

A study on Full Immunization coverage under Universal Immunization Programme in Porbandar District, Gujarat

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INTRODUCTION

Infectious diseases share a maximum proportion when it comes to morbidity and mortality of children. And to curb this problem Immunization is one of the most significant and cost-effective health intervention. In 2012, WHO estimated that vaccination prevents 2.5 million deaths each year, with 100% immunization and 100% efficacy of the vaccines one out of 7 deaths in children could be prevented mostly in developing countries. Globally about one-quarter or 25% of the under-five mortality is due to vaccine preventable diseases.

Even with all the consistent efforts made by the governmental and non-governmental institutes for 100% immunization coverage, there are still low covered areas. According to the National Family Health Survey (NFHS-4) 2015-16, in India 62% of the children of age one to two years have been fully immunized, whereas in Gujarat only 50.4 % children were fully immunized which is quite less than that of the country's status .Also in rural area of Gujarat, 50.4% children were fully immunized.

As per the full Immunisation definition by WHO- A fully Immunized child is one who has received 1 dose each of BCG, and Hepatitis-B, at birth , 3 doses each of DPT and Polio vaccine and 1st dose of measles at 9 months

But in many states of India,(So as in Gujarat) instead of DPT vaccine, Penta vaccine is Administered which is combination of 5 vaccines i.e DPT, HEP-B and HiB,



FIG-1 VACCINATION AS PER THE NATIONAL IMMUNIZATION SCHEDULE BY GOVERNMENT OF INDIA

Age	Vaccines
Birth	BCG, OPV(0), Hep B Birth dose (To be given at the place of delivery)
6 Weeks	OPV1, Penta1 (DPT+ HepB+ HiB)
10 Weeks	OPV2, Penta2 (DPT + HepB+ HiB)
14 Weeks	OPV3, Penta3 (DPT +HepB+ HiB), IPV
9 Months	MMR-1, /MR/ Measles , JE Vaccine-1
16-24 Months	MMR-1, OPV Booster, DPT 1st Booster, JE Vaccine-2
5-6 Years	DPT 2nd Booster
10 Years	TT1
16 Years	TT2



Unimmunized and partially immunized children were more susceptible to childhood diseases.

To improve the immunization coverage, Government of India has also launched Mission Indradhanush closely monitored by Prime Minister Office. E-Mamta based tracking of children is being done by Government of Gujarat along with revision of Routine Immunization (RI) Micro plans to cover 100% areas, expansion of cold chain points, Survey by family health welfare, concurrent monitoring of routine immunization (RI), Mission Indradhanush (MI) to achieve maximum coverage.

The present study was planned to assess the full immunization coverage in the rural field area of Porbandar district, Gujarat and to find out the relation between birth order and immunisation status of children using the WHO thirty cluster sampling technique.



RATIONALE

As per NFHS-4 India's Immunization status is 62% compared to that of Gujarat is only 50.4%. Also, if we talk about Porbandar district, here only 68.8% children are fully immunized which is better than the state and the national average but still the district lag besides being smaller in the state that it hasn't achieved even 75% coverage yet. The Government is on its toes to enhance the immunization coverage for which Intensified Mission Indradhanush has been launched to cover the uncovered pockets. Also, some studies suggests that with the increase in birth order the adherence or the awareness of parents to get the child fully vaccinated decreases. Hence the present study was planned to assess the full immunization status of children and to review the relation between birth order and immunization status of children of age 12-23 months in Porbandar district of Gujarat state of India.



RESEARCH QUESTION

- What is the full immunization coverage among the children of age 12-23 months in Porbandar district, Gujarat?
- How does the full immunization status vary with the birth order of the children?



OBJECTIVE

- To assess the Immunization status of 12-23 months old children.
- To analyse the association between the birth order of children and their Immunization status.



METHODOLOGY

It is retrospective cross-sectional study where a coverage evaluation survey was done during a period of 3 months i.e. from February 2018 to May 2018 among children aged 12-23 months in Porbandar district, Gujarat, using the WHO 30-cluster survey methodology.

