



Study of Knowledge, Attitude and Practices on Immunization Among Parents of Children (<10 Year) in Urban Slums of Bhubaneswar City Odisha India

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ABSTRACT

Aim: The aim of the present study was to determine the knowledge, attitude and practices of mothers on immunization of children in urban slums of Bhubaneswar city, Odisha, India.

Methods: A community based, cross-sectional study was conducted in the urban slums of in the urban slums of Bhubaneswar city, India. A total of 300 children in the age group of 0 to 120 months were included in the study. Study conducted by the Department of Paediatrics, IMS AND SUM Hospital, Bhubaneswar in urban slums around the college. The study was conducted during a period of 12 months.

Results: Majority of mothers (58%) were in a group 21-25 years. 80% had delivery in health care facility. 138 (46 %) mothers were illiterate, 44% educated till secondary school. Pre-college and graduate were 2.66% and 1.34% respectively. 228 (76%) of mothers were housewives, and 15% worked on daily wages, 9% were employed. Most of the participants belonged to stage 4 (55%) followed by stage 2 (20%) according to socio-economic status B.G. Prasad classification. The most common source of information regarding immunization status was provided by health care workers i.e. 40% (120), followed by family/relatives 35% (105) and then 16% (48) was given by doctors. Neighbors contributed only 4.34% (13) and there were cases i.e. 2% where no one was there to provide the required information regarding immunization status of children. Regarding the vaccine specific data of children aged 0-2 years, Out of 300 children, maximum coverage was seen in BCG vaccine i.e. 75.92% followed by DPT1 i.e. 69.23%, OPV1 60%, Hepatitis B1 60%.

Conclusion: Immunization coverage in the urban slums of Bhubaneswar city is unfortunately still very low compared to national and international standards. A lack of awareness and motivation among the parents is the main reason for this discouraging scenario that needs to be sorted quickly as a priority basis.

INTRODUCTION

Immunization is one of the most cost-effective public health interventions since it provides direct and effective protection against preventable morbidity and mortality. It has been a major contributor in the decline of under-5 mortality rate from 233 to 63 (per 1000) in the last five decades in India.^{1,2} However, vaccine preventable diseases (VPDs) are still responsible for over 5 lakh deaths annually in India. Nearly 2–3 million children die each year from vaccine preventable diseases (VPDs).³

Evidence shows that unimmunized and partially immunized children are most susceptible to childhood diseases and disability, and run a 3–6 times higher risk of death as compared with fully immunized children. Despite universal immunization program, being operational for the past 30 years, only 65% children in India receive all vaccines during their first year of life. It is estimated that annually, more than 89 lakh children in the country do not receive all vaccines that are available under the universal immunization program—the highest



number compared with any other country in the world.⁴ Infant mortality rate (IMR) is considered as one of the most sensitive indicators of health status of a community. Infant mortality figures in India are very high. According to NFHS 4⁵ survey the IMR in India is 41 per 1000 live births and under five mortality rates is 50. Despite India being a leading producer of vaccines, it harbors one-third of the world's unimmunized children.²

Despite the fact that the scheduled immunization vaccines are provided free of cost at a majority of government run health facilities Recent evaluations have indicated that the major reasons for inability to reach with all vaccines to children in the country are lack of awareness among parents about the benefits of vaccination, fear of adverse events following immunization and operational reasons, such as non-availability of vaccines or vaccinators during vaccination sessions. Negative parental perceptions of vaccination are also an important barrier to childhood vaccination. Since mothers are the primary caregivers to the child, interventions targeted towards them can prove more effective.⁵ In urban areas, a large group of vulnerable population lives in slums, where mothers are illiterate and have numerous myths about vaccination; this results in children being unimmunized and increased susceptibility to diseases. Parents are the primary health decision-makers for their children, their knowledge and practices regarding immunization in general have a great impact on the immunization status of their children. With this background, the main objective of the present study was to assess the mothers' knowledge, attitude and practices regarding immunization and to determine factors associated with a child's immunization status.

The aim of the present study was to determine the knowledge, attitude and practices of mothers on immunization of children in urban slums of Bhubaneswar city, Odisha, India.

MATERIALS AND METHODS

A community based, cross-sectional study was conducted in the urban slums of in the urban slums of Bhubaneswar city, India. A total of 300 children in the age group of 0 to 120 months were included in the study. Study conducted by the Department of Paediatrics, IMS AND SUM Hospital, Bhubaneswar in urban slums around the college. The study was conducted during a period of 12 months.

