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Psychosocial Determinants Of Immunisation Status Of Children In An Urban Slum In Maharashtra, India

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Abstract:
Background: Immunization is the most cost effective public health interventions to reduce morbidity and mortality resulting from vaccine preventable diseases. Urban slums constitute a high risk area for such diseases. To gauge the psychosocial determinants of immunisation status of children, this study was conducted in an urban slum area in Maharashtra, India.
Methods: All children less than the age of five years were included in the study. Data was collected by conducting house to house visits after line listing of the relevant houses, using a pre-tested and pre-validated interview schedule. Statistical method of estimation was used for psychosocial determinants with respect to complete immunization, partial immunized and non-immunization percentages by 95% confidence interval.
The results: No significant difference was found in the immunisation status of boys and girls. Maximum number of first birth order children was found to be fully immunized.
Conclusion: A variety of psychosocial factors influenced the immunisation status of children in this set-up. There is a felt need to educate the community and increase awareness so that the status of immunisation improves. Stress should be laid on the completion of immunisation of every child.

Key words: *immunisation, preventable, slum, urban, vaccine*

1.Introduction

The success of eradication of small pox supported by the World Health Organisation (WHO), made the Government of India and other associated bodies realise the importance of immunization all the more[1]. It has been proven from time to time that immunization is the most cost effective public health interventions to reduce morbidity and mortality resulting from vaccine preventable diseases. The sixth five-year plan strengthened immunization coverage by planning to bring down the infant mortality rate (IMR) from 127 to 64[2]. In context with these efforts, in India, Expanded Programme on Immunization (EPI) and Universal Immunization Programme (UIP) were launched in 1978 and 1985 respectively. The aim was to immunize all children against six killer diseases namely Diphtheria, Whooping cough, Tetanus, Poliomyelitis, Tuberculosis and Measles[3]. Despite all efforts put by the government for achieving 100% immunization coverage, there are many pockets existing of low coverage areas. Slums in urban areas constitute one of the highest risk areas for vaccine preventable diseases. India alone is home to roughly 170 million slum dwellers. About one-third of these are children under five years of age. Given the poor and congested living environment of slums, limited access to basic services such as piped water and improved sanitation, there is an increased risk of infectious diseases among children, many of which are vaccine preventable. In a study conducted in Delhi 69.3% of the children were found fully immunized with BCG, DPT3, OPV3 and measles; 15.7% of them were partially immunized while 15.1% were non-immunized[4]. A similar study conducted in Wardha district found that only 52.5% children were fully immunized[5]. The fall in immunization coverage is a cause for concern since it may lead to the re-emergence of a few of these easily preventable killer diseases[6, 7]. Vaccination coverage assessed by sources such as the Ministry of Health and Family Welfare[8] as well as the Indian Council of Medical Research[9], have consistently suggested an acceptably high prevalence of vaccine coverage in India. In contrast, certain independent sources like joint WHO-UNICEF report had revealed 20-30% differences from the data for each vaccine given officially in the national program. More recently, National Family Health Survey (NFHS) series have shown that the true vaccination coverage is actually even lower than was believed earlier. The latest

NFHS report[10] reveals the national average for complete vaccination at 43.5%. This, however, fails to bring out the fact that states like Tamil Nadu (with 81% coverage), are faring far better than states like Nagaland (with 21% coverage). This disparity in immunisation coverage has been brought out by many studies conducted in different states of the country[11-14]. Children with higher birth order, Muslim religion, residing in rural areas, with low parent education and socioeconomic status and those from large household size have been found to be having a significant low immunization coverage ($P<0.05$). Also a trend analysis showed improvement in immunization status with improvement in parent education, socioeconomic status and decreasing family size[12]. The present study was an attempt to gauge the psychosocial determinants of immunisation status of children in an urban slum in Maharashtra, India.
Aims and objectives: This study was undertaken to assess the immunization status of BCG, DPT, OPV, Hepatitis B, Measles, Oral Vitamin A and to study the psychosocial factors related to it in an urban slum in Maharashtra, India.

