

## IMMUNIZATION COVERAGE IN URBAN AREAS OF BELGAUM CITY – A CROSS SECTIONAL STUDY

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### ABSTRACT

**Background:** Immunization forms the major focus of child survival programmes throughout the world. Children of urban poor have high vulnerability to illnesses as outbreak of vaccine preventable diseases are more common in urban slums, owing to high population density and migratory population.

**Aims & Objectives:** To assess the immunization coverage and various socio-demographic factors affecting the same in urban areas of Belgaum.

**Materials and Methods:** This cross-sectional study was conducted at 2 Urban Health Centre's, Ashoknagar and Ramnagar of Belgaum. The study population comprised of children aged 0-6 years. The subjects selected were registered children in nearby anganwadi's. 20 children were randomly selected from each anganwadi under the UHC. The data was collected regarding the immunization status of the child and other factors associated with it.

**Results:** 79.5% of children were completely immunised and 20.5% were partially immunised. The most common reasons for not immunising the child were: mother was too busy (34.1%), family problem, including illness of the mother (31.7%), unaware of return for 2<sup>nd</sup> and 3<sup>rd</sup> dose. Significant association was found between educational status of mother and socioeconomic status of family with immunization status of children.

**Conclusion:** In this study, overall coverage of immunization is good, but still, it has pockets of non-immunization. So, there is an urgent need to review the current strategies of immunization.

**Key Words:** Immunization Coverage; Urban Areas; Partial Immunization; Complete Immunization; Belgaum

### Introduction

Immunization forms the major focus of child survival programmes throughout the world. Recent estimates suggest that approximately 34 million children are not completely immunized, with almost 98 % of them residing in developing countries.<sup>[1]</sup> Globally, vaccine preventable diseases account for nearly 20% of all deaths occurring annually among children under five years of age, and immunization has a vital role to play in achieving the goals specified in the Millennium Declaration.<sup>[2]</sup>

Immunization against common childhood diseases has been an integral component of mother and child health services in India since adoption of the primary health care approach from the 1970s. The Expanded Program on Immunization (EPI) was initiated in 1978 to make six childhood vaccines (BCG, DPT, TT, DT, Polio and Typhoid) available to all eligible children.<sup>[3]</sup> The current scenario depicts that immunization coverage has been steadily increasing but the average level remains far less than the desired. Still only 44 per cent of the infants in India are fully immunized (NFHS-III), which is much less than the desired goal of achieving 85 per cent coverage.<sup>[4]</sup>

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. Children of urban poor have high vulnerability to illnesses, as outbreak of vaccine preventable diseases are more common in urban slums, owing to high population density and migratory population.<sup>[5]</sup>

Even if, national immunization coverage levels are sufficiently high to block disease transmission, pockets of susceptibility may act as potential reservoirs of infection. It is, therefore, essential to know, if under-vaccination is a problem in specific population group, which involves determining inequalities in coverage level. Thus, the present cross-sectional study was undertaken to assess the immunization coverage, and various socio-demographic factors affecting the same in urban areas of Belgaum, India.

### Materials and Methods

**Study Area:** This cross-sectional study was conducted at 2 Urban Health Centre's, Ashoknagar and Ramnagar which come under field practice area of Department of Community Medicine, JNMC, Belgaum district Karnataka.

**Study Design:** Descriptive cross sectional community based survey was conducted from April 2013 to May 2013.

**Study Population:** The study population comprised children aged 0-6 years. Age was confirmed by birth certificate or immunization card or, when it was not available, by asking the mothers (using a standardized Indian calendar and major holidays as reference points).

**Sampling Method:** All the anganawadi's of UHC Ramnagar (18) and Ashoknagar (12) were selected for the study. A sample of 20 children were randomly selected from each anganwadi under the UHC, amounting to the sample size of (n) =600. The selected subjects were registered children in nearby anganwadi's. An informed and written consent was taken from the anganwadi teachers and the parents of the children before conducting the study. The data was collected from the care-taker or guardian of the child using a pre-designed and pre-tested questionnaire regarding the immunization status of the child and other factors associated with it. Immunization with BCG was confirmed by checking for the scar on the left upper arm, while for other vaccines, the immunization card was checked.

**Standard:** (i) Complete Immunization: Children having received BCG, measles, and three doses of DPT, hepatitis B, and OPV each (excluding OPV-0). (ii) Partial/Incomplete Immunization: Children who have received at least one of the above-mentioned vaccines. (iii) Unimmunised Children: Children have not received any vaccine.<sup>[6]</sup>

Statistical analysis was done using SPSS statistical software, applying chi-square test.

## Results

In the present study, there were 265 (44.2%) boys and 335 (55.8%) girls. Majority (81.3%) of children were in the age group of 16-24 months (Table 1). The age of the mothers ranged between 18-32 years with a mean age of  $23.3 \pm 3.03$  years. The age group of the fathers ranged between 24-36 years, with a mean age of  $27.9 \pm 2.49$  years. 103 (17.2%) were working mothers, and 497 (82.8%) non-working mothers. Majority (80%) of the mothers and the fathers of children under study had primary and high school education, and 7.7 % of mothers and 21.5% of fathers had collegiate education. Only 11.5% of mothers and 13% of fathers were illiterate.