All mothers/ responsible guardians of children aged 12-23 months were included in the study. After explaining the purpose of the study to the mothers/ responsible guardians, oral consents were taken. Mothers/responsible guardians who did not give consent were excluded from the study. Information regarding knowledge, attitude and practices was collected by using semi-structured proforma. Reasons for non-immunization as per the mothers' reports were recorded. Data collection procedure: Out of the enlisted slums, 6 slums were chosen. survey was done at urban slum primary school. After obtaining oral consents, A pretested structured questionnaire including socio demographic profile of mother was used to elicit Information about child's Immunization status, the mothers' knowledge of vaccine preventable diseases and any perceived barriers to vaccinate the child was noted. Information regarding knowledge, attitude and practices was collected by using a proforma.

Statistical data analysis: The necessary tables and graphs were prepared, the data was analyzed manually in the initial stages, and later computerized analysis was done using Percentage and chi square. p value. $P < 0.05$ was taken as statistically significant.

RESULTS

A total of 750 houses were surveyed. Total number of people in 750 houses was 3120. There were 270 children aged 0-2 years, out of which 125 (46.30%) were male and 145 were female (53.70%).

Table 1: Distribution of socio-demographic indicators of the respondents

Socio-demographic indicators	Mother (n=300)	Percentage
Age parents		
<20 yr	60	20
21 to 25yr	174	58
26 to 32 yr	45	15
33 to 45 yr	15	5



>45 yr	6	2
Place of delivery		
Healthcare facility	240	80
Home	60	20
Education		
Illiterate	138	46
Primary School	18	6
Secondary School	132	44
Pre-college	8	2.66
Graduate	4	1.34
Occupation		
Unemployed/housewife	228	76
Daily wage	45	15
Employed	27	9

Majority of mothers (58%) were in a group 21-25 years. 80% had delivery in health care facility. 138 (46 %) mothers were illiterate, 44% educated till secondary

school. Pre-college and graduate were 2.66% and 1.34% respectively. 228 (76%) of mothers were housewives, and 15% worked on daily wages, 9% were employed.

Table 2: Socio-economic status B.G. Prasad classification

Socio-economic status	Frequency	(%)
1	0	0
2	30	10
3	60	20
4	65	55
5	45	15

Most of the participants belonged to stage 4 (55%) followed by stage 2 (20%) according to socio-economic status B.G. Prasad classification.

Table-3: Immunization details of children aged 0-120 months

Parameters	Frequency (%)
Source of information	
None	6 (2%)
Health worker	120 (40%)
Doctor	48 (16%)
Family/relatives	105 (35%)
Neighbor	13 (4.34%)
Immunization card	
Has card	210 (70%)
Does not have	90 (30%)
Site of immunization Government	
Private	228 (76%)
Not given	60 (20%)
	12 (3%)

The most common source of information regarding immunization status was provided by health care

workers i.e. 40% (120), followed by family/relatives 35% (105) and then 16% (48) was given by doctors.



Neighbors contributed only 4.34% (13) and there were cases i.e. 2% where no one was there to provide the required information regarding immunization status of children. Out of all majority of the children i.e. 210

(70%) have immunization cards and 90 (30%) does not have. A large proportion of the children 228 (76%) had received their immunization from government sectors followed by private sector 60 (20%).

Table 4: Vaccine Specific Data of Children 0-2 years

Vaccine	Total number of children	Frequency	Percentage
BCG	270	205	75.92
DPT1	260	180	69.23
DPT2	240	144	60
DPT3	205	110	53.65
OPV1	250	150	60
OPV2	230	140	60.86
OPV3	190	95	50
HEP. B1	240	144	60
HEP. B2	235	130	55.31
HEP. B3	210	100	47.61
Measles1	150	70	46.66
Vitamin A1	150	50	33.34
DPT Booster1	115	20	17.39

Regarding the vaccine specific data of children aged 0-2 years, Out of 300 children, maximum coverage was seen in BCG vaccine i.e. 75.92% followed by DPT1 i.e. 69.23%, OPV1 60%, Hepatitis B1 60%. Vaccination coverage of DPT, OPV and Hepatitis B in 2nd and 3rd

doses was decreased in further doses. Measles 1st dose coverage was 46.66% and only 33.34% children received Vitamin A 1st dose. DPT Booster 1 was received by only 17.39% of children.