2.Material And Methods

2.1.Ethics Statement
This study complies with the guidelines of the 1964 Declaration of Helsinki. Informed consent of all the participants was taken and their anonymity was maintained. No photographs of the subjects were taken during the study.

2.2.Procedure
This was a cross-sectional type of community based study on immunization status in children less than five years of age. It was conducted in an urban slum setting in Maharashtra, India. All children less than the age of five years (whose parents consented) and were permanently residing in that slum were included in the study. The children who were not permanent residents of that slum were excluded. Age was ascertained as per birth record of the child. Data was collected for a total of 74 children by conducting house to house visits after line listing of the houses which had children less than five years of age, using a pre-tested and pre-validated interview schedule. Analysis was done by using EpiInfo software. Statistical significance of difference of association was tested by Chi-square test. Statistical method of estimation was used for psychosocial determinants with respect to complete immunization, partial immunization and non-immunization percentages by 95% confidence interval.

3.Results And Statistical Analysis
On analysing the data, distribution of children based on their status of immunization (Figure-1) showed that out of 74 children studied, 62 were fully immunized (83.8%) and 12 were partially immunized (16.2%).

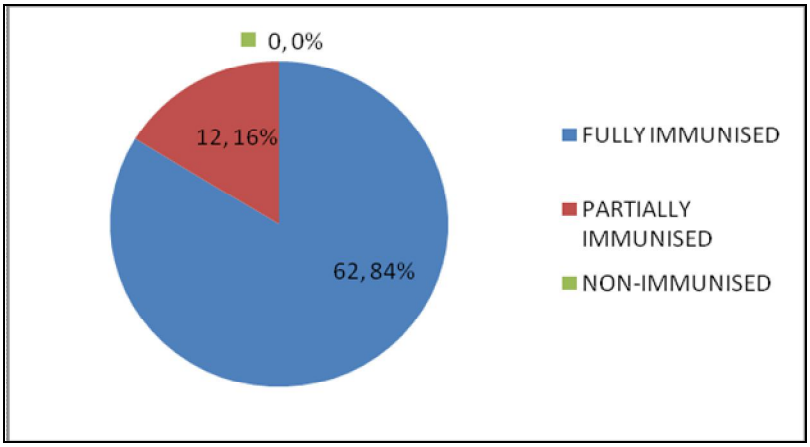

Figure 1: Distribution Of Children Based On Their Status Of Immunization

Comparison of immunization percentage among male and female (Figure-2) showed that more female children were fully immunized than male children. However this difference was not found to be statistically significant.

