

Research Article

A cross sectional study on immunization status of anganwadi children in a rural area of north Kerala, India

Rajeev S. V.^{1*}, Radhamani K. V.²

¹Assistant professor, Department of Pediatrics, Sree Gokulam Medical College, Thiruvananthapuram, Kerala, India

²Professor, Department of Pediatrics, Academy of Medical Sciences, Pariyaram, Kannur, Kerala, India

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*Correspondence:

Dr. Rajeev S.V.,

E-mail: svrajeev@gmail.com

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ABSTRACT

Background: The current scenario depicts that immunization coverage has been steadily increasing but the average level remains far less than the desired. Though there is increased accessibility of health care services in rural areas, its utilization is low. Hence the present study is undertaken in an attempt to assess immunization status of children between 2 to 5 years of age enrolled in anganwadi centers in a field practice area of Pariyaram Medical College. The aim of the study was to assess the immunization status of anganwadi children in a rural area of north Kerala, India.

Methodology: A cross Sectional Study was done among anganwadi Children between ages 2 to 5 years from January 2013 to March 2013 at Cheruthazham. Cluster sampling method was used. Each Anganwadi centre was considered as a single cluster and all children from the selected anganwadi centers were included in the study. Data was analyzed by SPSS Version 17, Microsoft excel 2007.

Results: 94% of children were fully immunized with BCG, DPT, OPV and measles. Coverage was highest for BCG, DPT-1 and OPV-1 (100%) and least for measles, 94%. The major cause of incomplete immunization was postponement of immunization due to inter current illness of the child. There is only marginal difference in immunization coverage according to gender, religion or education of parents.

Conclusion: Regular health education sessions, and regular reminders and removal of misconceptions prevailing among people will solve the problems of non-immunization.

Keywords: Immunization, Rural, Anganwadi

INTRODUCTION

Immunization is often cited as being one of the most cost-effective public health interventions. A vaccine is an immuno-biological substance designed to generate specific protection against a given disease.¹ Globally, each year 130 million children are born, of which 91million are in the developing countries. However, around 10 million children under the age of five years die every year and over 27 million infants in the world do not get full routine immunization.² The Universal Immunization Programme (UIP) was launched in Nov 19th 1985. Post-National Immunization Programme era

has witnessed a dramatic decrease in the incidence of the VPD's. Of the several VPD's, as of now, only small pox has been eradicated; which was confirmed in May 1980.³ Another major milestone in the field of preventive medicine is the elimination of polio in India. The National Population Policy (NPP) 2000, aims at complete protection of all children against vaccine preventable diseases by 2010 and aim to immunize all children against six common childhood diseases (tuberculosis, tetanus, pertusis, diphtheria, measles and polio).⁴ Immunization programs in rural areas can exert significant effects on vaccine preventable disease associated mortality by limiting the number of cases,

decreasing clustering of cases within households and increasing time lapse between outbreaks.

Immunization against common childhood diseases has been an integral component of mother and child health services in India since the adoption of the primary health care approach in 1978. Anganwadi centre is a part of ICDS (Integrated Child Development Services) Scheme initiated in 1975 is India's most ambitious multi-dimensional welfare programme to reach millions of children and mothers who are caught in the grip of malnutrition, diseases, illiteracy, ignorance and poverty.^{5,6}

The study was needed as 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 85 per cent coverage.⁷ Though there is increased accessibility of health care services in rural areas, still the utilization of health care services is low by the different segments of the society⁸. Several previous studies concluded with large disparities in district wise analysis of child immunization status in Kerala. Only a few studies have been done to study the immunization status of Anganwadi children, especially in rural areas. Hence the present study is undertaken in an attempt to assess immunization status of children between 2 to 5 years of age enrolled in Anganwadi centers in Cheruthazham panchayat. Cheruthazham area was chosen because no such study was conducted from this area and its proximity to Pariyaram Medical College.

The main objective of the study was to assess the immunization status of Anganwadi children in a rural area of north Kerala, India.

METHODS

It is a cross sectional study and was conducted at Cheruthazham Panchayat, Kerala State, India for three months from January 2013 to March 2013 on children (both male and female) between 2 to 5 years of age. Written informed consent was taken from the Parents/guardians. The permission to conduct study was taken from institutional ethics committee before the commencement of the study. Permission to carry out the study was sought from the concerned ICDS officer. Data was collected using a structured questionnaire.

Inclusion criteria

- Children in the age group of 2 to 5 years (both male and female) enrolled in anganwadi centres.

