



A STUDY TO FIND OUT THE FULL IMMUNIZATION COVERAGE OF 12 TO 23-MONTH OLD CHILDREN IN AN URBAN AREA OF KATI HAR DISTRICT

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ABSTRACT

Background- The leading cause of child mortality in India is vaccine-preventable disease. The vaccine not only protects the children from potentially serious illness but also interrupts the diseases transmission in a community. However, in developing countries including India, a large proportion of children are either not immunised at all or partially immunised, resulting in higher infant and child mortality.

Objectives- 1. To assess the full immunization coverage among 12 to 23-month old children of urban field practice area under Department of Community Medicine, Katihar Medical College. 2 identify the factors for failure of full immunization.

Material and Method- A community based cross-sectional study was conducted from June 2017 to May 2018 on children aged 12 to 23 months old of area under Sharifganj Urban health training centre. Taking 50 % prevalence of full immunization and 10% relative precision a sample size of 400 were selected. Data was collected using pre-designed pre-tested questionnaire during home visit and verifying immunization card and analysed by computer software Epi info 7.0.

Results- The full immunization coverage among 12 to 23 months old children was found as 73.0%. The main reasons for failure of full immunization in those areas are fear of AEFI and unawareness of need of subsequent doses of vaccines.

Conclusion: Immunization coverage in the urban area is still way short of the 85% coverage mark. A lack of information and motivation among the parents is the main reason for this dismal scenario that needs to be rectified at the earliest.

KEYWORDS : Immunization, Vaccine Preventable Diseases, Child Mortality, Adverse Event Following Immunization (AEFI)

Introduction-

Immunization is the process of development of protective response of an individual's body to a specific disease by introducing an immunizing agent. Immunizing agents may be classified as vaccines, antisera and immunoglobulins (Igs). Vaccine is an immuno-biological substance designed to produce specific protection against a given disease. It stimulates the production of protective antibody [1]. Immunization coverage is the most important strategy adopted by child survival programs throughout the world. Roughly 3 million children die each year of vaccine preventable diseases, with a disproportionate number of these children residing in developing countries [2]. The UN Millennium Declaration had outlined the reduction of under five mortality as one of the eighth goals with proportion of 1-year-old children immunised against measles as one of the monitoring indicators (UN 2003) [3].

Basic immunization covers all vaccines given at any time within the first year of life and has been the focal point in evaluating immunization programmes [4, 5]. According to the World Health Organization (WHO) guidelines [6], a child is fully immunized with all basic vaccinations if the child has received Bacillus Calmette-Guerin (BCG) vaccine against tuberculosis at birth; three doses each of polio and pentavalent (diphtheria-tetanus-pertussis-hepatitis B (Hep), Haemophilus influenza type B (Hib)) vaccines at 6, 10 and 14 weeks of age; and a vaccination against measles at 9 months of age. Pneumococcal conjugate vaccine (PCV) given in three doses (6, 10 and 14 weeks) was introduced in Kenya in February 2011 and included in the routine immunization schedule [7].

National Family Health Survey-3 (NFHS-3) [6] and Annual Health Survey 2011-12 (AHS 2011) [8] reveals that percentage of children fully immunized in Bihar is 33 % and 65% respectively. Again DLHS-4 (2012-13) [9] shows, full immunization coverage of Bihar is 41% and according to coverage evaluation survey (CES 2009) [10] the Full immunization was 49%. This is far behind the 85% goal of full immunization. So this study was conducted to assess immunization coverage among 12 to 23-month old children of urban field practice area in Katihar

Material and Method.

The present study was a community based cross-sectional study conducted in a Sharifganj, an Urban field practice area of department of community medicine, Katihar Medical College, Katihar. The population of Sharifganj is approximately 10,000. The study was conducted for a period of one year (June 2017 to May 2018).

