

## Original Research Article

# Awareness and practices of parents about immunization of children in the age group 2-5 years

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## ABSTRACT

**Background:** Immunization is a highly cost-effective way of reducing morbidity and mortality in children in developing countries. Objectives of this study were to determine awareness of parents and immunization status of children in the age group of 2 to 5 years and study the social factors influencing immunization status of a child.

**Methods:** A total 200 children aged 2-5 years who are attending Pediatric OPD, immunization clinic from May 2017 to April 2018 were enrolled in the present study.

**Results:** In the present study, 170 children (85%) received full immunization given by Government of India free of cost while 30 children (15%) got partial immunization. 90 children (45%) received full immunization while 110 children (55%) got partial immunization NOT given by Government of India free of cost. Parents of 80 children (40%) were unaware of vaccination schedule, parents of 70 children (35%) did not give full vaccination due to high cost, parents of 30 children (15%) had wrong beliefs while parents of 20 children (10%) couldn't understand the importance of vaccination due to less education.

**Conclusions:** The goal of 85% coverage is an uphill task. Adverse effects following immunization, busy parents, lack of knowledge seems to be a major contributing factor for the non-success of this national program. Parent's occupation and education are statistically significant contributing factors for the poor immunization coverage among these children.

**Keywords:** Fully immunized, Partially immunized, Vaccination schedule

## INTRODUCTION

Immunization is a highly cost-effective way of reducing mortality in children in developing countries. Every year throughout the world, 27 million children and 40 million pregnant women do not receive the routine immunizations (as defined by WHO and UNICEF), and two to three million people die from vaccine preventable diseases.<sup>1</sup> Immunization is one of the most cost-effective public health interventions. It provides direct and

effective protection against preventable morbidity and mortality. It causes major decline of under-5 mortality rate from ~ 233 to ~63 per 1000 in last five decades in India.<sup>2</sup> 12-15% of India's population constitutes children below 5 years. In children morbidity and mortality is mostly by infections. 3 million children die annually worldwide. Several become disabled as a result of vaccine-preventable diseases.<sup>3</sup> In India, 5 lacs children die yearly because of diseases that can be prevented by vaccination.<sup>4</sup> Despite all efforts put in by the

governmental and nongovernmental organizations, there are still clusters of low coverage of immunization. Immunization services in India are free of cost in public sector. Still, some areas lag in immunization coverage. In India, according to National Family Health survey (NFHS-4), only 56.3% of the children of age 1-2 years have received the basic immunization. In 5 rural areas of Maharashtra, 66.7% were fully immunized, 1.8% were unimmunized according to DLHS-4 (2012- 2013), while the total rates in the state of Maharashtra were 65.3% and 1.5%, respectively.<sup>5</sup>

Vaccine preventable diseases (VPDs) are still responsible for 5 lakhs deaths annually in India. So, there is need for further improvement. India, along with many developing countries, is lagging behind in sufficient coverage of Routine Immunization (RI).

According to World Health Organization (WHO)/UNICEF estimates, DTP3 coverage in the South-East Asia and Africa regions for 2010 remained low at 77%.<sup>6</sup> In India, the coverage was still lower at 61%.<sup>7</sup>

**Table 1: Immunization schedule in children up to 5 years in india 2018.<sup>8</sup>**

Vaccine	Prevents	Age for dose 1	Interval of dose 1 and 2	Interval of dose 2 and 3	Interval of dose 3 and 4	Interval of dose 4 and 5
BCG	TB and bladder cancer	Birth				
HepB	Hepatitis B	Birth	4 weeks	8 weeks		
Polio	Polio	Birth	4 weeks	4 weeks		
DTP	Diphtheria, Tetanus and Pertussis	6 weeks	4 weeks	4 weeks	6 months (booster 1)	3 years (booster 2)
Hib	Bacterial infections	6 weeks	4 weeks	4 weeks	6 months booster 1	
PCV	Pneumonia	6 weeks	4 weeks	4 weeks	6 months booster 1	
RV	Severe Diarrhea	6 weeks	4 weeks	4 weeks		
Typhoid	Typhoid fever, Diarrhea	9 months		15 months (booster 1)		
MMR	Measles, Mumps and Rubella	9 months	6 months			
Varicella	Chickenpox	1 year	3 months			
HepA	Liver disease	1 year	6 months			

