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BIO-SOCIAL FACTORS ASSOCIATED WITH ROUTINE IMMUNIZATION COVERAGE IN URBAN SLUMS OF AGRA DISTRICT

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Abstract

Introduction: Uttar Pradesh population policy aimed to increase complete immunization of children by 2016. According to National Family Health Survey-II in Uttar Pradesh, only 21% of children aged 12 to 23 months were fully immunized. Several studies have reported the importance of social determinants in coverage of immunization.

Objectives: The present study was carried out to evaluate the possible socio-economical factors associated with immunization coverage in children aged 12-23 months in slums of Agra district.

Material and Methods: It was a cross sectional study carried out in slum areas of Agra. Thirty cluster sampling technique was used.

Results: Out of 210 children, a higher proportion (52.8%) was males. Majority (70%) of children were either non vaccinated or unvaccinated. The coverage of BCG, DPT₃, OPV₃, and measles vaccine was 54.2%, 35.2%, 35.2%, 31.9% respectively. The DPT₁ coverage was 61.5%; drop-out rate was 31.91% (DPT₁-DPT₃). Out of the total immunized children, about 74.4% mothers had immunization cards. Significant association between child's vaccination status and mother's education, birth place and family size was found ($p < 0.05$). Significant association was also found between the vaccination status and the slums having ICDS coverage ($p < 0.001$).

Conclusion: Majority of children were either non vaccinated or unvaccinated. Health workers can play a bigger role in creating awareness in community and mobilizing parents for vaccination.

Key Words: Immunisation, biosocial factors, urban slums

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Introduction:

In India Universal Immunization Programme (UIP) was launched in 1985. The objective of UIP was to cover 85% infants by 1990 against six vaccine preventable diseases; Tuberculosis, Poliomyelitis, Diphtheria, Pertussis, Tetanus and Measles. Uttar

Pradesh population policy also aimed to increase complete immunization of children from 42% in 1997 to 69% in 2006, to 85% in 2011, and to all children in 2016. Despite of all efforts 72% of districts surveyed in Reproductive and Child Health program (RCH) showed a fall in full immunization

coverage rates between 1998-99 and 2002-03. RCH survey 2002 showed that complete immunization status was 26.8% which was well below the target set by the UP Population policy.

According to NFHS-2 (National Family Health Survey-II) in Uttar Pradesh, only 21% of children aged 12 to 23 months were fully immunized. All these studies showed clearly low coverage of immunization in district Agra.

Several studies have reported the importance of social determinants in coverage of immunization. Maternal literacy is very important for utilization of primary health care services. Studies have shown maternal education may have positive effect on immunization. Furthermore, a number of authors expose maternal education as an important factor influencing childhood immunization.⁽¹⁻¹¹⁾

There may be many reasons of low vaccination coverage such as lack of knowledge about immunization and its importance; lack of motivation for child immunization, distance from health centre, availability of health facility within community, side effects of immunization, birth place, economical reasons and family size.

Hence this study was conducted to evaluate the possible socio-economical factors associated with immunization coverage in slums of Agra district.

Materials & Method:

This cross sectional study was conducted between July 2005 to June 2006 in urban slums of Agra District. A sample of 210 children aged between 12-23 months and 210 mothers was selected as per the 30 cluster sampling technique recommended by WHO. Permission was obtained from the institutional ethical committee.

The mother of the child was interviewed after taking informed consent on standard set of questions to explore the factors affecting routine immunization coverage like vaccine wise immunization status, sex, literacy status of mother, distance between health centre and beneficiary's house, delivery place, immunization place, monthly income, family size and slums covered under ICDS Scheme. Following criterion for full immunization,

partial immunization and no immunization of children between 12 to 23 months was used⁽¹⁴⁾.

Full Immunization: Child 12 to 23 months of age, who has received three dosages of DPT and OPV each, one dose of Measles and BCG each.

Partial Immunization: Child, who missed any one or more of above dosage.

Non Immunization: Child who did not receive even a single dose of vaccine.

Total 30 urban slums were surveyed which are named below:

Vidhya nagar, Maharana Pratap Nagar, Raj Nagar, Gobar Chowki, Subhash Nagar, Ajam Para, Nagla Mohan, Shaeo Nagar, Sohalla, Kharati Tila, Tila Munna Lal, Naraich, Nagla Deojeet, Sarawati Nagar, Barah Khambba, Jogipara Prithvinath, Gautam Nagar, Buddh Nagar, Rampuri, Khatiana, Naala Mantola Abadi, Khatik Para, Nagla Bad, Mohan Para, Chia Modi ka Pul, kumhar Pada, Balmiki Nagar, Talia Kaji Pada, Nagla Dhing and Nagla Choua.