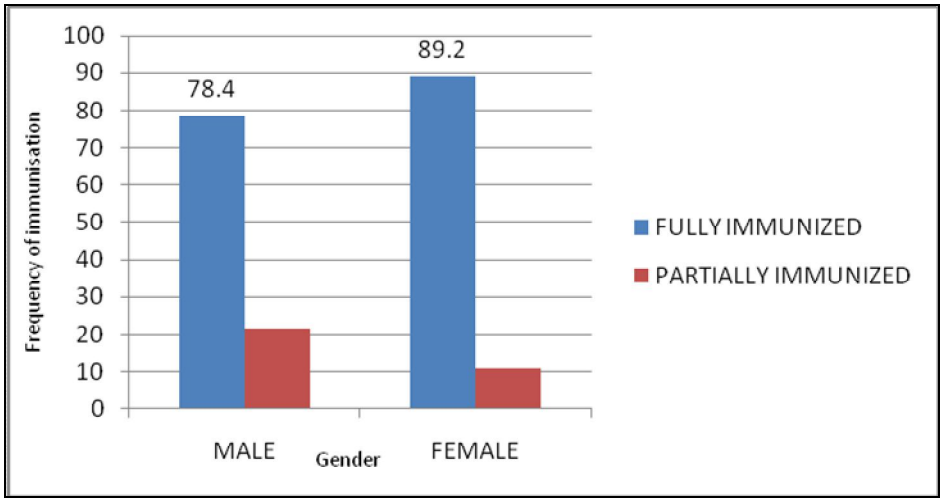

Figure 2: Distribution Of Children Based On Sex And Immunisation Status

Among fully immunized children (Table-1), Hindus constituted the maximum (58.1%) while Christians constituted the minimum (4.8%). Among partially immunized children, Hindus again constituted 58.3%, Muslims constituted 41.7% while no Christian children were partially immunized.

Religion		**Status of immunisation**		**Total**
		Fully immunised	**Partially immunised**	
Christian	Count	3	0	3
	% within religion	100.0%	0	100.0%
	% within status of immunisation	4.8%	0	4.1%
	% of total	4.1%	0	4.1%
Hindu	Count	36	7	43
	% within religion	83.7%	16.3%	100.0%
	% within status of immunisation	58.1%	58.3%	58.1%
	% of total	48.6%	9.5%	58.1%
Muslim	Count	23	5	28
	% within religion	82.1%	17.9%	100.0%
	% within status of immunisation	37.1%	41.7%	37.8%
	% of total	31.1%	6.8%	37.8%
Total	Count	62	12	74
	% within religion	83.8%	16.2%	100.0%
	% within status of immunisation	100.0%	100.0%	100.0%
	% of total	83.8%	16.2%	100.0%

Table 1: Distribution Of Children Based On Religion And Immunisation Status

$X^2 = 0.636$ $p = 0.728$

Immunization status of children based on their birth order (Table-2) showed that the birth order of the child did not affect the immunisation status as such although maximum number of first birth order children were found to be fully immunized.

Birth order		**Status of immunisation**		**Total**
		Fully immunised	**Partially immunised**	
1	Count	33	6	39
	% within birth order	84.6%	15.4%	100.0%
	% within status of immunisation	53.2%	50.0%	52.7%
	% of total	44.6%	8.1%	52.7%

2	Count	25	6	31
	% within birth order	80.6%	19.4%	100.0%
	% within status of immunisation	40.3%	50.0%	41.9%
	% of total	33.8%	8.1%	41.9%
3	Count	4	0	4
	% within birth order	100.0%	0	100.0%
	% within status of immunisation	6.5%	0	5.4%
	% of total	5.4%	0	5.4%
Total	Count	62	12	74
	% within birth order	83.8%	16.2%	100.0%
	% within status of immunisation	100.0%	100.0%	100.0%
	% of total	83.8%	16.2%	100.0%

Table 2: Immunization Status Of Children Based On Their Birth Order

X^2 =1.019 p = 0.601

Analysis of the immunisation status of children was found to be variable where education of the respective fathers was concerned. It was not found to be statistically significant, with p = 0.569. However, it was generally observed that more was the educational qualification of the mother, better was the immunisation status of the children (although this observation too was not found to be statistically significant, with p = 0.443). The occupation of both parents had no significant bearing on the immunisation status of the child.

4.Discussion

From the present study it has been observed that out of 74 children studied, 62 were fully immunized (83.8%) and 12 were partially immunized (16.2%). There was no child up to five years of age who had not received any immunisation. These results are comparable to many other studies conducted elsewhere in the country[15, 16]. One study conducted in a slum in Delhi found that 50.4% children were fully immunized, 41.9% were partially immunized and 7.6% were not immunized at all. Another study in Goa showed that 85.35% children were fully immunized, 11.87% were partially immunized while 2.76% were unimmunized[12].