Sampling Technique and Sample size estimation:

The 30-cluster sampling technique advocated by the WHO was used to assess coverage of immunization due for respective age in 12–23 months children. The 30-cluster sampling technique is a two-stage random sampling technique (i.e., selection of clusters and identification of children in the selected clusters). The first step involved listing of all the clusters (i.e., total 84 subcentres in Porbandar District and, of them, a total of 30 subcentres were chosen randomly (every 6th). In each selected subcentre, the first household to be visited was chosen randomly. All the eligible children of 12–23 months of age in that household were part of the study frame. After the first household was visited, the interviewer moved to the next household using the pen drop approach, and the same process was repeated. If any household was found to be locked or any mother refused to participate in the study, or if any household did not have eligible child, the interviewer skipped that household and moved to the next household. This process was continued until a total of seven children were covered in each cluster, and, in this way, all the 30 selected subcentres were covered, thus making a total sample size of 210 (30×7).

Data collection and Statistical analysis:

Data was collected using pre-designed pre-tested questionnaire filled during home visit by verifying with the immunization card. The data is analysed in MS-Excel and is represented in the form of percentages depicted through graphs and tables.

Inclusion Criteria:

- Children of age between 12-23 months were taken for the study
- Children of Immigrated families were included in the study
- Houses having 2 or more children under 2yrs of age are taken into consideration

Exclusion Criteria:

Children who were younger than 12 months and over 2 years were excluded from the study and also the children of emigrated families.



Full Immunization:

Child is said to be fully immunized who has received one dose of BCG, three doses each of OPV, DPT*, and Hepatitis B vaccines, and one dose of measles vaccine before reaching one year of age.

Partial/incomplete immunization:

Children who have received at least one of the above-mentioned vaccines up to 1 years.

Non-Immunization:

Children who haven't received any of the vaccine before reaching one year of age



RESULTS

The immunization status was assessed for the children between the age group of 12-23 months.

**FIG- 2 Overall Immunization Status of children
(n=210)**

sex	fully immunized	%	partially immunized	%	unimmunized	%
females	57	41.9	36	48.6	0	0.0
males	79	58.1	38	51.4	0	0.0
total	136	64.8	74	35.2	0	0

- Figure 1 represents that Out of 210 children only 136 (65%) children were fully immunized, 74 (35%) children were partially immunized, and no child is unimmunized. And out of total 93 females approx. 42% are fully immunized and about 49% are partially immunized. Apart from that, out of total 117 male children about 58% were fully immunized and about 51% male were partially immunized

