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An Analysis of Immunization Status of Children in Chinnamanur and Cumbum Area of Theni District, Tamil Nadu, India

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ABSTRACT

Immunization status of children in Chinnamanur and Cumbum area were studied. It was noticed that extended package of vaccination and oral polio vaccination coverage reaches 100%. But the immunization rate declined dramatically with increase in age of children. The study clearly shows there is a positive correlation between the parent's education and immunization coverage. But in some cases educated parents fails to vaccinate their children after eight years. Promotion and creating awareness to the parents about complete vaccination may reach cent percent in future to create disease free society.

Key words: Immunization status, complete immunization, polio coverage

INTRODUCTION

Immunization is an effective strategy of improving health and child survival in developing countries like India (Fernald *et al*., 2008). It is estimated that averagely 3 million children die every year of Vaccine Preventable Diseases (VPDs) in developing countries (Kane and Lasher, 2002) and approximately estimated that millions of children are not completely immunized. Among, 98% of them were residing in developing countries (Frenkel and Nielsen, 2003). World Health Organization introduced Expanded Programme of Immunization (EPI) in 1974. In India the program was initiated in 1978 and immunization is provided free of charge at all primary health care centre in India (Claeson *et al*., 2002). WHO reports state that Immunization rates have increased dramatically for the past decade, simultaneously 23 million infants worldwide have still not attained by routine immunization services.

In India, the immunization rate remains low in certain regions. The National Family Health Survey (NFHS-3) reported, in India only 44% of children aged 1-2 years have received the basic package (NFHS, 2006). Only about half of the children of urban areas in India were fully immunized and close to 20% had not received any immunization (Pande and Yazbeck, 2002). The government created equal opportunities for immunization of children within the country. It is also concerned with identifying the groups at highest risk of remaining unvaccinated and bridging gaps/imbalances as far as possible. The National Population Policy (Government of India, 2000) aims to immunize all children against six common childhood diseases (tuberculosis, tetanus,

pertusis, diphtheria, measles and polio). In Tamil Nadu, more than 84% of children in urban areas of had received at least partial immunization, but to achieve complete immunization coverage in Tamilnadu and other states of India is still in process.

The main objective of this study is to examine the status and the factors reflecting complete vaccination of children in Chinnamanur and Cumbum area of Uthamapalayam taluk, Theni district, Tamil Nadu, India. It would be beneficial in identifying the reasons of incomplete vaccination and the present status of the area.

MATERIALS AND METHODS

This study is a descriptive systematic analysis about the childhood immunization with specific emphasis on complete immunization. Immunization details were collected from the children in the age group of 1 month to 10 years who reside in the area of Chinnamanur and Cumbum of Theni district, Tamil Nadu with the utility of the research questionnaire. Mothers were asked about the immunization received by their children and from their information it was verified by crosschecking against the vaccination card issued by PHC (primary health centre-run by state government) or private hospital. This is the commonly followed method by the Demographic and Health Surveys (DHS) which form the basis for the National Family Health Surveys (NFHS) (1). The house to house survey was made with certain types of questionnaires about age, place of immunization, administered vaccines details specifically BCG, DPT (all doses), Polio (all doses) and Measles vaccinations, parents profile and whether the PHC or private hospital would give reminder about immunization date.

In this study, we used certain criteria to categorize immunization status. The children those who have been administered extended package of immunization one dose of BCG, three doses each of DPT (diphtheria-pertussis, tetanus) vaccine and OPV and one dose of measles provided by the Indian government within a year as per schedule is termed Secured coverage. Those who have been administered vaccines as per schedule after a year to ten years is termed complete coverage and those who have not been administered vaccines to the age of ten termed incomplete coverage.

RESULTS

Totally 300 children were examined in Chinnamanur and Cumbum area of Theni district for the study of immunization coverage. The immunization details of children were collected directly from parents and verified with the immunization card issued by the hospital or immunization centre. It is apparent from Fig. 1 that 100% of children from birth to 1 year have been administered extended package of vaccines in both Cumbum and Chinnamanur, termed secured coverage. In the age of 1-2 years, 70% of children were immunized in Cumbum and 83.33% of children in Chinnamanur. The secured coverage in both area was achieved hundred percent. In Cumbum the immunization coverage from birth to two years was reached as 85% and in chinnamanur was 91.65%. The immunization coverage of both Cumbum and Chinnamanur was 88.35%.

Only about 38.8% of children were completely immunized in Cumbum and 54.54% were completely immunized in Chinnamanur in the age of 2-5. Complete immunization coverage in the age of 5 to 8 in Cumbum was 36.36% and in chinnamanur was 53.3%. It was also interesting to note that the oral polio vaccine coverage reached 100% in this area.

The present comparative analysis clearly indicated that most of the parents prefer government hospital than the private hospitals to immunize their children. In Cumbum 84% of parents have preferred government immunization centres or hospital and in Chinnamanur 72% of children have

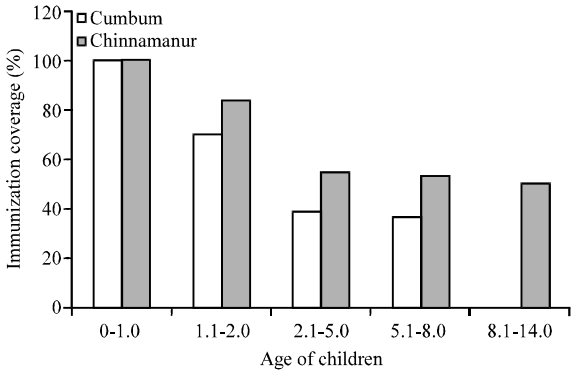

Fig. 1: Immunization coverage of children in Cumbum and Chinnamanur Immunization coverage reaches 100% in the age of 0-1 year