Continued acceptance of parents for childhood vaccination is essential for the maintenance of herd immunity and disease prevention. So, parents' decision-making in their children's vaccinations is vitally important.<sup>9</sup> There are a number of reasons why India lags behind in vaccination rates as compare to Bangladesh, where 82% of children are fully vaccinated by two years of age. Huge population with relatively high growth rate is a barrier in India.<sup>10</sup>

Geographical diversity like snow bound/ hilly areas, deserts, tropical forest areas, remote island territories, cultural diversity like various religions, languages, traditions, beliefs and customs and political instability like "coalition" governments, "politically sensitive areas" like Naxal/terrorist-affected areas) are some problems which are unique to India. All these make the task more complex. Reaching out to mobile/migrant population is another challenge.

Lack of awareness makes it difficult to achieve 100% immunization coverage. Low levels of education negatively impact immunization in children. Adverse events following immunization even when these are unrelated to a vaccine, are widely reported in the media

and cause culture hostile to vaccination in certain communities.<sup>10</sup>

The objectives of this study were to assess the awareness and practices of parents for routine immunization and extended immunization and to find out the reasons for not covering the children completely.

## METHODS

It was a retrospective, cross sectional study of 200 children at Colours Children Hospital, Nagpur. Children and their parents were randomly selected. Children of more than 2 years were selected so that at least we get the information whether those children are immunized for routine vaccines. Parents were interviewed about which vaccines they have given to their children. Reasons for not giving the vaccines were asked. Also, counselling for which vaccines to give, when and why was done.

### Inclusion criteria

- Children between 2-5 years of age
- Parents who have given consent for participation in the study.

**Exclusion criteria**

- Parents who did not give consent for participation in the study
- Children below 2 years and above 5 years of age

**Table 2: Questionnaire.**

Number	Variables
1	Name
2	Age
3	Parity
4	Sex of the child
5	Education of parents
6	Socio-economic status of parents
7	Immunization coverage of vaccines given by Government of India free of cost at public health sectors: BCG, Oral Polio, DPT, Hepatitis B, Hib, Measles
8	Immunization coverage of vaccines recommended by IAP but not given free of cost by Government of India: Typhoid, Rotavirus, PCV, Hepatitis A, Varicella, MMR
9	Reason for not giving complete coverage of vaccination

Data was collected and analysed. Statistics was taken out in percentages.

**RESULTS**

In the present study, 100% mothers were literate, 140 mothers (70%) had education till high school, 60 mothers (30%) were graduate or postgraduate. 100 fathers (50%) had education graduation or more, 90 fathers (45%) had education till high school, 5 fathers (2.5%) had education till middle school. None were illiterate (Table 3).

**Table 3: Literacy of parents.**

Literacy	No. of mothers	%	No. of fathers	%
Illiterate	0	0	0	0
Primary and middle	0	0	5	2.5
High school and 12 <sup>th</sup>	140	70	90	45
Graduate or more	60	30	100	50

**Table 4: Socio-economic status.**

Socioeconomic status	No. of children	Percentage
Upper (I)	0	0
Upper middle (II)	40	20
Lower middle (III)	100	50
Upper lower (IV)	60	30
Lower (V)	0	0%

100 children (50%) were from lower middle (III) class, 60 children (30%) were from upper lower (IV) class while 40 children (20%) were from upper middle (II) class. None of the children belonged to socio-economic strata I (upper) and V (lower) (Table 4).

**Table 5: Immunization coverage of children given by Government of India free of cost.**

Immunization coverage	Number of children	Percentage
Fully immunized	170	85
Partially immunized	30	15

In the present study, 170 children (85%) received full immunization coverage which is given by Government of India free of cost while 30 children (15%) got partial immunization coverage which is given by Government of India free of cost (Table 5).

**Table 6: Immunization coverage of children not given by Government of India free of cost.**

Immunization coverage	Number of children	Percentage
Fully immunized	90	45
Partially immunized	110	55

In the present study, 90 children (45%) received full immunization coverage which is not given by Government of India free of cost while 110 children (55%) got partial immunization coverage which is not given by Government of India free of cost (Table 6).

