Evaluation and impact of various factors affecting Universal Immunization Programme (UIP) coverage in Surat

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Abstract

To evaluate in details various factors affecting and impact of pulse polio immunization if any, on universal immunization of children aged 12-23 months attending pediatric OPD at New Civil Hospital, Surat this study was done with 852 children during March to September, 2002. After getting informed consent, mothers were interviewed and children grouped into fully immunized, partially immunized; only pulse polio immunized and unimmunized. Various socio-demographic and maternal factors were assessed and found significantly associated with immunization coverage of children including negative impact of pulse polio on routine immunization.

INTRODUCTION

Universal Immunization Programme (UIP) was launched in India in 1985 to improve existing immunization coverage ($_1$). Using routine vaccination coverage as a tool to measure progress in health system development in general would go a long way towards focusing attention on polio eradication ($_2$). Full immunization coverage was decreased as per the National Family Health Survey (NFHS) - 3, in many states of India including Gujarat ($_3$). Present study was undertaken to assess UIP coverage and to evaluate impact of pulse polio immunization if any, on immunization of children aged 12-23 months attending the outpatient department (OPD) of a civil hospital.

MATERIAL AND METHODS

Study was conducted among patients attending Pediatrics OPD at New Civil Hospital, Surat. Total 852 patients aged 12-23 months attending OPD from March 2006 to September 2007 were selected for study. Children attending well baby clinics or those who have come especially for vaccination were excluded from study to avoid selection bias. Children enrolled during previous visits were excluded. Parents preferably mothers, after getting informed consent, interviewed by pre-tested proforma with few open ended questions to facilitate collection of information. Immunization status of children was determined by verification from card, if available and recall by mother if card is not available. In case of BCG, presence of scar was considered as vaccinated. As interview was based on mother`s recall for immunization, it may introduces recall bias and this is the limitation of this study.

After assessing the immunization status, children were categorized as (A) Fully immunized - who was vaccinated with BCG, 3 doses each of DPT & OPV and measles, (B_1) Partially immunized – who has missed any one or more but not all dosages of UIP, (B_2) Pulse polio immunized only and (B_3) Not immunized – who has not received any vaccines in UIP or pulse polio.

RESULTS

The present study was conducted amongst 852 mothers of 12-23 months aged children. Children were divided into four groups as (A) fully immunized (n=588), (B_1) partially immunized (n=218), (B_2) pulse polio immunized only (n=40) and (B_3) not immunized at all (n=6). Coverage of BCG was found 94%, DPT I/OPV I 91%, DPT II/OPV II 86.8%, DPT III/OPV III 79% and Measles 69%. Full vaccination coverage was found 73.7% in this study. Dropout rates for DPT I/OPV I to DPT III/OPV III was found 12.1%, DPT I to Measles was 24.1% and BCG to Measles was 26.3%. Various factors associated with immunization status of children were assessed like, sex, religion, residence, parental education, parental occupation, antenatal care taken, place of delivery (table I). All variables were found statistically significant except sex.

Figure 1

Table 1: Various factors associated with immunization of 12-23 months aged children

Variables	Group A (n=588)	Group B_1 (n=218)	Group B_2 (n=40)	Group B_3 (n=6)	P value
Sex					
Male	329 (56.0)	116 (53.2)	19 (47.5)	2 (33.3)	P> 0.01
Female	259 (44.0)	102 (46.8)	21 (52.5)	4 (66.7)	
Religion					
Hindu	475 (80.8)	151 (69.3)	27 (67.5)	4 (66.7)	
Muslim	103 (17.5)	67 (30.7)	13 (32.5)	2 (33.3)	P<0.01
Others	10 (1.7)	0	0	0	
Residence					
Urban	251 (42.7)	77 (35.3)	08 (20.0)	0	
Periurban	246 (41.8)	95 (43.6)	15 (37.5)	1 (16.7)	P<0.01
Urban slum	75 (12.8)	36 (16.5)	12 (30.0)	4 (66.6)	
Rural	16 (2.7)	10 (4.6)	05 (12.5)	1 (16.7)	
Mother Education					
Illiterate	234 (39.8)	138 (63.3)	32 (80.0)	4 (66.7)	
Primary	248 (42.2)	67 (30.8)	8 (20.0)	2 (33.3)	P<0.01
High School	85 (14.4)	11 (5.0)	0	0	
Graduate	21 (3.6)	2 (0.9)	0	0	
Father Education					
Illiterate	110 (18.7)	88 (40.4)	22 (55.0)	6 (100)	
Primary	270 (45.9)	86 (39.4)	15 (37.5)	0	P<0.01
High School	163 (27.7)	42 (19.3)	3 (7.5)	0	
Graduate	45 (7.7)	2 (0.9)	0	0	
Mother Occupation					
Housewife	523 (88.9)	195 (89.4)	31 (77.5)	1 (16.7)	
Laborer	47 (8.0)	20 (9.2)	9 (22.5)	5 (83.3)	P<0.01
Business	8 (1.4)	0	0	0	
Service	10 (1.7)	3 (1.4)	0	0	
Father Occupation					
Laborer	249 (42.3)	138 (63.3)	34 (85.0)	5 (83.3)	
Business	151 (25.7)	30 (13.8)	2 (5.0)	0	P<0.01
Service	183 (31.1)	46 (21.1)	4 (10.0)	0	
Unemployed	5 (0.9)	4 (1.8)	0	1 (16.7)	
Antenatal Care					
ANC + TT	423 (71.9)	94 (43.1)	3 (7.5)	0	
TT only	134 (22.8)	78 (35.8)	14 (35)	1 (16.7)	P<0.01
No ANC/TT	31 (5.3)	46 (7.8)	23 (57.5)	5 (83.3)	
Place of delivery					
Hospital	467 (79.4)	152 (69.7)	10 (25.0)	0	
Home + Trained personnel	84 (14.3)	26 (11.9)	7 (17.5)	2 (33.3)	P<0.01
Home + Untrained personnel	37 (6.3)	40 (18.3)	23 (57.5)	4 (66.7)	

Figures in parenthesis indicates percentages

Table II shows different reasons for incomplete or non immunization of these children. Various reasons found from different groups like, 61% mothers believe that immunization was complete and 50% believes that polio was the only vaccine needed for their child in group B_1 and 60% in group B_2.

