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ORIGINAL ARTICLE

A Study to assess the Prevalence of Immunization Drop Out among Children Less than Five Years

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ABSTRACT

Immunization is the investment for today and tomorrow, it is one of the most cost effective public health interventions to reduce infant mortality rate (IMR) as also the less than five mortality and morbidity rate by protecting the children from vaccine preventable diseases. Roughly 3.0 million children die every year from vaccine preventable diseases (VPDs) with a disproportionate number of these children residing in developing countries. India has one of the lowest routine immunization (RI) rates in the world. An intensified Mission Indradhanush was launched by the honourable Prime Minister in October 2017 to accelerate vaccination coverage. Mission Indradhanush intended to reach out to unvaccinated and partially vaccinated children with the focus on hard-to-reach and high-risk population.

Objective: To assess the prevalence of immunization drop outs among children less than 5 years in selected village of Chhattisgarh.

Design: Descriptive survey research design.

Setting: Selected village of Chhattisgarh.

Sample Size: 60 children less than five years of age.

Sampling Technique: Non probability sampling technique.

Tools: Demographic proforma and checklist was used for data collection.

Results: The results of the study revealed that out of 60 sample, 0 sample were unimmunized (0.00%), 22 sample were partially immunized (36.66%) and 38 sample were fully immunized (68.33%).

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Conclusion: The findings indicate that while the majority of parents are aware of the importance of immunizing their children but many do not complete the full immunization schedule. This highlights the need for enhanced community education and awareness programs to reduce vaccine dropout rates and promote complete immunization coverage

KEYWORDS

• Immunization drop outs • Vaccine • Diseases • Infection

INTRODUCTION

The right of every woman and every child to immunization is fully realized, with priority given to the most vulnerable.

Immunization saves 2-3 million lives each year. By protecting children against serious diseases, vaccines play a central role in ending preventable child deaths. WHO defines Immunization as a process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccine stimulates the body's own immune system to protect the person against subsequent infection or disease. Vaccines now protect more children than ever before, but nearly one in five infant miss out on the basic vaccines they need to stay alive and healthy. Low immunization level among poor and marginalized children compromise gains made in all other areas of maternal and child health.

Over 1.5 million children die annually from diseases that can be prevented by vaccination. 30% of deaths among children under five are from vaccine preventable causes. Immunization is the most cost-effective child health intervention. With UNICEF efforts, the price for number of essential childhood vaccines has reached all time lows. This has facilitated the introduction of new vaccines to children living in poorest countries. In 2018, 86% of the world's children received vaccine that would protect them against Polio, Diphtheria, Tetanus, Pertussis and Measles. Immunizations currently prevent 2 million to 3 million deaths every year. Despite this success, more than 1.5 million people worldwide die from vaccine preventable diseases every year.

Every year, UNICEF reached almost half of the world's children with life-saving vaccines. The lives of an estimated 21.1 million children were saved through measles immunization from 2010-2017. Maternal and neonatal tetanus, which is extremely fatal in newborns, has been eliminated in all but 13 countries as of March 2019. 1 billion people in Africa will be protected against yellow fever by 2026 - almost 50% of them children under 15 years of age. An estimated 85% of children under one year old were fully vaccinated against diphtheria, tetanus and pertussis in 2017. In 2019, WHO declared vaccine hesitancy to be one of the top 10 threats to public health.

1.5 million deaths could be avoided if global immunization coverage improves. 40% of unvaccinated children live in fragile or humanitarian settings, including countries affected by conflict. The landscape of routine child immunization in India is changing rapidly. The national government declared 2012-2013 to be a period of intensification in child immunization, with a focus on remote and often inaccessible rural areas, urban slums and migrant and mobile communities. The aims of this initiative were to vaccinate at least 90% of pregnant women against tetanus and ensure that all children are fully vaccinated against seven vaccine preventable diseases before they reach an age of two years. Various study conducted in India on the assessment of prevalence of immunization drop outs, revealed that there are still children present mostly in rural, remote and slum areas who are drop out cases.[1,2]

MATERIALS & METHODOLOGY

A **quantitative approach** using a **descriptive survey research design** was adopted to assess the prevalence of immunization dropouts among children less than five years of age. The study was conducted at the selected village of Chhattisgarh, involving **60 parents** of under-five children, selected through **non-probability purposive sampling**.

