

Original Research Article

A study on immunization coverage of 12-23 months children in urban areas of Kanchipuram district, Tamil Nadu

Duraimurugan Murugesan¹, Ramasubramanian R.^{2*}

Department of Community Medicine, ¹Govt Mohan Kumaramangalam Medical College, Salem, ²Madras Medical College, Chennai, Tamil Nadu, India

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*Correspondence:

Dr. Ramasubramanian R.,

E-mail: ramasubbu1970@gmail.com

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ABSTRACT

Background: Immunization forms the major focus of child survival program throughout the world. Roughly 3 million children die each year of Vaccine Preventable Diseases (VPDs) with a disproportionate number of these children residing in developing countries. Majority of the population in rural areas depend mainly on Govt. agencies for health care, including immunization. Whereas, in urban areas in spite of multiple agencies providing health care. Hence, the present study was carried out in urban areas of Kanchipuram district to know the current level of immunization status and also the reasons for failure in immunization. The objectives of the study were to assess the immunization coverage among children 12-23 months in municipality areas of Kanchipuram district, to find out the reasons for non-immunization or partial immunization and to recommend measures to improve the immunization coverage

Methods: 30/7 cluster technique by using immunization program coverage survey household form.

Results: Out of 210 study population, 130 (61.5%) were boys and 80 (38.5%) were girls. 115(55%) children were from Hindu community, 47 (22%) Muslims and 48 (23%) Christians. The mothers who were able to show the card to the investigator was 122 (58%), whereas the rest (88) 42% of the mothers were not able to produce the card during the day of survey. The percentage of fully immunized was 160 (76%), partially immunized was 50 (24%).

Conclusions: As immunization forms a critical component of primary health care, at most importance needs to be given to the same so that child will not be deprived of the precious drop or prick. Every opportunity should be used to vaccinate eligible children by overcoming the hurdles, to achieve the goal of 100% immunization coverage.

Keywords: Immunization, Partial immunization, Drop out

INTRODUCTION

Immunization forms a critical component of primary health care and ensures nation's health security. Although international agencies such as World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and now the Global Alliance for Vaccines and Immunization (GAVI) provide extensive support for immunization activities, the success of an immunization program in any country depends more upon local realities

and national policies. This is particularly true for a huge and diverse developing country such as India, with its population of more than 1 billion people and 25 million new births every year.¹

Recent estimates suggest that approximately 34 million children are not completely immunized with almost 98% of them residing in developing countries.² India reported declining trend in vaccine preventable diseases like diphtheria from 12,952 (1987) to 4071 (2014), measles from 2,47,519 (1987) to 23,348 (2014) which reflects the

extent of the problem.³ Universal Immunization Program was implemented in India in 1985. Following this, from 1987 to 2009, the coverage level for immunization had gone up significantly to about 87% for BCG, 66% for DPT three doses, 67% for OPV three doses, 70% for measles.⁴ In India, as per NFHS-3(2005-06) survey, among children aged 12-23 months, the percentage who received specific vaccines was 78.1% for BCG, 86.5% for polio (3 doses), 66% for DPT (3 doses) and 58.8% for Measles. In Tamil Nadu according to the same data, the coverage percentage for children 12-23 months was 99.5% for BCG, 87.8% for Polio, 95.7% for DPT, 92.5% for measles.⁴ The coverage evaluation survey (2009) done by UNICEF shows the percentage of fully immunized in Tamil Nadu as 76% for children among 12-23 months.⁵ The current scenario depicts that immunization coverage has been steadily increasing but the all India average remains far less than the desired goal of achieving 85% coverage. Since Tamil Nadu outperforms in various health indicators on comparison with the national average, it is prudent to expect far better immunization coverage in the state. Majority of the population in rural areas depend mainly on Govt. agencies for health care, including immunization. Whereas, in urban areas in spite of multiple agencies providing health care, the immunization coverage was 43%.⁶ Even, the trends in vaccine coverage between NFHS-2 and NFHS-3 in urban (60.5% to 57.6%) and rural (36.6% to 38.6%) areas showed that there is improvement in the coverage of full immunization in rural areas than in urban areas. Hence, the present study was carried out in urban areas of Kanchipuram district to know the current level of immunization status and also the reasons for failure in immunization.

Aim

The aim was to study the primary immunization status of 12-23 months children in urban areas of Kanchipuram district.

Objectives

1. To assess the immunization coverage among children 12-23 months in municipality areas of Kanchipuram district.
2. To find out the reasons for unimmunization or partial immunization.
3. To recommend measures to improve the immunization coverage.