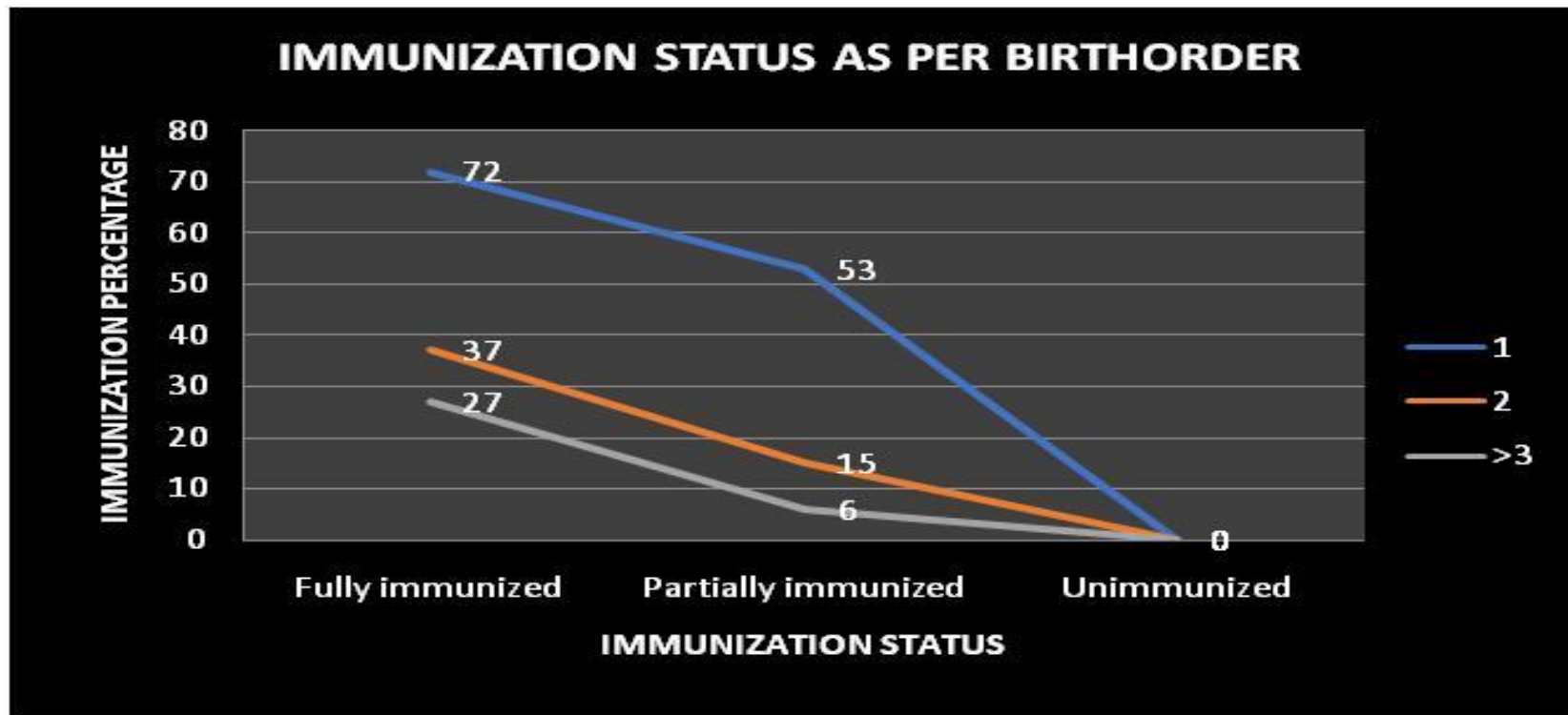
FIG-3: INDIVIDUAL VACCINE COVERAGE (N=210)

Vaccine	MALE	FEMALE	TOTAL
BCG	117	92	209
%	56	44	99.5
OPV	97	78	175
%	55.4	44.6	83.3
HEP -B	80	62	142
%	56.3	43.7	67.6
PENTA-1	116	93	209
%	55.5	44.5	99.5
IPV-1	116	93	209
%	55.5	44.5	99.5
PENTA-2	114	92	206
%	55.3	44.4	98.1
IPV-2	114	92	206
%	55.3	44.4	98.1
PENTA-3	113	91	204
%	55.4	44.6	97.1
IPV-3	113	91	204
%	55.4	44.6	97.1
MEASLES	113	88	201
%	56.2	43.8	95.7

It represents the coverage of individual vaccines. Overall BCG vaccine coverage was 99.52%. Adding to that, the total Hepatitis B coverage is approximately 68%, Overall PENTA1, PENTA 2 and PENTA 3 vaccination coverage was 99.5%, 98.1% and 97.1% respectively. As per the study, overall, OPV 1, OPV 2, OPV 3 vaccination coverage was 99.5%, 98.1%, 97.1% respectively. Lastly, the Measles vaccination coverage in the present study was approximately 96%.

