

Original Research Article

Assessment of immunization status among under five children in rural Mangaluru: a cross sectional study

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ABSTRACT

Background: Immunization is the process whereby a person is made immune resistant to an infectious disease, typically by the administration of vaccine. If exposure to a disease occurs in a community there is a little to no risk of an epidemic if people have been immunized. This study was to assess the immunization status among children up to 5 years in rural Mangaluru.

Methods: A community based cross sectional study was conducted among children of 0-5 years of age group (n=93) in rural Mangaluru using convenient sampling technique. After obtaining oral consent from parents, immunization status of children was assessed using validated questionnaire and details of child found to be partially immunized or not at all, reasons for not giving the vaccine were also collected.

Results: 52.7% of the study population was partially immunized and 46.2% were fully immunized; only 83.9% possessed an immunization card. Majority of them have not taken measles/MR (55.9%) and also IPV 1 (46.2%) and Vitamin A2 (61.3%) because of unaware need for further immunization (58%).

Conclusions: According to the survey, conducted in rural fields, we found that half of the population was partially immunized. Reasons being lack of awareness, negligence of parents, unaware of 2nd and 3rd dose of vaccines.

Keywords: Immunization, National immunization schedule, Children under 5, Mangaluru

INTRODUCTION

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease.¹

Universal Immunization Programme of 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, EPI was launched in India in January 1978.²

The Indian version, the Universal Immunization Programme (UIP), was launched on November 19, 1985 and was dedicated to the memory of Smt. Indira Gandhi.² At present this is known as National Immunization Schedule (NIS).

Vaccinations prevent us or our child from getting diseases for which there are often no medical treatments. These illnesses can result in serious complications and even death. A small number of people may be susceptible to disease, such as those with impaired immune systems. These people may not be able to get vaccinations or may not develop immunity even after having been vaccinated. Their only protection against certain diseases is for others to get vaccinated so the illnesses are less common. If

exposure to a disease occurs in a community there is a little to no risk of an epidemic if people have been immunized.³

According to the NFHS-4, Karnataka state fact sheet it is seen that children aged between 12-23 months who were fully immunized (BCG, measles and 3 doses each of Polio and DPT) were found to be 63%. In rural areas it was 65% and in urban it is 60%. Most of them received the vaccines from public health facility accounting to 88%.⁴

Therefore the objectives of this study was to assess the immunization status among under five children in our rural field practice areas, reasons for partial immunization and to know the prevalence of fully immunized under-5 children.

Aim

To assess the immunization status among children up to 5 years in rural field practice areas of Kanachur Institute of Medical Sciences, Mangaluru.

Objectives

- To know the prevalence of fully immunized under-5 children in our rural field practice areas.
- To assess the causes for partial immunization and non-immunization.

METHODS

A community based cross-sectional study was conducted among under five children (n=93) in rural Mangaluru using convenient sampling technique. The period of study was from March 2019 to April 2019. Study area were rural field practice areas of Kanachur Institute of Medical Sciences, i.e., Talapady and Pilikoor.

Sample size

Sample was calculated using the formula,

$$n = \frac{4pq}{d^2}$$

Where, p=prevalence of children fully immunized at the age of 12-23 months as per NFHS-4=64.8~65 in rural Karnataka.⁴

$$q = 100 - p = 100 - 65 = 35$$

d=allowable error.

$$\text{Therefore, } n = \frac{4 \times 65 \times 35}{100} = 91 \approx 93$$

Inclusion criteria

Children of 0-5 year's age group resident of the area were taken as study subjects.

Exclusion criteria

Children/parents who are not willing to participate in the study were excluded.

Data collection

Oral consent was taken from parents and validated questionnaire was used to conduct the study.¹¹ The variables studied cover the details like mother's/guardian name, age, religion and child's age, gender, date of birth, whether immunized or not and the source of immunization. If a child was found to be partially immunized or not at all immunized, reasons for not giving the vaccine were explored. The reasons for partial immunization were grouped into 3 main categories namely: Lack of information, lack of motivation and obstacles. At the end of the interview if the child was found to be fully immunized, reminder was given for the next vaccine which was due. If a child was found to be partially immunized or not at all immunized, then the respondent was informed about the vaccines which are needed to be given and the importance of giving them at the earliest.

Operational definitions

Fully immunized

Child who had received all doses of vaccine for which he/she was eligible by age as per National Immunization Schedule, India.²

Partially immunized

Child who was not fully immunized but received only one or two doses of vaccine for his/her age as per National Immunization Schedule, India.

Unimmunized

Child who had not received any vaccine for the age, though eligible.

Data analysis

Data collected were entered in Microsoft excel and data analysis was done using SPSS version 25 and presented using descriptive statistics. Association between two attributes was seen using Chi-square statistics. The results with p-values <0.05 was taken as statistically significant.