METHODS

For evaluation of immunization coverage, the 30- cluster technique of WHO is the gold standard, since this involves actual contact with children concerned during house to house survey. Study duration was September 2014 to September 2015. Such surveys attempt to provide a realistic picture of the immunization coverage. These focus on children aged 12-23 months i.e. after they had

had the opportunity of receiving primary immunization before 12 months of age. The same technique was used in the present study also.

First step

All the 226 wards with their respective population in the 6 municipalities of Kanchipuram district were listed. The cumulative population was then calculated as 7,89,402. The sampling interval was then determined by dividing the total cumulative population by 30.

Sampling interval = $7,89,402/30=26,313$.

Second step

A random number less than the cluster interval (17,500) were generated with the help of a currency note. The cluster, which represented this number- ward no: 5 in Kanchipuram municipality whose population was almost equal to the random number was selected as the first cluster and subsequent clusters were selected by adding the cluster interval of 26,313. Thus, 30 clusters were selected on the basis of systematic random sampling. This procedure was repeated till all the 30 clusters were identified.

Third step

In each selected ward, by standing in the central place of the ward, number of streets leading from centre to outside was identified. Using a currency note, streets were then selected at random. In each street, the number of houses was closely estimated. Then again using a currency note, one house was selected at random. This was the first house of survey. It was asked, if any child was in the age group of 12-23 months in that house. If the answer was "yes", data was collected. If the answer was "no", the next house was visited. Then, similarly house to house survey was done until a total of 7 children in the age group of 12-23 months were covered. If the selected house was locked or vacant, then the next house was visited. Each mother was interviewed after a brief introduction about the purpose of the study and request to participate in the study.

Study instrument

A validated semi structured questionnaire was used for interview to obtain data. First part contains socio demographic details and second part consists of vaccination coverage, reasons for partial immunization.

Statistical analysis

Data were entered in EPIDATA software and analyzed in SPSS software version 19. Descriptive statistics used for Demographic details and vaccination coverage.

RESULTS

Out of 210 study population, 130 (61.5%) were boys and 80 (38.5%) were girls. 115 (55%) children were from Hindu community, 47 (22%) Muslims and 48 (23%) Christians. The mothers who were able to show the card to the investigator was 122 (58%), whereas the rest (88) 42% of the mothers were not able to produce the card during the time of survey. The percentage of fully immunized was 160 (76%), partially immunized was 50 (24%). There is not even a single unimmunized child in the present study.

Table 1 show BCG coverage was 100%, DPT coverage was 97.3%, OPV coverage was 97.3% and Measles coverage was 76%. In present study, among the individual vaccines, coverage was highest for BCG

(100%) followed by DPT/OPV and lowest for measles (76%).

Table 2 shows percentage of fully immunized was more in Government sector deliveries. In the present study all deliveries were institution based. The proportion of fully immunized (87%) was more in government sector. Whereas in the private sector, the proportion of the fully immunized and partially immunized was equal. This shows that the private sector did not stress more on the importance of completion of the immunization schedule.

Table 3 shows the reasons for partial immunization. In the present study, 50 (24%) were partially immunized. The reasons for partial immunization were studied under the categories of lack of information, lack of motivation and obstacles. The major reasons identified were lack of information and obstacles.

Table 1: Comparison of vaccine wise coverage of the study population with data from Tamil Nadu and urban India.

Vaccine	Present study (%) N=210	Tamil Nadu*(%)	Urban India**(%)
BCG	210 (100)	99.5	86.9
DPT	204 (97.3)	97.4	77.2
OPV	204 (97.3)	94.5	93
Measles	160 (76)	92.5	71.8

*Coverage evaluation survey **NFHS-3

Table 2: Immunization coverage and birth place.

Birth place	Fully immunized (%)	Partially immunize (%)	Total
Govt. PHC/GH	130 (87)	20 (13)	150
Private hospital	30 (50)	30 (50)	60
Total	160	50	210

Table 3: Reasons for partial immunization.

