Original Article

An Study on Utilization of Immunization Services by Slum Dwellers of Municipal Corporation Area of Rewa City in Madhya Pradesh

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Abstract

Background: Immunization plays an important role in reducing child mortality and morbidity. Children's of the urban poor suffer accentuated vulnerability to illnesses, as outbreaks of vaccine preventable diseases are more common in urban slums.

Objective: To assess the immunization coverage in the urban slums of Rewa City.

Methodology: A cluster survey based on probability proportion to size advocated under multi-indicator cluster survey by World Health Organization was used. Result: With regard to vaccinations; it was found that coverage was the highest for DPT-1 and OPV-1 (88.5%) and the lowest for measles vaccine (66.6%). Only 99 (47.1%) children had received Vitamin A at the time of measles vaccination. The coverage rate for all the vaccines was slightly higher among males as compared to females. Fully immunized children's were 60.7 % and immunization coverage for individual vaccine was found to be more among the males as compared to females though the difference was found to be statistically insignificant.

Conclusion: The study reflects low immunization coverage and non-utilization of measles vaccination and Vitamin A supplementation by slum dweller beneficiaries.

Key Words: Immunization, , slum children's .

Introduction:

Immunization forms the major focus of child survival programmes throughout the world. Roughly three million children die each year of vaccine-preventable diseases with a disproportionate number of these children residing in developing countries[1]. A recent estimate suggests that approximately 34 million children are not completely immunized with almost 98 per cent of them residing in developing countries[2]. In May 1974, the World Health Organization (WHO) officially launched a global programme known as Expanded Programme of Immunization (EPI) to protect all the children of the world against six vaccine-preventable diseases (VPDs) by the year 2000. EPI, launched in India in January 1978 was re-designated as Universal Immunization Programme (UIP) in 1985 and is being implemented through the existing network of the primary health-care system, including Primary Health Centres (PHCs), sub-centres, and referral centres called Community Health Centres. The main aim of UIP is to avert morbidity and mortality due to the six vaccine preventable diseases. The current scenario depicts that immunization coverage has been steadily increasing but the average level remains far less than the desired. Still only 44 % of the infants in India are fully immunized (NFHS-III) which is much less than the desired goal of achieving 85% coverage[3]. Though there is increased accessibility of health care services in both urban and rural areas, still the utilization of health care services is low by the different segments of the society[4]. 27.8 % of the Indian urban poor live in slums and they are at the highest risk of disease transmission (Census 2001) Maternal and child health indicators among slum-dwellers show that their health is 2-3 times worse than people living in better urban areas[5]. Children of the urban poor suffer accentuated vulnerability to illnesses as outbreaks of vaccine-preventable diseases are more common in urban slums owing to high population density and continuous influx of new pool of infective agents with immigrating population[6]. Assessment of immunization coverage was done for six vaccine-preventable diseases amongst children aged 12-23 months.

Objective: To assess the immunization coverage in the urban slums of Rewa City.

Methodology:

Study design: Community-based, observational, cross-sectional study.

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Study period: one year from April to March. Study area: slums area of Rewa city.

Inclusion criteria: Children between the ages of 12-23 months of either sex were included in the study residing in notified slum area for immunization coverage.

Sample size: A total of 210 children from 900 household between 12-23 months old.

Sampling technique: . 30 cluster technique approved by WHO & UNICEF & Govt. Of India was used to assess the immunization coverage. From each of these clusters, the immunization status of 7 children between 12-23 months old was collected. The starting point of each cluster was selected by its central point by the coin tossing method. After entering the cluster, the first household was chosen for interview on the basis of the last 4 digits of a randomly chosen currency note and tallying the same with the house number. House-to-house visits and face-to-face interviews were conducted in each of these clusters until 7 children between 12-23 months old were found.

Technique used: Information on immunization coverage is derived from vaccination cards, if available, and from the mother's memory, if she could not show a card. Each mother was asked whether she had a vaccination card for each child born. If a card was available, the interviewer copied the date for each vaccination from the card. If the mother could not produce a vaccination card, she was asked whether the child had received any vaccinations. If the child had been vaccinated, the mother was asked whether the child had received one or more vaccinations against each of the six diseases. For DPT and polio, information was obtained on the number of injections or oral doses give.

Outcome variable: The Immunization coverage was assessed on the basis of sex, religion, type of family, occupational status of the head of the family, stated average monthly family income and education status of the mothers.