Figure 2

Table 2: Reasons for incomplete or non immunization of 12-23 months aged children

Groups as per immunization status of children	No. (%)
Group B_1 - Partially Immunized Children (n=218)	
Mothers believe immunization is complete	134 (61.5)
No knowledge of schedule	87 (39.9)
Childhood illness	72 (33.0)
Out station	72 (33.0)
Negative attitude	37 (17.0)
Lack of time	33 (15.1)
Vaccine not available	22 (10.1)
(History/fear of) side effects of immunization	16 (7.3)
Is polio vaccine the only vaccine needed for child?	109 (50.0)
Group B_2 – Only Pulse Polio Immunized children (n=40)	
Mothers believe immunization is complete	14 (35.0)
Didn't know about other vaccines	20 (50.0)
Need not receive other vaccines	8 (20.0)
Not given at their home	20 (50.0)
Health / Anganwadi worker gave only polio vaccine	4 (10.0)
Is polio vaccine the only vaccine needed for child?	24 (60.0)
Group B_3 – Completely Unimmunized children (n=6)	
Unaware of need of immunization	5 (83.3)
Lack of information (place, time, date, etc.)	1 (16.7)
Lack of motivation	1 (16.7)

DISCUSSION

Full vaccination coverage was found 73.7%, which is comparable with result of NFHS 3 where full immunization coverage in same age group was found 44% at national level and 45% in Gujarat state ([3]). This may happen because it is a tertiary care hospital and patients' here represents wider section and different strata from all the localities of Surat. Selection of patients coming to pediatric OPD removes possibility of selection bias. This study shows better vaccination coverage than national and state coverage. Ray S K et al ([4]) have reported higher vaccination coverage in government hospitals in Kolkata.

In the present study the sex of child was found not associated with child immunization. This is a welcome change in general attitude towards the care of female child. Other factors like religion and area of residence were

significantly associated with vaccination coverage. The coverage found high in urban and periurban areas, as they are having better access to public health services. Influence of mass media may be there. Bonu S et al ([5]) has reported no impact of religion or residence on immunization coverage. In present study, parental education and occupation was found statistically significant. Lack of information among the parents was one of the major causes of drop outs. Phukan RK et al ([6]) in their study reported that children from urban areas and mother's education level showed significant role in immunization coverage. Mohan P ([7]) has reported that mothers` education independently associated with child immunization. Improvement in female literacy with reduction in drop out rate would achieve higher target of immunization among children. Present study has shown significant association of immunization coverage with antenatal care and delivery place. Visits taken during antenatal period and delivery in hospital or at home by trained personnel exposes mothers to health personnel, lead to know them about the immunization of children which may be probable cause of significant association in present study.

Among Group B_1, 61.5% mothers believe that immunization was complete and 50% mothers believe that believes that polio was the only vaccine needed for their children, while in group B_2, it was 60%. Propaganda for pulse polio immunization which emphasizes only on polio can be misleading as people may end up, thinking polio as the only vaccine important and needed for their children. Dasgupta S et al ([8]) reported that pulse polio immunization activities which are visible and targeted programme, adversely affects routine UIP services. In present study, many reasons were reported for either partial or non immunization of children including, no knowledge of schedule (40.%), childhood illness (33%), migration (33%), lack of time (15%), didn't know about other vaccines (50%), need not receive other vaccines (20%), not given at their home (50%), unaware of need of immunization (83%), lack of motivation (16.7%), etc. “Not aware of the need for routine immunization” was the main reason for not being vaccinated with all the UIP vaccines ([4]). Poor vaccination and drop out was attributed to lack of awareness, misconception, migration, declining enthusiasm regarding routine immunization due to repetition of pulse polio ([9]).

References

1. Park K. Park`s Textbook of Preventive and Social Medicine. 18th Edition. Jabalpur: Banarasidas Bhanot Publishers; 2004. p. 103.
2. Sutter RW, Jafari H, Aylward B. IAP recommendations on polio eradication and improvement of routine immunization. Indian Pediatr 2008; 45: 353-355.
3. Ministry of Health and Family Welfare: National Family Health Survey 3, India, 2007.[http://mohfw.nic.in/nfhs3/CD.htm]
4. Ray SK, Dasgupta S, Dobe M, Biswas R, Mehta P, Baishya AC. An evaluation of routine immunization coverage in some districts of West Bengal and Assam. Indian J Public Health 2004; 48: 82-87.
5. Bonu S, Rani M, Baker TD. The impact of the national polio immunization campaign on levels and equity in immunization coverage: evidence from rural North India. Soc Sci Med 2003; 57: 1807-1819.
6. 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 2008;
7. Mohan P. Inequities in coverage of preventive child health interventions: the rural drinking water supply program and the universal immunization program in Rajasthan, India. Am J Public Health 2005; 95: 241-244.
8. Dasgupta S, Pal D, Sinha RN, Mandal NK, Karmakar PR, Saha I et al. Declining trend in UIP coverage. Indian J Public Health 2001; 45: 20-23.
9. Patel UV, Patel BH, Bhavsar BS, Dabhi HM, Doshi SK. A retrospective study of diphtheria cases, Rajkot Gujarat. Ind J Comm Med 2004; 29: 161-163.

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