Coverage evaluation of primary immunization and the associated determinants in an urban slum of Eastern India

Ray SS, Patra L, Giri AK

ABSTRACT

Background: Immunization coverage has been found to be low in many coverage evaluation studies done in India, especially among the marginalized community.

Aim: To find the primary immunization coverage among the 12-23 months children and the determinants for the present status of immunization in an urban slum in Bhubaneswar.

Methods: The study included 193 children in the age group of 12-23 months in an identified slum. The tools used were the WHO immunization evaluation coverage survey format and a pretested semi-structured schedule. Immunization card data and recall of mother or the primary caregiver was considered for assessing immunization status.

Result: Of all the children covered, 41% were fully immunized and 59% were partially immunized. Negligence on the part of parents was found to be the key reason for incomplete immunization. Mother's literacy and father's occupation were found to be significantly associated with the status of child's immunization.

Conclusion: Our observations reemphasized the need for adequate and proper counseling of parents on their children's immunization.

Key words: urban slum, primary immunization, coverage evaluation

INTRODUCTION

Infectious diseases are major causes of morbidity and mortality in children throughout the world and more so in the developing countries. One of the most cost-effective interventions for infectious disease prevention is immunization which is provided through vaccines, immunoglobulins and antisera. In 2003 alone it is estimated that immunization averted more than 2 million deaths.[1] As per the Universal Immunization Programme (UIP) in India, since 1985, vaccination against six vaccine preventable diseases is being given. The NFHS data showed an increasing trend in "fully immunized" children from 36.1% (1992-93) to 51.8% in 2005-06.[2]

The reported coverage does not provide the true picture. The slum population comprises of a marginalized group within an overall urban set up, deprived of many social and health benefits. According to a study done among the children in an urban slum, the evaluated coverage of fully immunized children was found to be only 60%.[3] In this context the present study was conducted to assess the primary immunization coverage of children aged 12-23 months of age and the various determinants associated with full immunization in an urban slum in Bhubaneswar, Odisha.

MATERIALS AND METHODS

The study was carried in the slums of Niladri Vihar in Bhubaneswar, Odisha. This is the field practice area of the 'Urban Health and Training Centre' of the department of community medicine, Kalinga Institute of Medical Sciences. The total population of the slum is around 9000. All children in the age group of 12 -23 months were included in the study. After due consent, the mother or the primary care giver was interviewed using the WHO immunization evaluation coverage survey format[4] and another pre tested semi structured schedule. If the immunization card was available it was taken as the most accurate source of information. If it was not available BCG scar and mother's or the primary care giver's information was considered as final. The data were analyzed using EPI INFO 3.5.1. The results were expressed in proportions, and Chi-square test was used as the test of significance at a confidence level of 95%.

The following criteria were used for completeness of immunization. Full immunization- a child who had received three doses of DPT and OPV each and

one dose of BCG and Measles each. Partial immunization– a child who has missed any one or more of the above doses. No immunization– a child who did not receive even a single dose of any vaccine.

RESULTS

In the present study, data was collected from 193 children between the age group of 12-23 months. Immunization card was available for 74.2% of children. Of all the children covered, 41% were fully immunized and 59% were partially immunized. No statistical difference was found between boys and girls in both fully immunized and partially immunized groups [Table 1]. The commonest reason for incomplete immunization was found to be negligence on the part of the parents. [Table 2] No significant difference was observed between immunization and the type of family, father's literacy, mother's occupation and monthly income of the family. However, incomplete immunized child is found to be significantly associated with father's occupation ($?^2$ =5.87; p value=0.014) and mother's literacy ($?^2$=13.84; p value=0.0002) [Table 3].

Table 1: Immunization status of children

	Male	Female	Total	χ2	P value
Fully Immunized	45(46%)	35(36%)	80	2.316	0.128
Partially Immunized	51(54%)	62(64%)	113	2.315	0.936
TOTAL	96(100%)	97(100%)	193		

Table 2: Reasons for partial immunization of the child.

Reason	Children No.	(%)
Child unwell, immunization postponed	17	16%
Lack of knowledge of immunization schedule	12	11.3%
Migration to native village	4	3.8%
Mother ill	2	1.8%
Due for 2nd/3rd dose, started late	1	0.9%
Financial Problem	1	0.9%
Negligence	62	58.5%
Health worker not available	4	3.8%
Site inaccessible	3	2.8%
Total	106	100%

DISCUSSION

Few studies have been done to find the immunization coverage among children in slums. The proportion of fully immunized children found in the present study was quite low (41%) in comparison to similar studies done in south Delhi (69%),[5] Jamnagar (73%),[6] and Goa (85%).[7] Among the reasons for incomplete immunization, negligence on the part of the parents' was found to be common. This indicates a need for better counseling of parents about the importance of immunization and all related issues.

Table 3: Factors determining the immunization status of children

	Variables	Fully immunization (n=80)		Partial/non-immunization (n=80)		?2 P value
Type of Family	Nuclear	68	85%	92	89%	0.4245
	Joint	12	15%	21	11%	0.5347
Mother's literacy Status	Illiterate	23	29%	63	61%	13.84
	Literate	57	71%	50	39%	0.0002
Father's literacy status	Illiterate	19	24%	39	39%	2.58
	Literate	61	76%	74	61%	0.10
Religion	Hindu	73	91%	98	95%	0.95
	Non Hindu	7	9%	15	5%	0.33
Mother's Occupation	Housewife	66	83%	84	82%	1.8
	Working	14	17%	29	18%	0.1794
Father's Occupation	Labourer	27	34%	58	56%	5.87
	Business/service	53	66%	55	44%	0.0154
Monthly Income (INR)	Upto 5000	65	81%	90	80%	0.0762
	5001 and	15	19%	23	20%	0.7825

In the present study, it was seen that children whose mother is literate are more likely to be fully immunized although father's literacy has no significant effect. This reiterates the findings from many studies which found that if the mother is literate the children have better health parameters. The study also showed that children whose father works as laborer are more likely to miss the immunization.

In conclusion, there is an urgent need to strengthen the existing immunization program among the marginalized communities like those residing in urban slums. Special emphasis should be placed on proper and adequate counseling of parents regarding the various benefits of immunization.

ACKNOWLEDGEMENTS

Our sincere thanks to ICMR for financial support.

AUTHOR NOTE

Satyajit Sundar Ray, Assistant Professor, **(Corresponding Author)** dr.ssray@gmail.com
Lopamudra Patra, Undergraduate
Anjan Kumar Giri, Assistant Professor
Department of Community Medicine, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha

REFERENCES

1. WHO, UNICEF. GIVS-Global immunization vision and strategy, 2006-2015.
2. Government of India. Ministry of Health and Family Welfare. New Delhi. National Family Health Survey (NFHS III) 2005 – 06.
3. Agarwal S, Bhanot A, Goindi G. Understanding and Addressing Childhood Immunization Coverage in Urban Slums. *Indian Pediatrics*. 2005;42:653-63.
4. WHO. Immunization, Vaccines and Biologicals. Immunization coverage cluster survey – Reference manual. 2005.
5. Kar M, Reddaiah VP, Kant S. Primary Immunization status of children in slum areas of south Delhi- the challenge of reaching urban poor. Indian Journal of *Community Medicine.* 2001;26(3):151-154
6. Yadav RJ, Singh P. Immunization Status of Children and Mothers in the State of Madhya Pradesh. Indian Journal of *Community Medicine.*2004; 29(3):147-48.
7. Dalal A, Silveria MP. Immunization Status of Children in Goa. *Indian Pediatrics.* 2005;42:401-2.