Exclusion criteria

- Children less than 2 year
- Children more than 5 years

- Whose mothers not willing to participate in the study

Sampling procedure

Cluster sampling method was used in the present study. Each Anganwadi centre was considered as a single cluster. First all the Anganwadi centres in cheruthazham panchayat were listed. Sample size in the present study was calculated to be 150. Therefore, out of 32 Anganwadi centres, 10 anganwadi centres were selected randomly to get a sample size of 150, considering each anganwadi has 15 to 20 children. All the Anganwadi children from the selected 10 Anganwadi centres were included in the study after applying inclusion and exclusion criteria.

A cross sectional study was carried out for a period of 3 months from January 2013 to march 2013, 2 days in a week, between 1pm to 3 pm. All the Anganwadi workers were informed about the study. The aims and objectives and procedure were explained to all of them. Data was entered in the proforma.

Method of collection of data

Immunization status was assessed with the dates in the immunization cards, a reliable history from the mother (or informant) or BCG scar were taken as an evidence of vaccination. A child receiving 1 dose of BCG, 3 doses of OPV, 3 doses of DPT and one dose of measles was considered as fully immunized and missing any one of the above vaccination was considered as partially immunized. A child who has not received any of the above vaccination was considered as unimmunized. Mothers/Guardians of partially immunized/ unimmunized children were asked the reasons for partial immunization. Data collected was analyzed by SPSS Version 17, Microsoft excel 2007. The confidence limit for significance was fixed at 95% level with p-value <0.05.

Formula used to calculate dropouts:

$$\text{Dropout rate} = \frac{\text{DPT1 coverage} - \text{DPT3 coverage}}{\text{DPT1 coverage}} \times 100$$

RESULTS

This study included 150 children between the age group 2- 5 years. Majority of the children (58%) belong to 3 to 4 year age group followed by 4-5 years 36.7% and 2-3 years 5.3% (Table 1).

Table 1: Distribution according to age and gender.

Age group (years)	Male		Female		Total	
	Number	%	Number	%	Number	%
2-3	3	2.0	5	3.3	8	5.3
3-4	45	30	42	27.63	87	58
4-5	19	12.6	36	24	55	36.7
Total	67	44.7	83	55.3	150	100

In this study 44.7% of children were males and 55.3% were female. The results showed that 94% of children were fully immunized with BCG, DPT3, OPV3 and measles; 6% were partially immunized. There are no

unimmunized children (Table 2). The percentages of completely immunized children were almost equal in both groups (94%).

Table 2: Distributions according to immunization status.

Age group	Completely immunized			Partially immunized			Un-immunized			Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
2-3	3	4	7 (87.5)	0	1	1 (12.5)	0	0	0	8
3-4	42	40	82 (94.2)	3	2	5 (5.7)	0	0	0	87
4-5	18	34	52 (94.5)	1	2	3 (5.45)	0	0	0	55
Total	63 (94)	78 (93.9)	141(94)	4 (5.9)	5 (6.02)	9 (6)	0	0	0	150

Table 3: Distributions based on religion and immunization status.

Religion	Fully immunized	Partial	Unimmunized	Total
Hindu	124 (94.6)	7 (5.3)	0	131 (87.3%)
Christian	6 (85.7)	1 (14.28)	0	7 (4.7%)
Muslim	11 (91.6)	1 (8.3)	0	12 (8%)
Total	141 (94)	9	0	150

Table 4: Distributions based on education of parents and immunization status.

Immunization status	Illiterate	Primary and middle	Metric Hsc and above	Total
Complete	0	60 (95.2)	81 (93.1)	141(94)
Partial	0	3 (4.7)	6 (6.89)	9 (6)
Un immunized	0	0	0	0
Total	0	63 (42)	87 (58)	150

Table 5: Immunization statuses of children.

Vaccine	Present study			India (NFHS 3)
	Male	Female	Total (150)	
BCG	67	83	150 (100%)	78%
DPT1/OPV1	67	83	150 (100%)	
DPT2/OPV2	67	81	148 (98.6%)	
DPT3/OPV3	66	81	147 (98%)	55%
MEASLES	63	78	141 (94%)	59%

Table 6: Immunization card status.

Immunization card	Present	Absent	Total
Number	139 (92.66)	11 (7.3)	150
Fully immunized	136 (96.45)	5 (3.54)	141
Partially immunized	3 (33.33)	6 (66.7)	9

In this study group 87.3% of children were Hindus, 8% Muslims and 4.7% Christians (Table 3). Fully immunized children are more in Hindus followed by Muslims and Christians. Majority (58%) of parents of the children under the study had education above HSC level (Table 4) and 42% had middle to high school education and no illiterate parents. With regard to type of vaccinations,

coverage was the highest for BCG, DPT-1 and OPV-1 (100%) and the lowest for measles vaccine (94%) (Table5).

Table 7: Reasons for partial / un immunization.

