ISSN : 2949 - 9100

*International Journal of Health and Dentistry Care (IJHDC)*

*IJHDC : Health and Dental Publication*
*Available Online at: www.ijhdc.com*
*Volume – 2, Issue – 6, November – December - 2023, Page No. : 13 - 17*

# Evaluation of Immunization Coverage and Its Determinants Among Children Aged 12-23 Months

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**Citation This Article:** L. C. Maina, Simon Karanja, "Evaluation of Immunization Coverage and Its Determinants Among Children Aged 12-23 Months ", IJHDC –November – December - 2023, Volume. – 2, Issue - 6, P. No. 13 – 17.



**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

## Abstract

**Introduction:** Immunization services does not reach over one third of urban poor children. There is clear cut difference of children completely immunized in the low as compared to high Standard of living index (SLI) in urban areas.

**Methodology**: Cross-sectional study was conducted among 550 children aged 12-23 months. The child's immunization was ascertained using the immunization cards. WHO recall method was used. Chi-square test was used to find out statistical significance.

**Results:** of 550 children studied, 417 (75.8%) were fully immunized, 117 (21.3%) were partially immunized and 16 of them were non immunized (2.9 %). When the determinants of incomplete immunization were assessed, all were found statistically significant.

**Conclusion**: The present study concluded that immunization coverage is lower than that of the target. The factors thought to have influenced immunization like religion, family composition, education of mother and gender of child were discovered to be statistically significant.

**Keywords:** Living Index, WHO, Immunization.

## Introduction

One of the greatest impacts on health of mankind has been the use of vaccines. It is one of the most cost-effective and most powerful weapons against vaccine preventable diseases. In May 1974, the WHO officially launched a global immunization programme, known as Expanded Programme on Immunization (EPI) to protect all children of the world against six vaccine-preventable diseases, namely diphtheria, whooping cough, tetanus, polio, tuberculosis and measles by the year 2000. EPI was launched in India in January 1978.This program was the starting point for a dramatic change in world's public health strategy.

A 4.1 percent dropout rate was observed, indicating the health system's failure to trace the kid as well as the migratory nature of such communities.

Despite of such nationwide campaigns, 22.6 million children are still not reached by routine immunization services. Routine childhood vaccine coverage is sub-optimal and only third-fifth children receive all vaccines in the schedule.

**Materials and Methods**

An observational cross-sectional study was conducted among children aged 12-23 month. All children aged 12-23 months, residing in all the 20 slum wards (satisfying the inclusion and exclusion criteria) were included as study population. Total 572 children were present in the study area during the study period. Out of 572 children, only 550 children were assessed in the present study as 22 children were not accessible even after four visits to their house. Hence in the present study 550 children aged 12-23 months were included as study participant.

An informed written consent was obtained from all the participants and they were explained about the aims and objectives of the study. In children where the immunization cards were not available, "Card or History" survey technique recommended by WHO was followed so for this recall of mothers or responsible informants were enquired for the relevant history of immunization such as the age of administration, route of administration of vaccines or vitamin A dose was given. A semi-structured proforma was filled by investigators from the parents/guardians of the child to obtain information about demographic and socioeconomic variables (like name, age, gender, religion, education, occupation etc.), on the background characteristics of mother, their number of antenatal and postnatal visits, place of delivery, mode of delivery of child.

**Results**

In this study immunization status of children aged of 12-23 months 417 out of 550 children were fully immunized (75.8%) were fully immunized, 117 (21.3%) were partially immunized and 16 of them were non immunized (2.9 %) as shown in Graph 1. Table 1 shows the determinants of immunization status like religion, type of family, gender, education of mother, education of father, socio-economic class, migratory status, occupation of mother, occupation of father, birth order, place of birth. All these determinants were significantly associated with immunization status of children. Table 2 shows the distribution of children according to various vaccine received. 97.9% received BCG and OPV birth dose, while 78.5 % received Hepatitis B birth dose. OPV, RVV and Pentavalent 97.9% received first dose, 94.9% received second dose, and 87.4% received the third dose. fIPV, at 6 and 14 weeks was received by 92.3% and 87.4% respectively. while PCV at 6 week, 14 week and booster at 9 months was reciveed by 80%, 77.5% and 70.1% respectively. 85.6% received measles and Vit A dose at 9 months.