Gender difference in immunisation in the present study was also found to be comparable with other studies, where among male children, 78.40% were fully immunized, 21.60% were partially immunized while among females, 89.20% were fully immunized and 10.80% were partially immunized. The UNICEF (2005) survey across 22 states reported complete vaccination among 53.9% female children compared to 55.1% males[17]. A higher proportion of boys (53%) than girls were surveyed in NFHS-310 and the complete vaccination rate was 45.3% and 41.5% for boys and girls respectively. Another study conducted in Goa[12] found that the percentage of fully vaccinated, partially vaccinated and unvaccinated boys were 84.6%, 13.8% and 1.6% respectively. The same was 86.2%, 9.8% and 4.0%, respectively, for the girls. A research study in Assam having evaluated the vaccination status of infants on the basis of examination of vaccination cards and maternal recall, found that complete vaccination was higher among male infants (64.6%) as compared to females (59.3%) [18].

In the present study, immunization status of children based on religion showed that among fully immunized children, Hindus constitute 58.1%, Muslims 37.1% and Christians 4.8%. Among partially immunized children Hindus constitute 58.3%, and Muslims constitute 41.7%. The NFHS-3 survey[10] defined the religion of infants by that of the head of the family. In general, it was observed that the complete vaccination coverage was higher among Christian and Sikh children. However, the rate of non-vaccination was also higher among these religious groups. Children from Muslim households had a lower complete vaccination coverage and a higher non-vaccinated than children from Hindu families. UNICEF coverage evaluation survey 2010 revealed complete vaccination in 61.2% of Hindu infants, 55.7% of Muslim infants, 78.2% of Sikh infants, 65.6% of Christian infants, and 76.6% infants of other religions[19]. The Department of Family Welfare survey[20] reported the highest proportion of complete vaccination amongst children of Sikh families (71.4%), followed by Christian (65.9%), Jain (61.8%), Hindu (56.9%) and Muslim (47.2%) infants.

The proportion of fully vaccinated children by their birth order in the present study was found to be 84.6% (first order), 80.6% (second), 100% (third). The proportion of partially vaccinated children was 15.4% among first order and 19.4% among second order. NFHS-3 data[10] showed the trend of decline in vaccination with the increase of birth order, where the proportion of fully vaccinated infants was 54.6% (first order), 45.3% (second or third), 29.9% (fourth or fifth) and 18.5% (sixth or higher). The proportion of unvaccinated infants showed a direct relationship; 3.7% among first order, 4.7% among second/third order, 7.0% among fourth/fifth, and 8.6% among sixth/higher order[10]. In a survey of vaccination status of children living in urban slums of Agra city[21], nearly two-thirds of the unvaccinated infants had birth orders two or greater.

In the NFHS-3 survey[10] there was higher complete vaccination and lower non-vaccination among infants of mothers with more years of formal education. Although from the present study, the educational status of mother or father has not been found to be statistically significant, the results may vary if the study is repeated with a larger sample size. Data was also collected regarding Vitamin A coverage. 44.5% of children in the present study had taken the first dose of Vitamin A, 15.8% of children had taken the second dose, 2.0% of children had taken third dose but none of them had taken the fourth and fifth doses. The results are comparable to other studies conducted in the country where it was found that only 37.6% children had received vitamin A-first dose supplement[23]; at least one dose was given to 75.9% (25.9% had received two and 6% had received three doses)[4].

5.Conclusion

To conclude, this study was done to delve into the psychosocial determinants of immunisation status of the children in an urban slum of Maharashtra, India. Out of 74 children studied under five years of age, 37 were males and 37 females. Of these, majority were Hindu by religion, i.e., 47 children. 62 children were fully immunized (83.8%) while 12 were partially immunized (16.2%). The study showed that sex of the child, religion, education and occupation of parents, birth order of child, or type of family does not seem to influence the immunization status of child. Most common reasons for partial immunization were lack of information, ignorance and casual attitude of parents. Vitamin A coverage was really low in the area. First dose is given to most children but subsequent doses are not given. There is a felt need to educate the community and increase awareness regarding immunisation so that the status of immunisation improves. Therefore, it was felt that health education activities carried out must lay more stress on completion of immunisation of every child.