	Reasons	No.	%
Lack of information	Unaware of need for immunization	0	0
	Unaware of the need for 2 nd and 3 rd dose	15	30
	Place and /or time of immunization unknown (ignorance)	5	10
	Fear of adverse reactions	0	0
	Wrong notions on contraindication	0	0
Lack of motivation	Postponed till another time	5	10
	No faith in immunization	0	0
	Rumours	0	0
Obstacles	Place too far	5	10
	Time inconvenient	0	0
	Vaccine not available	0	0
	Mother too busy	5	10
	Family problem, mother ill	5	10
	Child ill- not brought	8	15
	Child ill brought, not given	0	0
Long waiting times	2	5	

DISCUSSION

The present study was done in Kanchipuram district which has 6 municipalities and 226 wards. The study population in 12-23 months of age was 210. In the present study, 130 (61.5%) were boys and 80 (38.5%) were girls among the study population, 115 (55%) Hindu, 48 (23%) Christians, 47 (22%) Muslims. The mothers who were able to show the card to the investigator was 122 (58%), whereas the rest 88 (42%) of the mothers were not able to produce the card during the day of survey. The percentage of fully immunized was 160 (76%), partially immunized was 50 (24%), there is not even a single unimmunized child in the present study. The NFHS-3 (2005-2006) survey showed that the percentage of fully immunized was 57.6% for urban India.⁴ The finding of the Coverage Evaluation Survey (2009) done by UNICEF was similar to the present study.⁵ Nath et al in his study in urban slums of Lucknow district showed the percentage of fully immunized as 41.5%, which is less than the present study.⁷ Though our findings were far better than the findings of NFHS-3 survey, we are still lagging behind to achieve the full target. In the study, the partially immunized children were found to be 24%. If this situation continuous the proportion of susceptible population will constantly build up. This may be a threat to the outbreak of vaccine preventable diseases in future. So there is a need to strengthen regular immunization and also the mop-up immunization by all agencies.

In present study, among the individual vaccines, coverage was highest for BCG (100%) followed by DPT/OPD and lowest for measles (76%). Similar trend was observed by Kar et al, Reshmi et al and Yadav et al.⁸⁻¹⁰ The coverage value for all the vaccines was highest in our study when compared to coverage evaluation survey in Tamil Nadu and NFHS-3 survey values of urban India. The coverage for measles was 76% which was less than the Tamil Nadu values of coverage evaluation of 2006. This might be due to the long interval between DPT3/OPV3 and measles. The overall dropout rate in our present study is 23.8%. Dropout rate of more than 15% is considered to be an indicator for defaulter as a problem. It is far less than that observed by NFHS-3 (2005-06) and the study by Bholonath et al, Reshmi et al and Yadav et al.^{4,7,9,10} Out of 210 children, more number of boys (86%) were fully immunized than girls (60%). This shows that even today, boys were being given more preference than girls. These findings are similar to the study by Abol et al and Yadav et al.^{10,11} Though the NFHS-3 (2005-06) survey shows that there was no sex wise difference for immunization coverage.⁴ Balraj et al in his study in North Arcot district of South India in 1988, found that 25, 66, 67 and 59% of BCG, DPT, OPV and measles vaccines had been provided by private agencies showing that availability of vaccines throughout the week and easy access even in payment terms which played an important role in achieving higher levels of coverage compared with rural areas where all vaccines are given by Government

agencies, free of charge.¹² In the present study, 50 (24%) were partially immunized. The reasons for partial immunization were studied under the categories of lack of information, lack of motivation and obstacles. The major reasons identified were lack of information and obstacles. Kar et al study in slum areas of South Delhi showed that mother's lack of information (64%) constituted the major cause for non-immunization, followed by obstacles (20%), lack of motivation (16%).⁹ Yadav et al the state of Madhya Pradesh said that lack of information and obstacles were the major reasons for non-immunization.¹³ Nath et al his study stated, the commonest reason for the partial immunization of the child was the unavailability of both the parents (17.2%) to fulfill the child's health needs, as they were preoccupied in the livelihood-generation activities.⁷ Other reasons were missing of the dose due to the visit to the native place/village (14.7%) compared to 23.1% in the study done by Kar et al carelessness (11.7%), apprehensiveness due to sickness of the child or an elder sibling as a result of vaccination (11.7%) and lack of knowledge (10.4% vs. 23.1%) by Kar et al.⁸

CONCLUSION

As immunization forms a critical component of primary health care, at most importance needs to be given to the same so that child will not be deprived of the precious drop or prick. Every opportunity should be used to vaccinate eligible children by overcoming the hurdles, to achieve the goal of 100% immunization coverage.

Limitations

Only the major municipalities were considered for the purpose of the study. Small municipalities and town panchayats were not taken due to shortage of manpower and time. The sample population is representative of the urban areas. So the results cannot be interpreted for the entire population. The statement of the mother taken into consideration for finding immunization status for those not having vaccination card.

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