**Table 7: Reasons for partial immunization.**

Reasons for partial immunization	Number of children	Percentage
Low awareness	80	40
Costly vaccines	70	35
Wrong beliefs	30	15
Less education	20	10

In the present study, parents of 80 children (40%) were not aware of proper vaccination schedule, parents of 70 children (35%) did not give full vaccination due to high cost, parents of 30 children (15%) had wrong beliefs while parents of 20 children (10%) couldn't understand the importance of vaccination due to less education (Table 7).

**DISCUSSION**

In the present study, mother's education had significant impact at least for basic immunization of children. If a mother is educated, definitely awareness about immunization of children is better. Also, children will be prevented from many diseases. Literacy rate was 100% in mothers, 140 mothers (70%) were educated till high

school, graduate or postgraduate qualification was obtained by 60 mothers (30%) (Table 3).

Phukan RK et al reported that 62.2% of the children were fully immunized. The children from urban areas and mother's education level showed significant role in immunization coverage. Improvement in female literacy would add to achieve a higher target of immunization among children.<sup>11</sup>

Father's education did not matter much for immunization of children. 100 fathers (50%) had education graduation or more, 90 fathers (45%) had education till high school, 5 fathers (2.5%) had education till middle school. None were illiterate (Table 3).

In the present study, socio-economic status of the parents mattered a lot for vaccines which are not provided by Government of India as these vaccines are costly. With more facilities from government and non-governmental organizations (NGOs), there can be improvement. Lower middle (III) class was seen in 100 children (50%), upper lower (IV) class was seen in 60 children (30%) while upper middle (II) class was seen in 40 children (20%). There was not a single child from socio-economic strata I (upper) and V (lower) (Table 5). Phukan RK et al reported that most of the children belonged to socioeconomic class III (21.5%) and class V (32.9%), immunization status is also more in these two classes (66.7% and 68.2%).<sup>11</sup>

Devasenapathy N reported that complete immunization coverage was 46.7%. 7.5% were not immunized. The odds of complete vaccination were higher if the mother was literate (1.6), if the child was born within the city (2.7), in a health facility (1.5), belonged to the highest wealth quintile (2.46) or possessed a birth certificate (1.40).<sup>12</sup>

In the present study, even though government is providing many basic vaccines free of cost, children are not fully immunized for these vaccines. More awareness and education are needed. Full immunization coverage was received by 170 children (85%) which is provided by Government of India free of cost while only partial immunization was received by 30 children (15%) irrespective of the fact that they are given by Government of India free of cost (Table 5).

In the present study, cost of the vaccines was the main barrier for not giving vaccines which are not provided free of cost. Full immunization coverage was received by only 90 children (45%) which is not given by Government of India free of cost while partial immunization coverage was received by 110 children (55%) which is not given by Government of India free of cost (Table 6).

In the present study, there were various barriers specially for costly vaccines. Unawareness of proper vaccination

schedule was seen in parents of 80 children (40%), high cost was the barrier in parents of 70 children (35%), wrong beliefs was the reason in parents of 30 children (15%) while parents of 20 children (10%) couldn't understand the importance of vaccination due to less education. Counselling can improve immunization coverage of children (Table 7).

Katrina F et al reported that parents act according to their attitudes to combination childhood vaccinations. Some parents believe that vaccines are unsafe and ineffective, and the diseases are mild and uncommon. They take risk of their own child's safety.<sup>13</sup>

Mathew G reported that immunization was delayed due to common childhood illness, lack of family support, negative attitude of the elderly at home, poor male participation, gender bias, apprehension of giving many vaccines at one time and adverse rumors. Other barriers included economic constraints, long distance to health facility, and loss of daily wages while attending immunization clinic, inconvenient timings and lack of effective communication with health personnel.<sup>14</sup>

## CONCLUSION

Education and socio-economic status of parents significantly influences the immunization coverage. Though the immunization coverage has increased over the last few years in general, booster doses are still neglected. There is need to create awareness about importance of booster doses. Parents should be given counselling regarding immunization schedule and its management.

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