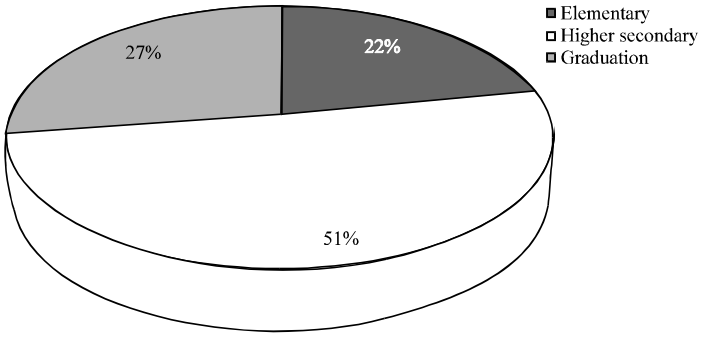

Fig. 2: Education status of parents in Cumbum. More than 70% of parents are educated in surveyed area

Table 1: Parents education

	Parents (Cumbum %)			Parents (Chinnamanur %)		
Child age	Elementary	HSC	Graduation	Elementary	HSC	Graduation
0 to 1.0	27.77	38.88	33.33	24.00	26.00	50.00
1.1 to 2.0	20.00	50.00	30.00	25.00	33.33	41.66
2.1 to 5.0	33.33	55.55	11.11	18.18	54.54	27.27
5.1 to 8.0	27.27	45.45	27.27	26.66	33.33	40.00
8.1 to 14.0	00.00	20.00	80.00	25.00	25.00	50.00

preferred government immunization centre or hospital to immunize. The education of parent plays a significant role in the immunization of children. Table 1 show the literacy rate of parents to the respective child age group. Figure 2 and 3 that more than 70% parents in the surveyed area are literate. But the apparent variations on administration of vaccination after eight years declined probably due to lack of awareness among the parents. Based on these experimental results and other studies, we found Strong correlation between knowledge of immunization (such as knowing which diseases vaccines prevent vaccine dosage and schedule) and immunization levels existed even for educated parents.

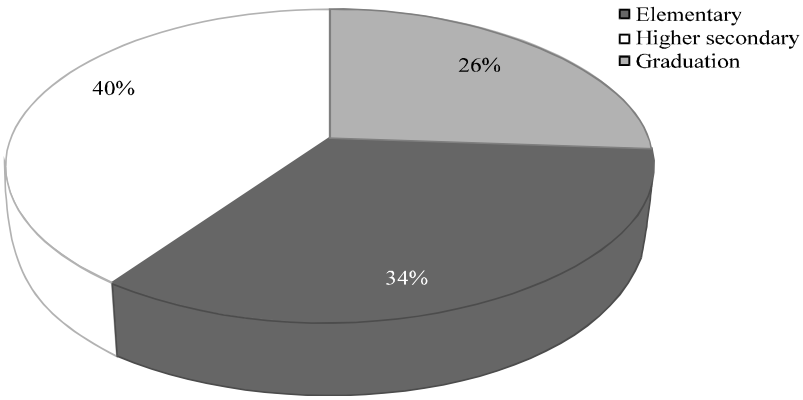

Fig. 3: Education status of parents in Chinnamanur. More than 70% of parents is educated in surveyed area

DISCUSSION

Most of the parents prefer government hospital to immunize their children because the Government of India provides vaccination at free of cost. The reports of National Family health survey (NFHS) released on 11 Oct 2007 by the Ministry of Health and Family Welfare (MOHFW), Government of India, showed Tamil Nadu is the leading state which achieved 81% vaccine coverage. It was also interesting to note that vaccination coverage up to two years from birth has been achieved 88.35% in both Cumbum and Chinnamanur. The present study has added valuable information that the immunization rate declined dramatically with increase in age. In this study we observed that immunization rate declined drastically after 8 years of age.

It is clearly evident from our data in contrast to the non polio vaccine; the polio vaccine coverage was 100%. The major reason for achievement of 100% immunization for polio was due to awareness and advertisement among the parents and the society by the government.

It has already been known that reports of Population Census of India 2011 shows the Literacy rate of Tamil Nadu was 80.3% and the literacy rate of Theni district was 77.26%. The present comparative analysis clearly indicated that the education status of either father or mother play a significant role in child immunization. Cleland and van Ginneken (1998) also reported parent education has been suggested to be the one of the most important factor determine child health outcomes. Bicego and Boerma (1993) reports also stated that maternal education play a vital role in child health. In this study we have found that maximum of the parents crossed their secondary school education and less than 17% of parents were on or below secondary school education.

The present studies have clearly shown a positive correlation between parent education and child health. Our data suggest that the variables like education and economic status of parents shows the association with children's immunization. We have shown that most of the children of educated parents in our study are more fully immunized. De and Bhattacharya (2002) studied, the literacy and the level of education of mother is a key factor which affects immunization. Previous studies of Kiros and White (2004) in Ethiopia have shown immunization rate increased if the mother is at least a middle-school-education.Maternal education improves child survival because of greater knowledge of childhood immunizations and better utilization of modern preventive services.

But all the parents properly vaccinate their children up to 12 months but the vaccination rate declined dramatically after 12 months. This resembles, according to the reports of (NFHS, 2006). Some of the main reasons reported for not getting vaccines after 2 year were lack of awareness of place/time, not aware of the need for additional doses and no faith in vaccines. The private hospitals properly intimate the parents to vaccinate their children before a week through a letter, phone call or short message service. As a result complete coverage of immunization (after eight years) is achieved by private hospitals comparatively.

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