Statistical analysis: Data were analyzed in the rates and proportion of immunization coverage, Chi-Square test was applied to calculate the significance.

Observation & Discussion:

The analysis of immunization coverage in this report focuses on the 210 children who were 12–23 months of age at the time of survey. This age group was selected because full immunization is recommended for all children by age one year. According to World Health Organization (WHO) guidelines, the recommended immunization schedule is: BCG immunization (against tuberculosis) at birth; three doses of DPT (diphtheria, pertussis, tetanus) vaccine and three doses of oral polio vaccine at 6, 10, and 14 weeks after birth; and measles immunization at nine months after birth.

A total of 900 families with 5402 subjects were covered in 30 clusters. The population consisted of 51.1 % males and 48.9 % females in the selected clusters. There were 703 children under- five years of age. Average family size was 6 and sex ratio was 955 females per 1000 males. A total of 210 children aged 12-23 months were studied (Table 1).

Table: 1 General Information of the Households Studied

Household Information	No.
Total number of the households studied	900
Total number of persons in the household	5402
Total number of clusters studied	30
Total number of males in the families	2762
Total number of females in the families	2640
Total number of children 12-23 months of age	210
Average family size	6
Sex Ratio = No of females/1000 male	955

Table: 2 Immunization Status of Children Aged 12-23 Months (n=210)

	Male		female		Total		P value	
	n	%	n	%	n	%		
Total children	106	50.5	104	49.5	210		$_x2$	P
Vaccine card available					94	44.7		
Full immunized	62	58.5	66	63.5	128	60.7	.35	>.05
Partially immunized	37	34.9	31	29.8	68	32.7	.41	>.05
Non immunized	07	6.6	7	6.7	14	6.6	.001	>.05
BCG	88	83	86	82.7	174	82.8	.0039	>.05
DPT 1	95	89.6	91	87.5	186	88.5	.07	>.05
DPT 2	88	83	80	76.9	168	80	.867	>.05
DPT 3	75	70.8	73	70.2	148	70.4	.007	>.05
OPV 1	95	89.6	91	87.5	186	88.5	.07	>.05
OPV 2	88	83	80	76.9	168	80	.867	>.05
OPV 3	75	70.8	73	70.2	148	70.4	.007	>.05
Measles	69	65.1	71	68.3	140	66.6	.116	>.05
Vitamin A	48	45.2	51	49	99	47.1	.165	>.05
Dropout rate %								
DPT (1-2)		7.4		9.8		9.7		
DPT (2-3)		14.7		8.7		11.9		
DPT (1-3)		21		19.7		20.4		
OPV (1-2)		7.4		12.1		9.7		
OPV (2-3)		14.7		8.7		11.9		
OPV (1-3)		21		19.7		20.4		
BCG to Measles		21.6		17.4		19.5		
DPT 1 to Measles		27.3		21.9		24.7		

Table: 3 Reasons for partial Immunization & immunization failure of child

S no.	Reason	Number	Percentage
	Social		
1	Unaware of immunization	42	51.2
2	Wrong information about contraindication	12	14.6
3	Mother too busy	19	23.1
4	Family authority	10	12.2
5	Mobile population	11	13.4
6	Lack of motivation	14	17.1
	Medical		
1	Child ill, not brought	09	10.9
2	Child ill, brought but not given	05	6.1
3	Illness of mother	09	10.9
4	Side effect of first visit	05	6.1
	Others		
1	Place of immunization too far to go	02	2.4
2	Vaccinator absent	02	2.4
3	Vaccine not available	04	4.8
4	Place & time of vaccination unknown	04	4.8
5	Unaware of immunization day	59	71.9

Out of the total target children; findings in Table 2 show that 50.5% were males and 49.5% were females. Vaccination card was available for 94 (44.7%) of the children and for the remaining children unavailable, it was relied upon the parents' recall memory. With regard to type of vaccinations, coverage was the highest for DPT-1 and OPV-1 (88.5%). The coverage rates for polio and DPT are about the same because the two vaccines are usually administered together. The coverage rate lowest for measles vaccine (66.6%). Only 99 (47.1%) children had received Vitamin A supplement at the time of measles vaccination. Not surprisingly, levels of immunization coverage are much higher for children with vaccination cards than for children without them. The coverage rate for all the vaccines was slightly higher among males as compared to females though it was found to be statistically insignificant. ($p>0.05$ for BCG, $p>0.05$ for DPT-1, $p>0.05$ for DPT-2, $p>0.05$ for DPT-3, $p>0.05$ for OPV-1, $p>0.05$ for OPV-2, $p>0.05$ for OPV-3, $p>0.05$ for measles). (chi square test & df 1).