**Table-1: Distribution of the children according to the age groups**

Age of the Children	N	%
0-6 months	3	0.5
7-12 months	7	1.16
13-15months	65	10.8
16-24 months	488	81.3
25 months and above	37	6.16

**Table-2: Immunization coverage in study area (n= 600)**

Immunization status	N	%
Complete	477	79.5
Incomplete/ Partial	123	20.5
Unimmunised	0	0

**Table-3: Reasons of partial immunization (n=123)**

Reasons for partial immunization	N	%
Unaware of need of immunization	5	4.1
Unaware of need to return of 2 <sup>nd</sup> and 3 <sup>rd</sup> dose	12	9.7
Ignorance	7	5.8
Fear of side reaction	3	2.4
Mother too busy	42	34.1
Family problem including illness of mother	39	31.7
Child ill not brought	9	7.3
Child ill brought not given immunization	6	4.9

**Table-4: Association of immunization status of children with education of mother**

Educational status of mother	Partially Immunized	Fully Immunized	Total
Illiterate	2 (2.9%)	67 (97.1%)	69
Primary school	72 (26.8%)	197 (73.2%)	269
High school	30 (13.9%)	186 (86.1%)	216
PUC and above	19 (41.3%)	27 (58.7%)	46
Total	123	477	600

$$\chi^2 = 11.53; df = 2; p = 0.003$$

**Table-5: Association of immunization status of children with socioeconomic status of family**

Socioeconomic status of family	Partially Immunized	Fully Immunized	Total
Class I	24 (21.4%)	88 (78.6%)	112
Class II	34 (14%)	208 (86%)	242
Class III	65 (26.4%)	181 (73.6%)	246
Total	123	477	600

$$\chi^2 = 11.533; df = 2; p = 0.003$$

46.3% of families under study were from class II and 41% belonged to class III. Among the study subjects, 262 (43.7%) were from nuclear families, and 338(56.3%) were from joint families. Higher proportions (97%) of women in the study area were of parity 1-3. 31.3% of study subjects were of birth order one, 49.8% of birth order two, 17.5% of birth order three and only 1.3% of birth order four. Among the study group, 152 (25.3%) were delivered at home and the remaining 448 (74.7%) were delivered in institution. Immunization cards were available with 83.8% mothers.

Majority (79.5%) of children were completely immunised, and 20.5% were partially immunised (Table 2). Among the partially immunised children, 60.97% did not receive OPV and Hep B, and 19.71% each did not receive either only OPV or Hep B. According to respondents, the most common reasons for not

immunising the child were: mother was too busy (34.1%), family problem, including illness of the mother (31.7%), unaware of return for 2nd and 3rd dose (Table 3).

Significant association was found between educational status of mother and socioeconomic status of family with immunization status of children (Table 4 and 5). However gender, birth order of child, work status of mother, religion and type of family did not significantly affect the immunization status of children.

## Discussion

Immunization is one of the most cost effective public health interventions, which is directly or indirectly responsible to prevent the bulk of mortalities in under-fives. Thus, vaccinating the children to the maximum, is a great need of the future specially to reduce the child mortality and morbidity.

The study has tried to bring out the specific factors responsible for partial immunization, and role of sociodemographic factors in immunization of children, as compared to similar studies, so that it will be helpful to strengthen the universal immunization program (UIP) in India.

In the present study, majority of mothers and fathers of children under study had primary and high school education, and only 11.5% of mothers and 13% of fathers were illiterate which was similar to various other studies<sup>[6-8]</sup> conducted in Andhra Pradesh and Mumbai. In this study, it was seen that majority of the families of children under study were from class II and III whereas another study<sup>[7]</sup> conducted in Mumbai showed that majority belonged to Class IV and Class V.

Immunization cards were available with 83.8% mothers, which were similar to other studies<sup>[4,9]</sup> conducted in Miraj and Ahmedabad city. It was also evident from National Family Health Survey (NFHS III) that only 12.22% of mothers did not have immunizations cards with them.<sup>[10]</sup> This shows that mothers were motivated and had knowledge of maintaining the cards for follow up.

In this study, majority (79.5%) of children were completely immunised, but still less than desired goal of 85% coverage, whereas according to NFHS III, the immunization coverage is only 54.7%.<sup>[4,7]</sup> Partial immunized children in our study were 20.5%, which was

similar to study conducted in Jamnagar.<sup>[11]</sup>

The most common reasons for not immunising the child were: mother was too busy (34.1%), family problem, including illness of the mother (31.7%), unaware of return for 2<sup>nd</sup> and 3<sup>rd</sup> dose which were similar to other studies<sup>[4,7,11,12]</sup> conducted in various other parts of India. Solving these issues would require health education, motivation to the parents to immunise their children and removal of misconceptions among caretakers regarding immunization and improvement of health care services.

Significant association was found between educational status of mother and socioeconomic status of families of children under study with immunization status of children (Table 4 and 5). However gender, birth order of child, work status of mother, religion and type of family did not significantly affect the immunization status of children. Whereas various studies<sup>[6-8]</sup>, conducted in others parts of India, have shown significant association of mother's education, religion, socioeconomic status, birth order and place of delivery influencing the immunization status of children.

## Conclusion

In this study, majority (79.5%) of children were completely immunized. Significant association was found between educational status of mother and socioeconomic status of family with immunization status of children. In this study, overall coverage of immunization is good but still, it has pockets of non-immunization. So there is an urgent need to review the current strategies of immunization. This study emphasizes that child immunization should be included as a prioritized component in the proposed National Health Package, which could be an effective step towards ensuring universal immunization coverage.

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