Table 5: EPI diseases named by participants

Vaccine preventable diseases	Number n=300	Percentage
Polio	240	80
Tuberculosis	90	30
Diphtheria	45	15
Tetanus	81	27
Pertussis	45	15
Measles	228	76
Hepatitis	108	36

None of the mothers could name all the EPI disease. The highest number (80%) named Polio and nearly 76% knew about the measles vaccine.

Table 6: Knowledge, attitude & awareness about immunization among mothers (n=300)

Knowledge assessment questions	Yes (%)	No (%)	Don't know (%)
Knowledge regarding vaccination	82	12	6
Vaccine should be given at birth	88	2	10



Vaccine prevents disease	86	3	11
Vaccine are harmful and cause side effects	16	74	10
Vaccine can be given in cough and cold	54	36	10
Vaccine can be given if child has fever	58	40	2
Child with diarrhea can be vaccinated	48	40	12
Attitude towards immunization among primigravida			
Will get my child completely immunized	82	14	4
Will follow vaccination schedule	70	20	10

Nearly Fifty one percent of the respondents knew that the child should be vaccinated even if it had minor illness during the time of immunization. 88% mothers were aware of the fact that vaccination should be given at birth.

Table 7: Reasons reported for incomplete immunization

Reasons for incomplete immunization	Percentage
Mother was busy/Domestic work	30
Child as unwell at the time of vaccination	20
Long waiting time for immunization	16
Mother was afraid of side effects	25
Unaware of optional vaccine	10
Mother was unaware of age-related vaccination	64
Health staff absent	12
Vaccine was not available at the centre	25
Child got fever from the previous vaccine	12
Lack of escort	17
Did not know the place and time for immunization	6

Majority 64% of mothers were unaware about the age-related vaccination whereas 30% mothers quoted domestic work as a reason for not getting time to vaccinate.

DISCUSSION

One of the most significant contributions of the medical fraternity to mankind is the advent of vaccines. They are the most powerful, safe and cost-effective measures for prevention/control of a number of diseases. The historical success of eradicating the dreaded disease, Smallpox, prompted World Health Organization (WHO) to ask its member countries to launch immunization against six vaccine preventable diseases in its national immunization schedule. In May 1974, the WHO launched the Expanded Immunization Programme (EPI) globally, with focus on prevention of 6 vaccine-preventable diseases by the year 2000. In India, EPI was launched in 1978 and it was re-designated as the Universal Immunization Programme (UIP) in 1985, with a goal to cover at least 85% of infants.⁶

Despite all efforts put by the government as well as non-government institutes for 100% immunization coverage, there are still pockets of low coverage areas. Urban slums constitute one of the high-risk areas for vaccine preventable diseases.⁷⁻¹⁰ Majority of mothers (58%) were in a group 21-25 years. 80% had delivery in health care facility. 138 (46 %) mothers were illiterate, 44% educated till secondary school. Pre-college and graduate were 2.66% and 1.34% respectively. 228 (76%) of mothers were housewives, and 15% worked on daily wages, 9% were employed. The study findings was similar to a study conducted in the resettlement colonies of the urban slums of Amritsar in 2011 who reported 42.9% of children of age 0-1 year were fully immunized, 27.1% were partially immunized and 30% children were unimmunized (Gill et al 2011).¹¹



Children of urban slum are highly exposed to outbreaks of vaccine preventable diseases due to high population density and continuous influx of infective agents in migratory population.¹² Maternal and child health indicators among slum-dwellers revealed that their health is 2-3 times worse than the people living in better urban areas.¹³⁻¹⁵ The most common source of information regarding immunization status was provided by health care workers i.e. 40% (120), followed by family/relatives 35% (105) and then 16% (48) was given by doctors. Neighbors contributed only 4.34% (13) and there were cases i.e. 2% where no one was there to provide the required information regarding immunization status of children. Out of all majority of the children i.e. 210 (70%) have immunization cards and 90 (30%) does not have. A large proportion of the children 228 (76%) had received their immunization from government sectors followed by private sector 60 (20%). This finding was similar to the findings of a study conducted by Bhole Nath et al, who concluded that Auxiliary Nurse Midwives (ANM's), paramedical workers were found to be the major source of providing information regarding immunization of children.¹⁶