RESULTS

A total of 93 children were included in the study. According to Table 1 which shows socio-demographic details of mother/primary care takers the study subjects. 34.4% mothers educational status up to primary school. Majority of mothers were homemakers (98.9%). Mean

age of the mother was found to be 29.1 yrs. with a standard deviation of 4.2 yrs.

Table 1: Socio-demographic details of mother/primary caretaker.

	Frequency	%
Educational status of mother		
Illiterate	2	2.2
Primary school	32	34.4
Secondary school	31	33.3
Pre university and above	28	30.1
Occupation of mother		
Homemakers	92	98.9
Daily labourer	1	1.1
Farmer	0	0
Self employed	0	0
Government or others	0	0
Age of mother (in years)		
20-24	15	16.1
25-29	32	34.4
30-34	34	36.6
35-39	12	12.9

Table 2: Socio-demographic details of children (n=93).

	Frequency	%
Age of child in months		
0-12	22	23.7
12-24	24	25.8
25-36	16	17.2
37-48	18	19.4
49-60	13	14.0
Gender		
Male	45	48.4
Female	48	51.6
Religion		
Hindu	2	2.2
Muslim	90	96.8
Christian	1	1.1
Others	0	0
Place of delivery		
Home	0	0
Clinics or hospital	93	100.0
Others	0	0

According to Table 2, 25.8% children belong to the age group of 12-24 months. Majority 96.8% belongs to Muslim religion. Females account to 51.6% and all of them had institutional delivery.

Table 3 shows 52.7% children were partially immunized and only 46.2% were fully immunized and one child was unimmunized.

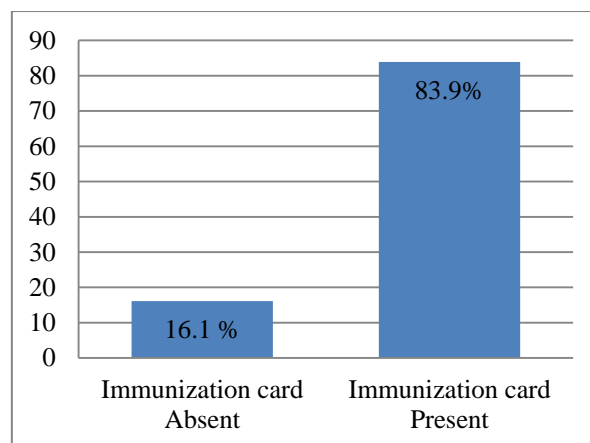


Figure 1: Possession of immunization card (n=93).

*Source of immunization was either hospital or Anganwadi centre in all the cases.

Figure 1 shows 83.9% children have immunization card.

Table 3: Immunization status of children (n=93).

	Frequency	%
Fully immunized	43	46.2
Partial immunized	49	52.7
Not immunized	1	1.1
Total	93	100.0

Table 4: Vaccines missed by the study subjects.

Schedule	Vaccine not Taken	Frequency	%
At birth	BCG	1	1.1
	Hep B	9	9.7
	OPV 0	2	2.2
6 weeks	OPV 1	1	1.1
	Pentavalent 1	5	5.4
	IPV 1	43	46.2
10 weeks	OPV 2	3	3.2
	Pentavalent 2	6	6.5
14 weeks	OPV 3	2	2.2
	Pentavalent 3	13	14.0
9-12 months	Measles 1/MR 1	15	16.1
	Vitamin A1	22	23.7
	DPT Booster 1	33	35.5
16-24 months	Measles 2/ MR 2	52	55.9
	OPV Booster	44	47.3
	Vitamin A2	57	61.3
5-6 years	DPT Booster 2	3	3.2

According to Table 4, vaccines missed by the study subjects, majority were measles 2/MR 2-55.9%, IPV-46.2% and vitamin A2-61.3%. Least missed vaccines were BCG-1.1%, OPV birth dose-2.2%.

Table 5: Reasons for partially immunized or not immunized.

Reasons for	Frequency	%	
Lack of immunization	Unaware of need for immunization	29	58.0
	Unaware of need to return for 2 nd or 3 rd dose	13	26
	Fear of side reaction	0	0
	Wrong ideas about contraindication	0	0
Lack of motivation	Postponed until another time	3	6.0
	Cultural or religious reasons	1	2.0
	Rumours	0	0
Obstacles	Place of immunization too far	0	0
	Time of immunization inconvenient	0	0
	Vaccination absent/ Vaccination not available	10	20
	Mother too busy	2	4.0
	Family problem including illness of mother	0	0
	Child ill-brought but not given immunization	2	4.0
	Long waiting time	1	2.0

Table 6: Factors associated with immunization status.

	Fully immunized	Partially or non immunized
Gender		
Boys	20	25
Girls	23	25
Age of child (in months)		
Upto 12	16	6*
13-60	27	44
Age of mother (in years)		
20-29	23	24
30-39	20	26

*It was seen that there was a significant association between the age of the child and their immunization status $p=0.004$ (Chi-Square).