**Discussion**

Immunization coverage is a multi-sectoral activity. The low coverage in slums suggests that the current immunization delivery systems do not effectively meet the circumstances of those living in these settings. Also, an ever-increasing number of inhabitants in slums along with outbreaks of VPD's with high mortality and morbidity present a challenge for achieving the goal of an immunization program. Thus, a mere inclusion of new vaccines in the immunization program is not enough and one must look beyond by giving special emphasis upon people living in such settings.[9] In the present study majority of participants were Hindu 67.5% followed by Muslims 32.5%.

**Conclusion**

We conclude from our study that the full immunization coverage is 75.8%. As a result, efforts to maintain vaccine coverage levels must continue. The health

system must be reinforced in order to minimise dropout rates and boost vaccine coverage. The factors thought to have influenced immunization were discovered to be statistically significant.

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**Legend Graph and Tables**

Graph 1: Immunization coverage among 12-23 months children

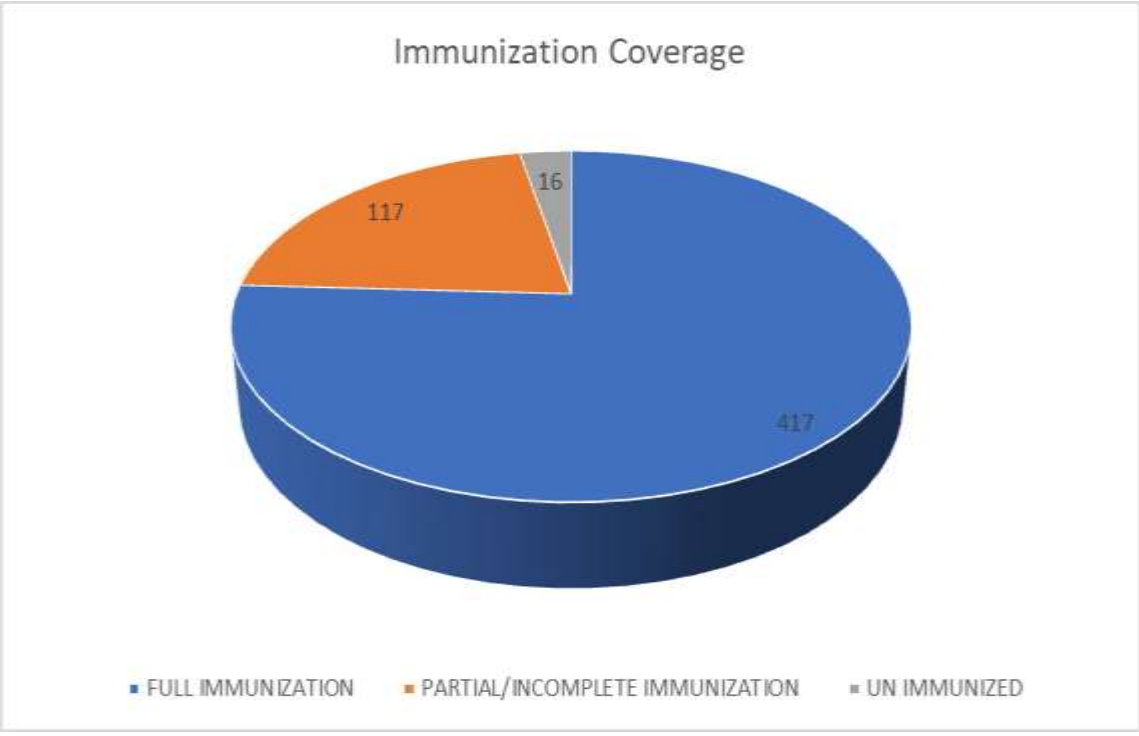

Table 1: Determinants of Immunization Coverage

| Determinants | | Immunization Coverage | | | Total | $\chi^2$ (P Value) |
|---|---|---|---|---|---|---|
| | | Not immunized n (%) | Partially/Incomplete immunized n (%) | Fully immunized n (%) | | |
| Religion | Hindu | 3 (0.9) | 46 (12.3) | 322 (86.8) | 371 | 77.593 <0.0001 |
| | Muslim | 13 (7.2) | 71 (39.6) | 95 (53.2) | 179 | |
| Type of family | Nuclear | 5 (2.2) | 26 (11.7) | 191 (86.1) | 222 | 104.969 <0.0001 |
| | Joint | 3 (1.4) | 31 (14.2) | 183 (84.4) | 217 | |
| | Three generation | 8 (7.1) | 60 (54.1) | 43 (38.8) | 111 | |
| Education of mother | Illiterate | 13 (9.1) | 86 (59.8) | 45 (31.1) | 144 | 237.876 <0.0001 |
| | Primary | 1 (1.6) | 17 (28.9) | 41 (69.5) | 59 | |
| | Middle school | 1 (0.5) | 1 (0.5) | 197 (99) | 199 | |
| | Secondary | 0 | 11 (9.1) | 110 (90.9) | 121 | |