Sample size calculation: Sample size was calculated by following methods

$$n = \frac{Z^2 \times P \times Q \times DEFF}{d^2}$$

Where Z = (Value of Z at 95% = 1.96)

P = Prevalence

q = (100-P)

d = Probable error (absolute or relative precision)

DEFF = Design Effect (1 for SRS)

According to various studies the prevalence of breast feeding below children less than 12 month is 50 to 65%. By using 50% anticipated prevalence with 10% relative precision, following sample size was obtained for the study:

$$n = \frac{(1.96)^2 \times 50 \times (100 - 50)}{10\% \text{ of } 50 \times 10\% \text{ of } 50}$$

$$= \frac{3.84 \times 50 \times 50}{5 \times 5}$$

n = 384 = 400 (for ease in calculation and considering the fact that some participants may deny in taking participate

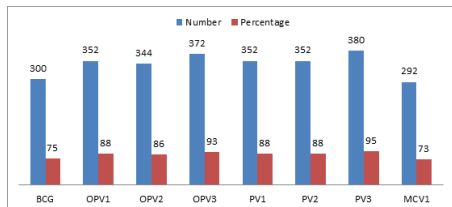
Mother of every 2nd child was selected by systemic random sampling method and was interviewed.

Data was collected by using a pre-designed and pre-tested, semi-structured questionnaire and immunization cards have been verified physically to confirm appropriate date of vaccination. In those children where immunization card was not available verification was done based on examining BCG scar and interviewing the respondent during the home visit for every child.

Analysis was done using software Epi info 7.0 and Chi square test, Fisher's-Exact test have been used to see the significant association between different variables as and when required.

Results :

Table/Figure-1: Vaccine dose administered.



As shown in figure 1, 292 (73%) of children were fully immunized while 27% either partially of non immunized. The analysis of vaccine-specific data indicated a low level coverage of measles (73%) and BCG(75%).

Table-2 Socio economic status [], and full Immunization coverage

Socio-economic status	No	Full Immunization No	Percentage
Upper Class	8	7	87.50
Upper Middle Class	8	7	87.50
Middle Class	108	84	77.78
Lower Middle Class	208	149	71.63
Lower Class	68	45	66.18
Total	400	292	73.00

$\chi^2 = 7.93, df = 1, P < 0.01.$

The full immunization coverage was the highest in upper and upper middle class (87.50%). The coverage declined with socio economic condition and only 66.18% in lower class. The association between socioeconomic status and full immunization coverage was statistically significant.

Table-3 Mother education and full Immunization coverage

Literacy status	No	Full Immunization No	Percentage
illiterate	220	125	56.82
Literate	160	150	93.75
Primary education	9	7	77.78
Secondary education	6	5	83.33
Higher Secondary and above	5	5	100.00
Total	400	292	73.00

$\chi^2 = 59.04, df = 1, P < 0.0001.$

The full immunization coverage was maximum in mothers educated up to higher secondary and above (100.0%) and minimum among illiterate mothers. (56.82%). The association between mother education and full immunization coverage was statistically significant.

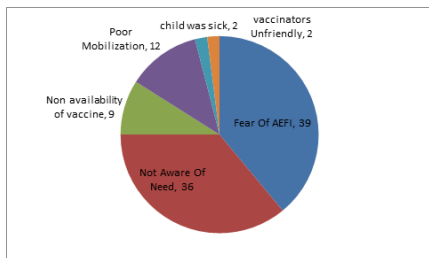
Table-4 Sex of child and full Immunization coverage

Sex of child	No	Full Immunization No	Percentage
Male	202	157	77.72
Female	198	135	68.18

$\chi^2 = 4.15, df = 1, P < 0.05.$

The full immunization coverage is better in male children (77.72%) as comparison to female child (68/18%). The association between sex of child and full immunization coverage was statistically significant.

Table/ Fig 5 Reason for Partial/incomplete Immunization



The main reason of Partial/ non immunization is fear of Adverse event following immunization (39%) followed by unawareness of need (36%). 9% respondent told about non availability of vaccine.

Discussion-

In the present study, it was found that immunization status was significantly associated with other factors such maternal education and socio-economic status. This was Similar to the findings of study done by Bholanath et al., that found that maternal education and socioeconomic status were significant independent predictors of immunization status [11].

It was also seen that immunization statuses of the children were significantly associated with their genders. This was similar to the findings of the study done by AM Kadri et al., who found that though the coverage of all vaccines was slightly higher in males than in females, this difference was statistically insignificant [12].

Conclusion-

the full immunization coverage of Urban field practice area is 73% and far behind the national goal of 85%. The main reason of poor immunization is fear of Adverse Event Following Immunization (AEFI) and unawareness about need. Both of issues are related to mobilization effort by Anganwadi and ASHA workers.

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