According to the Table 5, reasons for partially immunized or not immunized were-unaware of need for immunization 58%, unaware of need to return for 2nd or 3rd dose 26%. Vaccination absent or vaccination not available was 20%, postponed until another time was 6%.

Children up to 12 months had better immunization status as compared to children of 13-60 months age.

Gender of the child and age of the mother did not have any significant association towards immunization status.

DISCUSSION

In our study out of 93 study subjects 24 (25.8%) belonged to the age group of 12-24 months. 51.6 % were girls, 96.8% were Muslim by religion, with mean age of the mother being 29.1 years+/-4.2 years. Majority of them were homemakers by occupation (98.9%) and most of them with primary education (34.4%).

Table 7: Reasons for partially immunized or not being immunized.

Reasons	Our study (%)	In Kumar et al ⁵ (%)	In Srivastava et al ⁶ (%)	In Khargekar ⁷ (%)
Lack of awareness	84	24.2	41	-
Negligence by parents	-	-	32.5	-
Fear of side effects	-	-	-	40
Visit to native place	-	-	-	37.5
Inconvenient time of immunization	-	22.6	-	-
Postponed until another time	-	22.6	-	-

In our study 46% children were found to be fully immunized and 52.7% were partially immunized while 1.1% of children were unimmunized. In a study done in 2015 by Kumar et al.⁵ Slum areas in Mangaluru Taluk, India total 150 under five children, 58.7% were fully immunized, 41.3% were partially immunize. In a study done by Srivastava et al, in 2016 urban Bagalkote, showed that out of total 283 under five children 83% children were found to be fully immunized and 16% were partially immunized while 1% of children were unimmunized.⁶ In a study done by Khargekar et al, in 2015 in tribal area, Parol, Thane district showed that completely immunized children were 71.1%, partially

immunized children were 17.8% and 11.1% were not immunized.⁷

In our study reasons for partially immunized/not being immunized is due to lack of awareness 84% of them whereas in Kumar et al study and Srivastava et al study 24.2% and 41% respectively.^{5,6}

CONCLUSION

In our study, out of total study population, 46.3% were fully immunized, 52.7% were partially immunized and 1.1% was not immunized. According to NFHS-4, Karnataka state fact sheet it is seen that children aged 12-23 months who were fully immunized, in rural areas was 65% and in urban it was 60%. Though Dakshina Kannada is a developed district in Karnataka, when survey was conducted in our rural field practice areas, we found out that half of the populations were partially immunized. Major reasons being lack of awareness, unaware of 2nd and 3rd dose of vaccines.

Recommendations

Awareness programmes to create knowledge about immunization at community level. Improve knowledge about immunization among mothers. To recommend ASHA workers to encourage mothers/care takers to complete the immunization schedule on time. To promote timely completion of immunization schedule.

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REFERENCES

1. World Health Organization. Immunization. Available at <https://www.who.int>. Accessed 30 April 2019.
2. Park K. Park's Textbook of Preventive and Social Medicine. Universal Immunization Programme. 24th edition. India, Banarsidas Bhanot Publishers; 2017: 131.
3. Importance of Immunization. Available at <https://www.healthlinkbc.ca>. Accessed 30 April 2019.
4. State fact sheet: Karnataka .National family health survey-4, 2015-16. Ministry of Health and Family Welfare. Mumbai, International Institute for Population Sciences.
5. Kumar S, Prabhu S, Jose AP, Bhat S, Souza OD, Narayana V. Assessment of under-five immunization coverage among the population of slum areas in Mangalore Taluk, India. Int J Community Med Public Health. 2017;4(3):781-6.
6. Srivastava AK, Shankar G. A study of immunization coverage and its determinants among under five children residing in urban field practice area of S. N Medical college, Bagalkot, Karnataka, India. Indian J Forensic Community Med. 2017;4(1):49-53.
7. Khargekar NC, Khargekar VC, Shingade PP. Immunization status of children under 5 years in tribal area, Parol, Thane district. Nat J Community Med. 2015; 6(4):522-7.
8. Kadam DM, D' Souza C, Sagwekar PV, Patel K. Immunization of children in the age group 0-5 years in urban slum area of Pratiksha Nagar, Sion, Mumbai. Int J Res Med Sci. 2016;4(8):3343-7.
9. Sinha S, Kumar S, Chaudhary SK, Sinha S, Singh V, Kumari S. A study on the immunization status and factors responsible for incomplete immunization amongst children of age group 0-12 months coming to a tertiary care hospital. International journal of community medicine and public health. 2018;5(10):433-4.
10. Angadi MM, Jose AP, Udgiri R, Masali KA, Sorganvi V. A study of knowledge, attitude and practices on immunization of children in urban slums of Vijaypur city, Karnataka, India. J Clin Diagn Res. 2013;7(12):2803-6.
11. UNICEF. Somaliland Immunization Coverage Survey - July 2008. Available at https://www.unicef.org/somalia/resources_11685.html. Accessed 30 April 2019.

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