Univariate analysis was employed to clarify frequencies and distributions of each variable. Chi-square test and stratified analysis were used for bivariate analyses. Online free chi square calculator was used for analysis. A p-value < 0.05 was considered to indicate statistical significance.

Results:

Out of 210 children, a higher proportion (52.8%) was males. Majority (70%) of children were either non vaccinated or unvaccinated. The coverage of BCG, DPT₃, OPV₃, and measles vaccine in slums of Agra district was 54.2%, 35.2%, 35.2% and 31.9% respectively. The DPT₁ coverage was 61.5%; drop-out rate was 31.91% (DPT₁-DPT₃). Out of those immunized, only 74.4% mothers had immunization cards (Table-I).

Significant association between child's vaccination status and mother's education, distance between health centre and beneficiary's house, birth place, family size and the slums having ICDS coverage was found (p<0.05). (Table-II)

Table 1. Immunization status of the children

Immunization Status (n=210)	
Completely Immunized	30%
Partially Immunized	35.2%
Non - Immunized	34.8%
Immunization Card	
Present	74.2%
Vaccine wise immunization status	
BCG	54.2%
DPT1	56.6%
DPT2	42.3%
DPT3	35.2%
OPV1	56.6%
OPV2	42.3%
OPV3	35.2%
Measles	31.9%
Drop Out (DPT1-DPT3)	31.9%

Table 2. Socio-economic characteristics and immunization status

Variables (n = 210)	Completely Immunized (n=63) N %		Partially or Non Immunized (n=147) N %		P-value*
Gender					
Male	31	27.93	80	72.07	0.488
Female	32	32.32	67	67.68	
Distance between health centre & house					
< 1 k.m.	58	36.02	103	63.98	0.001*
>1 k.m.	5	10.20	44	89.80	
Mother's Literacy					
Literate (≥High school)	52	55.32	42	44.68	0.000*
Illiterate (<High school)	11	9.48	105	90.52	
Place of Delivery					
Private Hospital	11	15.94	58	84.06	0.002*
Govt. Hospital	52	36.88	89	63.12	
Place of Immunization					
Private	4	23.53	13	76.47	0.544
Govt.	59	30.57	134	69.43	
Monthly Income					
<5000/month	39	33.05	79	66.95	0.275
>5000/month	24	26.09	68	73.91	
Family Size					
≤2 children	22	44.00	28	56.00	0.013*
>2 Children	41	27.33	119	72.67	
Type of Slums					
Covered Under ICDS Scheme	19	90.48	2	9.52	0.000*
Non ICDS Slums	44	23.28	145	76.78	

* p value <0.05 is significant

Discussion:

No significant association was found between vaccination status and sex of child ($p>0.05$) in our study. Munthali et al also found that no significant statistical association was present between sex of child and vaccination coverage⁽¹⁰⁾.

Our study finding showed the inverse relationship between distance from health centre and beneficiary's house, and vaccination status of children ($p>0.001$). Muller et al and Mats et al also reported that as the distance was increased the attendance rate was decreased^(12,13).

Significant association between child's vaccination status and mother's education was found in this study. Streatfield et al, Anand et al, and Munthali et al also found that maternal literacy was positively associated with child vaccination status^(5,9,10). Our study showed strong statistical relationship between birth place and child vaccination status ($p = 0.002$).

In families with monthly income less than rupees 5000 only 33.05% children were fully immunized as compared to 26.09% children were fully immunized where family monthly income was more than rupees 5000. This association was found statistically insignificant ($p=0.275$). This shows that income is not associated with child immunization status as immunization services are freely available at government health centers and only awareness is required to avail them. A strong statistical association was found between family size and complete immunization status ($p = 0.013$) in this study. This shows the importance of small family norm. When family is small mother can give better care to her child. Munthali et al also depicted that birth order is important and inversely related with child vaccination status (10).

In this study out of 30 slums, three slums were under cover of ICDS scheme. In ICDS slums 90.48% children were fully immunized as compare to slums not covered under ICDS scheme only 23.28% children were fully immunized. The significant statistical association was found between slums covered under ICDS Scheme and child vaccination status ($p=0.000$). Anand et al also found that presence of health workers was positively correlated with the vaccination coverage (9).

In Agra with a slum population of 9 lac across 513 slums. There are only 513 Angan wadi centres leaving large slums outside ICDS coverage (15). So numbers of Angan wadi centres should be raised to meet the necessities of population residing in slums.

Conclusion:

Majority of children were either non vaccinated or unvaccinated. Female literacy should be increased. Auxiliary nurse midwives and Anganwadi workers play a big role in creating awareness in community and mobilizing parents for vaccination. This role should be emphasized and monitored.

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