The decline (dropout rate) from first dose to third dose was found to be minimal for DPT and OPV (20.4%). However, there was consistent decline in the coverage rate from DPT-1 to measles (24.7%). The dropout rate was found more among males as compared to females for all the vaccines. 60.7% of the children were fully immunized and immunization coverage was found to be more among the females as compared to males though the difference was found to be statistically insignificant ($p>0.05$). In rest of the children (32.7 %) were partially immunized & 6.6% were not immunized. However, fully immunized female children were more as compared to the male children though the difference was not significant. ($p>0.05$). While partially immunized male children were more as compared to the female children though the difference was not significant. ($p>0.05$).

The reasons for incomplete & unimmunization were asked from the mothers, which are listed in Table 3. Freeman reported that provision of information to mothers regarding when to start the immunization and how often the child should be immunized were the key factors in determining immunization status. Maternal education was found to be positively associated with the knowledge about immunization, but was not significantly associated with actual immunization practice[7].

The major cause for incomplete & unimmunization was unaware of immunization day (71.9%), lack of knowledge about immunization (51.2%) and mother too busy so they does not have time to go for immunization (23.1%).Studies done in West Bengal and Delhi indicate that incorrect information regarding immunization of child during illness leads to non/partial immunization (8,9). Vitamin A coverage with at least one dose was 47.1%.

Mother's literacy status was found to have ignificantly affected the coverage ($p<0.05$) Immunization against common childhood diseases has been an integral component of mother and child health services in India since the adoption of the primary health care approach in 1978. The UIP was introduced by the Government of India in 1985-'86 to cover at least 85% of the infants against the six vaccine-preventable ases by 1990[3]. It was hoped that by the turn of 20th century, the coverage of children for vaccination against the 6 VPDs would reach 100%. In the present study, the vaccination coverage among children aged 12-23 months reflects that 60.7% of the children are fully immunized which is less than the desired goal of achieving 85% coverage[4]. Similar level of coverage was documented in National Family Health Survey-III reports that only 54.7% of the urban children are fully vaccinated[4]. According to recent studies on routine immunization coverage, there has been a considerable decline in the coverage in some major states[10-13].

According to National Family Health Survey-III conducted during 2005-06; in Madhya Pradesh, 80.5%of the children received BCG, 75.6% received three doses of Polio vaccine, 49.8% received three doses of DPT vaccine and 61.4% of the children received measles vaccine. In the present study, vaccination coverage for all the vaccines was almost at par the NFHS-III data. In the current study, it has been seen that coverage of measles was the lowest as observed by others also like Kar, M., Reddiah, V.P., Shashi, Kant[14-15]. The low coverage of measles vaccine as compared to other vaccines reflects that special campaigns for measles vaccine need to be organized. All the children who receive measles vaccination should also receive Vitamin A. There was no gender discrimination in the immunization coverage of the children. There was gradual increase in the dropouts from BCG to measles vaccination (19.5%) and DPT to measles vaccination (24.7%). The main reason for dropout or non-immunization of the children may be ignorance and illiteracy among parents which can be improved through effective communication efforts and other awareness

campaigns. All the children should be provided with vaccination cards. State routine immunization monitoring system is a step towards prevention of VPDs which needs to be done at regular intervals.

Conclusion:

The results in the present study prove that even after twenty years of implementation of the UIP, routine immunization has not reached all. Full immunization coverage of children was primarily low due to not immunize with measles vaccination. It is suggested that some form of health care packages under the Maternal and Child Health (MCH) programme; such as iron, folic acid or Vitamin A supplementation, or the provision of iodized salt can be given to attract parents especially to sustain contact for the time between DPT-3 and measles vaccinations. This is required to hold the parents' attention during non-immunization periods which can also contribute towards health status of the mothers and children[16]. Steps for improvement should focus on bottlenecks by reducing the dropout rate from BCG to measles and DPT-1 to measles. State routine immunization monitoring system needs to be geared up for effective 100 per cent immunization coverage.

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