| | Senior secondary | 1 (7.2) | 2 (14.3) | 11 (78.5) | 14 | |
| | Graduate | 0 | 0 | 13 (100) | 13 | |
| Gender | Male | 5 (1.6) | 50 (16.3) | 251 (82.1) | 306 | 15.251 <0.0001 |
| | Female | 11 (4.5) | 67 (27.4) | 166 (68.1) | 244 | |
| Migratory history | Present | 13 (10.6) | 90 (73.7) | 19 (15.7) | 122 | 310.510 <0.0001 |
| | Absent | 3 (0.8) | 27 (6.3) | 398 (92.9) | 428 | |
| Occupation of mother | Home- maker | 9(1.9) | 53 (11.3) | 406 (86.8) | 468 | 206.523 <0.0001 |
| | Unskilled | 7 (8.6) | 63 (77.7) | 11 (13.7) | 81 | |
| | Shop keeper/clerical | 0 (0) | 1 (100) | 0 (0) | 1 | |
| Occupation of Father | Unemployed | 1 (20) | 1 (20) | 3 (60) | 5 | 81.755 <0.0001 |
| | Unskilled workers | 13 (5) | 90 (34) | 162 (61) | 265 | |
| | Semi-skilled | 1 (1.7) | 13 (23) | 42 (75.3) | 56 | |
| | Skilled workers | 1 (1.3) | 4 (5.4) | 69 (93.3) | 74 | |
| | Shopkeeper/ clerical | 0 (0) | 8 (6) | 126 (94) | 134 | |
| | Professional | 0 (0) | 1 (6.2) | 15 (93.8) | 16 | |
| Socio economic class | 2 | 1 (2.2) | 10 (22.2) | 34 (75.6) | 45 | 69.958 <0.0001 |
| | 3 | 0 (0) | 19 (8.1) | 218 (91.9) | 237 | |
| | 4 | 15 (5.7) | 85 (32.2) | 164 (62.1) | 264 | |
| | 5 | 0 (0) | 3 (75) | 1(25) | 4 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Birth order | 1 | 2 (0.6) | 19 (5.9) | 306 (93.5) | 327 | 293.554 <0.0001 |
| | 2 | 4 (3.2) | 21 (16.4) | 103 (80.4) | 128 | |
| | ≥3 | | 77 (81) | 8 (8.4) | 95 | |
| Place of birth | Home | 14 (20) | 45 (64.2) | 11 (15.8) | 70 | 223.417 <0.0001 |
| | Institutional | 2 (0.4) | 72 (15) | 406 (84.6) | 480 | |

Table 2: Distribution of The Children According To Various Vaccinations Received

| At Birth | | | 1st DOSE | 2nd DOSE | 3rd DOSE | f-IPV | | PCV | | | Measles/ VIT-A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BCG | OPV-0 | Hep-B (BD) | OPV/ RVV/ PENTA | OPV/RVV/ PENTA | OPV/ RVV/ PENTA | I | II | I | II | B | |
| 534 (97.9) | 534 (97.9) | 432 (78.5) | 534 (97.9) | 522 (94.9) | 481 (87.4) | 508 (92.3) | 481 (87.4) | 440 (80) | 426 (77.5) | 386 (70.1) | 471 (85.6) |