most of them said they would vaccinate the child if the cost is lesser. It was also noticed that pediatrician play a key role in promoting vaccines and there has to be efforts to provide vaccination counselling at every given patient contact. Most of the parents also wanted these optional vaccines to be included in the national immunization schedule.

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