The highest number (80%) named Polio and nearly 76% knew about the measles vaccine. Knowledge and awareness regarding complete immunization schedule at the primary healthcare level was emphasized in many studies.^{15,17} Singh et al¹⁸ reported in their study that mothers had fair knowledge regarding the need for immunization but had poor knowledge regarding vaccine preventable diseases. Mothers' inability to name or identify diseases other than poliomyelitis indicates that health education should be emphasized to enhance knowledge about the complete program. In the present study it was also seen that immunization status of the children were significantly associated with educational status of mother and it is found to be statistically significant but socioeconomic status of mother and the gender of the child had no statistically significant association with immunization status of the child. Majority 64% of mothers were unaware about the age-related vaccination whereas 30% mothers quoted domestic work as a reason for not getting time to vaccinate. A study by Kumar A¹⁷ 99.5% felt that immunization is important for their child. Although the attitude was good among the participants, the levels can be further improved by providing awareness and health education.

CONCLUSION

The parents' knowledge and attitude about vaccine preventable diseases and vaccination schedule was very poor is the main obstacle for the success of primary immunization. Every immunization program should strive to provide quality services that are accessible, convenient, reliable, friendly, affordable and acceptable and should solicit feedback from families and community leaders. Every program should monitor missed and under-vaccinated children and assess and address the causes. Every opportunity should be used to vaccinate children in these areas with the help of grass root level health workers to achieve the goal of 100% immunization coverage.

REFERENCES

1. World bank database Health Nutrition and Population Statistics.
2. Vashishtha VM, Kumar P. 50 years of immunization in India: progress and future. *Indian pediatrics*. 2013 Jan;50:111-8.
3. Global Immunization Data. 2014;(July):82-5.
4. MissionIndradhanush Operational Guidelines 2015. 5-10 p.
5. National family health survey (NFHS4).
6. Park K. Park's textbook of Preventive and Social Medicine, Banarsidas Bhanot Publishers. 22nd Edition, 2009; 114.
7. Kar M, Reddaiah VP, Kant S. Primary immunization status of children in slum areas of South Delhi-the Challenge of Reaching the urban poor. *Indian J Comm Med*. 2001;26(3):151-154.
8. Lodha R, Dash NR, Kapil A, Kabra SK. Diphtheria in urban slums in north India. *Lancet*. 2000;355 (9199):204.
9. Heininger U. An internet-based survey on parental attitudes towards immunization. *Vac*. 2006;24(37-39):6351-6355. Epub 2006 Jun 5.
10. Angadi MM, Jose AP, Udgiri R, Masali KA, Sorganvi V. A study of knowledge, attitude and practices on immunization of children in urban slums of Bijapur city, Karnataka, India. *J Clinic Diag Res: JCDR*. 2013;7(12):2803.
11. Gill KP, Devgun P. Impact of socio demographic factors on age appropriate immunization of infants in slums of Amritsar city (Punjab), India. *Natl J Community Med* 2015;6(1):11-15.



12. Agarwal S, Bhanot A, Goindi G. Understanding and addressing childhood immunization coverage in urban slums. *Indian Pediatr.* 2005;42(7):653-663.
13. Rao BT, Thakur JS. Vulnerability assessment in slums of union territory, Chandigarh. *Ind J Comm Med.* 2007;32(3):189-191.
14. National population policy 2000, Ministry of Health and Family Welfare, New Delhi Govt of India 2000.
15. Kapoor R, Vyas S. Awareness and knowledge of mothers of under five children regarding immunization in Ahmedabad. *Healthline.* 2010;1(1):12-15.
16. Nath B, Singh JV, Awasthi S, Bhushan V, Kumar V, Singh SK. KAP Study on Immunization of Children in a city of North India- A 30 Cluster Survey. *Online J Health Allied Scs.* 2008;7(1):2.
17. Kumar A, Unnikrishnan B, Rekha T, Mithra P, Kumar N, Kulkarni V, et al. Awareness and attitude regarding breastfeeding and immunization practices among primigravida attending a tertiary care hospital in southern India. *J Clinic Diag Res.* 2015;9(3):LC01.
18. Singh MC, Badole CM, Singh MP. Immunization coverage and the knowledge and practice of mothers regarding immunization in rural area. *Indian J Public Health.* 1994;38(3):103-107.