Inclusion criteria included mothers or caregivers:

- With at least one child aged 0–5 years
- Who were willing to participate and available during data collection
- Able to understand either Hindi or English.

Exclusion criteria included caregivers:

- Not available during the data collection period
- Unable to communicate in either Hindi or English

A structured checklist along with a **demographic proforma** was developed to assess the immunization status and identify dropout cases. Expert opinions and suggestions were sought to ensure all relevant areas were covered. The **content validity** of the tool was established in consultation with the research guide and subject matter experts, and modifications were made accordingly. The **reliability** of the checklist was tested using the **test-retest method**, yielding an **'r' value of 0.08**. The tool was deemed sufficiently reliable for proceeding with the main study, considering the exploratory nature of the research.

Ethical Consideration

The study was approved by ethical committee of AIIMS Raipur. Permission was obtained from the Principal, College of Nursing AIIMS Raipur and informed consent was obtained from each participant for the study before starting data collection. Assurance was given to the subjects that anonymity of each individual would be maintained and they are free to withdraw from the study at anytime.

ANALYSIS AND INTERPRETATION OF DATA

In order to find result, the data were tabulated, analysed and interpreted using descriptive statistics.

Table 1: Frequency and percentage distribution of demographic variables of mothers/caregivers of children less than five years of age

Demographic Variables	Frequency	Percentage
Age (years) 0-5		
0-5 yrs	60	100%
Age of Mothers/ Caregivers (Years)		
<19 years	2	(3.33%)
20-29 years	32	(53.33%)
30-39 years	21	(35.0%)
40-49 years	5	(8.33%)
Marital Status		
Unmarried	0	(0.0%)
Married	59	(98.33%)
Divorced	0	(0.0%)
Separated	0	(0.0%)
Widowed	1	(1.66%)
Relationship with Child		
Mother	54	(90.0%)
Caregiver	6	(10.0%)
Sex of Mother/ Caregiver		
Female	56	(93.33%)
Male	4	(6.66%)
Sex of child		
Male	36	(60.0%)
Female	24	(40.0%)
Religion		
Hindu	60	100.0%
Caste		
General	20	(33.33%)
OBC	18	(30.0%)
SC	21	(35.0%)
ST	1	(1.66%)
Educational status of mother		
Illiterate	1	(1.66%)
Primary Secondary	3	(5.0%)
Senior secondary	14	(23.33%)
Graduate	11	(18.33%)
Above	31	(51.66%)
Occupation of father		
Non working	1	(1.66%)
Agriculture/Labor	9	(15.0%)
Service	34	(56.6%)
Businessman	16	(26.6%)
Type of family		
Nuclear	32	(53.33%)
Joint	28	(46.66%)
Occupation of mother		
Housewife / nonworking	52	(86.66%)
Agriculture/ Labor Service	2	(3.33%)
Businesswoman	6	(10.0%)
	0	(0.0%)
Occupation of father		
Non working	1	(1.66%)
Agriculture/Labor	9	(15.0%)
Service	34	(56.6%)
Businessman	16	(26.6%)

Demographic Variables	Frequency	Percentage
Monthly income of family		
Below 10,000	14	(23.3%)
10,000-50,000	34	(56.6%)
50,000- 1 lakh	9	(15.0%)
Above 1 lakh	3	(5.0%)
APL/ BPL CARD		
APL card	49	(81.6%)
BPL card	11	(18.33%)

Description of Demographic Variables

The study included 60 children aged 0–5 years. Among the caregivers, most were mothers (90%), predominantly female (93.33%), and aged between 30–39 years (35%). The majority was married (98.33%), and all participants belonged to the Hindu religion. Caste distribution showed 35% SC, 33.33% General, 30% OBC, and 1.66% ST. Most mothers (51.66%) and fathers (80%) were graduates or above. Nuclear families constituted 53.33% of the sample. A significant proportion of mothers were housewives (86.66%), while fathers were mainly employed in service sectors (56.66%). Monthly family income mostly ranged between ₹10,000–₹50,000 (56.66%). Regarding economic status, 81.66% held APL cards, while 18.33% were BPL cardholders. Male children were slightly more represented (60%) than females (40%).