6.Acknowledgements

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7.Funding Statemen

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8.Conflicts Of Interest

None identified.

9.References

1. http://www.who.int/topics/smallpox/en. Accessed on 18 Jan 2012.
2. http://www.nic.in/mohfw/intro. Accessed on 18 Jan 2012.
3. http://www.nic.in/mohfw/intro. Ministry of Health and Family Welfare, New Delhi, 1996. Accessed on 18 Jan 2012.
4. 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 Journal of Community Medicine.2001-07-2001-09; 26 (3): 151-54.
5. Singh MC, Badole CM, Singh MP. Immunization coverage and Knowledge and Practice of mothers regarding immunization in rural areas. Indian Journal of Public Health. 1994; 38 (3): 103-07.
6. Extract from Express Health Care Management, Issue 01-15 November 2001.
7. 7.http://www.who.int/immnization_monitoring/routine/Facilitator_guide_EPI_coverage_survey.pdf. Accessed on 18 Jan 2012.
8. Multi Year Strategic Plan 2005–2010. Universal Immunization Programme. New Delhi: Department of Family Welfare, Ministry of Health and Family Welfare Government of India; 2005.
9. Singh P, Yadav RJ. Immunization status of children of India. Indian Pediatr. 2000; 37: 1194-99.
10. International Institute for Population Sciences (IIPS) and Macro International. National Family Health Survey (NFHS-3), 2005-06: India. Mumbai: IIPS; 2008.
11. Inamdar M, Piparsania S, Inamdar S, Singh K. Immunization status of school children of Indore hailing from different socioeconomic status. National Journal of Community Medicine 2011;2:219.
12. Dalal A, Silveria MP. Immunization status of children in Goa. Indian Pediatrics. 2005; 42:401-402.
13. Sharma R, Desai VK, Kavishvar A. Assessment of immunization status in the slums of Surat by 15 clusters multi indicators cluster survey technique. Indian J Community Med 2009;34:152-5.
14. Yadav RJ, Singh P. Immunization status of children and mothers in the state of Madhya Pradesh. Indian Journal of Community Medicine.2004;29(3):147-148.
15. Kadri AM, Singh A, Jain S, Mahajan RG, Trivedi A. Immunization coverage in urban slums of Ahmedabad city. Health and Population: Perspectives and Issues, 33 (1);50-54:2010.
16. Imteyaz A, Pal R, Akram M, Ahmad M, Shah H. Correlates of the immunization status of children in an urban slum of Delhi. Ann Trop Med Public Health 2008;1:59-63.
17. Coverage Evaluation Survey. All India Report 2005. Available from: http://202.71.128.172/nihfw/nchrc/sites/default/files/All India Report 2005 Coverage Evaluation Survey.
18. Phukan RK, Barman MP, Mahanta J. Factors associated with immunization coverage of children in Assam, India: over the first year of life. J Trop Pediatr. 2009;55:249-52.
19. UNICEF. 2009 Coverage Evaluation Survey. Government of India, Ministry of Health & Family Welfare and UNICEF. Available from: www.unicef.org/india/health_ 5578.htm and www.unicef.org/india/National_Fact_ Sheet_CES_2009.pdf.
20. Department of Family Welfare, Ministry of Health and Family Welfare, Government of India. Coverage Evaluation Survey – 2002. IPPI, Routine Immunization and Maternal Care. National Report. Available from: http://202.71.128.172/nihfw/nchrc/sites/default/files/Coverage Evaluation Survey 2002-20IPPI, Routine Immunization and Maternal Care-National Report.
21. Ghei K, Agarwal S, Subramanyam MA, Subramanian SV. Association between child immunization and availability of health infrastructure in slums in India. Arch Pediatr Adolesc Med. 2010;164:243-9.
22. Sachdeva S, Datta U. Vitamin A-first dose supplement coverage evaluation amongst children aged 12-23 months residing in slums of Delhi, India. Indian J Ophthalmol 2009;57:299-303.