Reasons for partial/un immunization	Number	Percentage
Inter current illness	5	55.5%
Non availability of vaccine	0	0
AEFI	2	22.2%
Lack of faith	0	0
Time Constrains	2	22.2%

The coverage rate for all the vaccines was slightly higher among male as compared to female though it was found to be statistically insignificant ($p>0.05$).

In the present study, immunization cards were available with 92.66% of the mothers' of children (Table 6). Immunization coverage was better in case of children who had their immunization cards available. The major cause of incomplete immunization (Table 7) was postponement of immunization due to inter current illness of the child and other reasons were parent's fear of AEFI and time constraints.

DISCUSSION

This study was done to assess the primary immunization status of anganwadi children in a rural area of north Kerala. In this study, 44.7% of children were males and 55.3% of were females. Majority (58 %) of the children belong to 3 to 4 year age group. In the study by Mandal GC et al 49.20 % of children were boys and 50.79 % were girls.⁹ In the study conducted by Deshmukh PR et al in under six children 52% of were male and 48% of were female.¹⁰

In the present study, majority (87.3%) of children was Hindu, followed by Muslim 8 % and 4.7 % belong to Christian. Harishankar et al in his study of under 6 children reported 97.9% belongs to Hindu religion and 2.04% to Muslim religion.¹¹

94 percent of the children were fully immunized and immunization coverage was found to be more among males as compared to females though the difference was found to be statistically insignificant ($Z=1.3$, $p>0.05$). The rest of the children were partially immunized (6%). However, partially immunized female children were more as compared to male children though the difference was not significant ($p>0.05$). As observed, gender of the child did not significantly affect immunization status of the child.

Similar results were found in another study at Delhi by Kar M, et al which reported that the sex of the child did not affect significantly the immunization of the child. This might be due to better knowledge and higher literacy rate of population residing in our area.¹² As the age increases frequency of individual vaccination decreased.

In the present study, immunization cards were available with 92.66% of children. Immunization coverage was better in case of children who had their immunization cards available. This shows that mothers were well motivated and have understood the importance of maintaining such records with them for follow-up. Similar results were shown in the studies conducted by Tapare VS et al and Kadri AM et al in which 81.25% and 88.4% of the mothers possessed the immunization card with them, respectively.^{13,14} It was also evident from National Family Health Survey III (NFHS-III) that only

12.22% of the mothers did not have immunization cards with them.¹⁵

There was gradual increase in the dropouts from BCG to measles vaccination and DPT to measles vaccination. A dropout rate of 2% for DPT was observed in the present study. The dropout rate indicates the systems inability to hold on the child once registered. Study by Yadav S et al also found that the main reasons for dropout or unimmunization of children were visit to native place/village in about 80% and 20% inconvenience.¹⁶ Punith K et al also revealed that unaware of the need of immunization followed by fear of side reaction was the major reason for discontinuation of immunization.¹⁷ Time constraints prove to be a major factor resulting in partial immunization. Fear of AEFI, prevails among most of the mothers. The need for public health education regarding the importance of primary immunization is to be emphasized. Awareness has to be created regarding the management of post vaccination sequelae. The availability of medical and emergency facilities in the local health care centers to attend AEFI has to be enlightened upon.

CONCLUSION

The results in the present study prove that even after thirty years of implementation of the UIP, routine immunization has not reached all. There was only marginal difference in immunization coverage with all three doses according to gender, religion or education of parents. In case of female children, coverage was slightly higher among Hindus. The accurate measurement of vaccination coverage is an essential step in determining expected reductions in morbidity and mortality from VPDs. In the present study, vaccination coverage for all the vaccines was better than NFHS-III data. In this study coverage for BCG, DPT1 was maximum, 100% and least for measles, about 94%. There was no gender discrimination in the immunization coverage for children. The prime reason behind partial immunization as per our study is inter current illness and fear of AEFI. Steps for improvement should focus on reducing the dropout rate from BCG to measles and DPT-1 to measles. State routine immunization monitoring system needs to be geared up for effective 100 per cent immunization coverage.

Recommendations

From the observations made during the course of the study and considering the results and discussion of the present study, the following recommendations are advised. Vigilant surveys should be conducted so that pockets of partial/ unimmunization are identified and proper actions can be taken.

Regular health education sessions and motivation through an encouraging and persuasive interpersonal approach, regular reminders and removal of

misconceptions prevailing among people will solve the problems of non-immunization. Routine motivation of the mothers by the grass root level health workers and the anganwadi staff is bound to manifest with better attendance at the immunization clinics.

A compulsory possession of Immunization cards for school admission can be taken as a positive approach towards increasing the level of awareness for immunization. Last but not the least emphasis on social mobilization especially with help of media should be encouraged.

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