Section-B:

Table 2: Distribution of Children according to type of vaccine received from age 0-5 years

Vaccine	Total no. of Children	Frequency	Percentage
BCG	60	57	95.0%
Hepatitis-B	60	54	90.0%
OPV-0	60	55	91.66%
OPV-1	59	56	94.91%
OPV-2	58	54	93.10%
OPV-3	57	48	84.21%
OPV Booster-1	38	29	76.31%
OPV Booster-2	4	3	75.0%
Pentavalent-1	59	52	88.13%
Pentavalent-2	58	51	87.93%
Pentavalent-3	57	49	85.96%
IPV-1	59	53	89.83%
IPV-2	57	47	82.45%
Rota Virus Vaccine-1	59	47	79.66%
Rota Virus Vaccine-2	58	48	82.75%
Rota Virus Vaccine-3	57	45	78.94%
Vitamin-A	54	40	74.07%
MR	54	44	81.49%
DPT boooster-1	38	37	97.36%
DPT booster-2	4	2	50.0%

Immunization Status of Children

Among the 60 children studied, high coverage was observed for initial vaccines: BCG (95%), Hepatitis B (90%), OPV-0 (91.66%), OPV-1 (94.91%), and OPV-2 (93.10%). However, a gradual decline was noted in subsequent doses OPV-3 (84.21%), OPV Booster-1 (76.31%), and OPV Booster-2 (75%). Pentavalent vaccine coverage remained relatively high, with 88.13% receiving the first dose, 87.93% the second and 85.96% the third. IPV-1 and IPV-2 coverage were 89.83% and 82.45% respectively. Rota virus vaccine uptake showed a slight

decline across doses: 79.66% (dose 1), 82.75% (dose 2), and 78.94% (dose 3). Vitamin A and MR vaccine coverage were 74.07% and 81.49% respectively. DPT Booster-1 had the highest uptake at 97.36%, while DPT Booster-2 was the lowest at 50%. Overall, the data indicates strong initial immunization uptake, with noticeable dropouts in later doses.

Table 3: Frequency Distribution of Children According to the Immunization Status from Age 0-5 Years

Immunization 0-5 years	Frequency	Percentage
Unimmunized	0	0.00%
Partially Immunized	22	36.66%
Fully Immunized	38	68.33%
Total	60	100.00%

It is evident from the above table that out of 60 samples, none were unimmunized (0.00%), 22 were partially immunized (36.66%), and 38 were fully immunized (63.33%).

DISCUSSION

Regarding Demographic Variables

The majority of mothers were aged between 20–29 years (53.33%), and most children were male (60.0%). Over half of the mothers were graduates (51.66%) and belonged to nuclear families (53.33%). In terms of occupation, the majority of mothers were housewives or non-working (86.66%), while most fathers were employed in service jobs (56.66%). Only a small proportion of families were BPL card holders (18.33%).

Regarding Immunization Status of Children's Age 0-5 Years

The majority of children aged 0–5 years were appropriately immunized. BCG vaccine coverage was highest at 95%, followed by OPV-1 (94.91%), OPV-2 (93.10%), and Hepatitis B (90%). Immunization rates for OPV-0 and IPV-1 were 91.66% and 89.83%, respectively. Coverage for the three doses of Pentavalent vaccine ranged from 85.96% to 88.13%. Rota virus vaccine was received by 79.66% of children, while Vitamin-A supplementation and MR vaccine coverage were 74.07% and 81.49%, respectively. DPT Booster-1 had the highest recorded uptake at 97.36%. These findings suggest generally high immunization rates, though a slight decline is observed in the later doses of multi-dose vaccines.

The majority of children (68.33%) were fully immunized, while 36.66% were partially immunized. Notably, none of the children were unimmunized.

CONCLUSION

The primary aim of the study was to assess the immunization status of children and determine the prevalence of immunization dropout within the study setting. The findings indicate that while the majority of parents are aware of the importance of immunizing their children, many do not complete the full immunization schedule. This highlights the need for enhanced community education and awareness programs to reduce vaccine dropout rates and promote complete immunization coverage

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