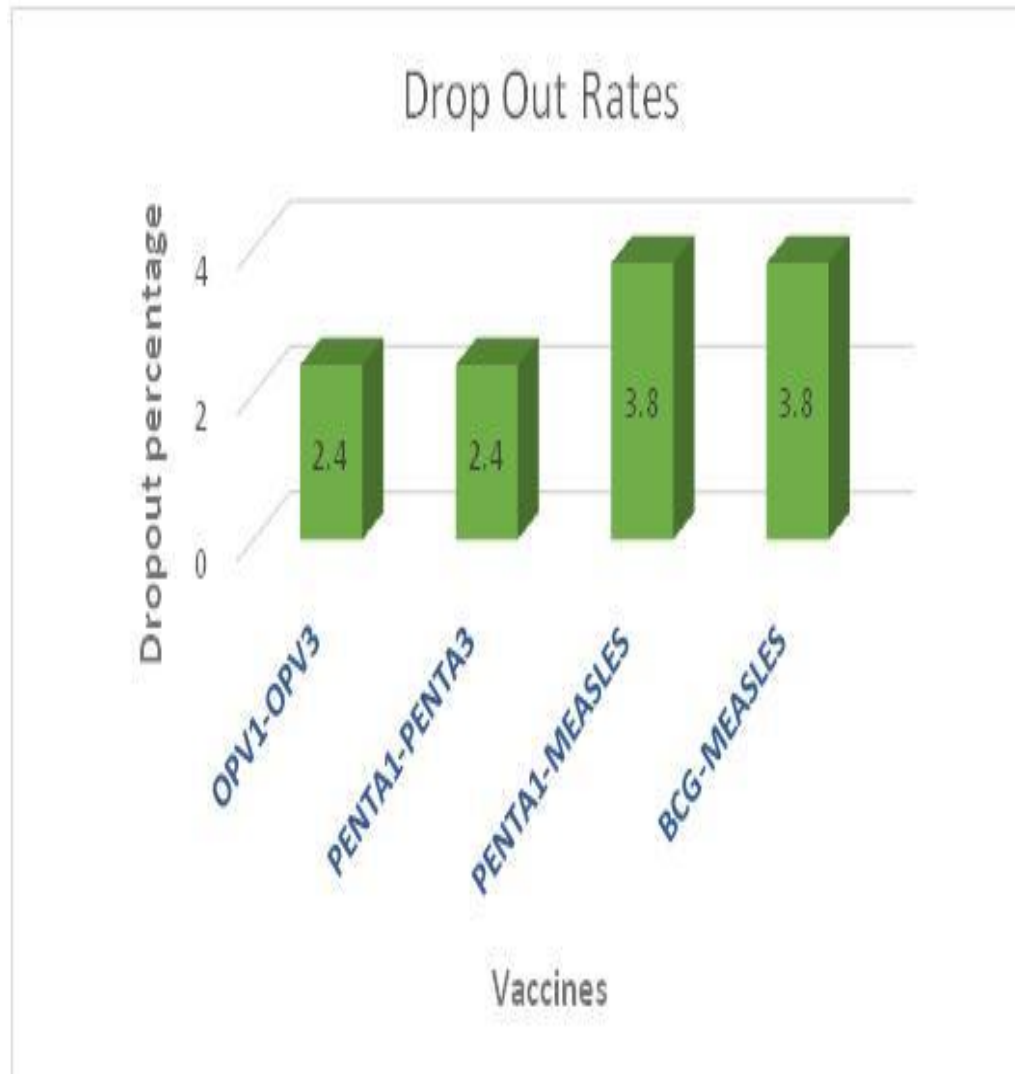


FIG 5: IMMUNIZATION STATUS AS PER BIRTH ORDER OF CHILDREN



Above fig represents the relationship between the full immunization status among the children and their birth order. Out of total 136 fully immunized children, 72, 37 and 27 children are of the birth order 1,2 and greater than 3 respectively. Further, out of total 74 partially immunized children, 53,15 and 6 children are of the birth order 1,2 and greater than 3 respectively.

FIG 4: DROPOUT RATES OF DIFFERENT VACCINES



It represents the dropout rates, which states that the overall dropout rate each from OPV 1st dose to OPV 3rd dose and Penta 1st dose to Penta 3rd dose is 2.4%. Further the overall dropout rate each from Penta 1st dose to measles 1st dose and BCG to measles 1st dose is 3.8%

CONCLUSION

The study highlights that though the immunization coverage in the area is better than the state's average, but a further improvement is needed because it still lags behind the UIP target of 100% coverage. We identified substantial dropout rate which shows need of effective surveillance and tracking system. Improvement should focus on bottlenecks by reducing the dropout rate from Penta to measles and BCG to measles vaccines. Also, the close monitoring is required to enhance the coverage of Hepatitis B vaccine. The study further shows a difference in delay in vaccination for children with higher birth order as the birth order keeps on increasing the adherence of the parents to get the child fully immunized decreases. The other interventions like continuous awareness programs regarding the complete vaccination and its importance and involving Community by inviting opinions and suggestions from them, to tackle out the issues they face can help in upgrading the immunization performance of the district.

(Due to language and time constraint the reasons of low immunization coverage and low coverage as per birth order were not studied.)



Thanks!

Hand-drawn smiley face and decorative flourish

