A Cross-Sectional Study on Immunization Status among Anganwadi Children in an Urban Community of Pune

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ABSTRACT

Introduction: *Immunization not only reduces morbidity and mortality from potentially infectious diseases, it also interrupts disease transmission in the community. In a developing country like India, children are not immunised at all or partially immunised and the usage of health services is also different for different segments of society. According to NFHS III data, only 44% of infants are completely immunized, which is much less than the desired goal of 85% .So, the study was undertaken to assess the immunisation status of children (3-6 years) coming to anganwadis under the urban field practice area of B.J.Medical College, Pune.*

Aim and Objective: *To assess the immunization status of children (3-6 years) coming to Anganwadis.*

Methodology: *A cross- sectional study was done among 3-6 years old children coming to anganwadis under urban field practice area of B.J.Govt.Medical College, Pune. The study was conducted between January 2013 to July-2014. All children who were enrolled in anganwadis and the parents/guardian of children who were willing to participate were included in study after taking written informed consent. Data was analysed using SPSS softwareVersion 17.*

Results and discussion: *The number of children coming to anganwadis were more in the age group of 4-5 years (39.98%). There were more females as compared to males i.e. 41.18% & 36.44% respectively. The Immunization status was associated with various parameters but significant association was found with parameters like sex, socio-economic status, underweight and wasting ($p<0.05$). Most of the study results were similar to the findings of other studies conducted at different places and at different time intervals. There were few studies which showed contrast results-to our study.*

Summary and conclusion: *Majority of children were completely immunized. (85.43%). No association was found between different age groups and immunization status. ($p=0.9058$). It was also observed that more number of male children (21.19%) were partially immunized as compared to female children (8.82%). The number of children who were completely immunized were having lesser underweight and wasting as compared to partially immunized and unimmunized children. ($p<0.05$).The association was not statistically significant. ($p>0.05$) with respect to stunting.*

Recommendation: *All efforts should be taken to immunize those children who were partially immunized or not immunized at all.*

Key words: *Immunization, Anganwadi, Urban area.*

INTRODUCTION

Immunization not only reduces morbidity and mortality from potentially infectious diseases but also interrupts disease transmission in the community**.** However, in a developing country like India, a large proportion of children are either not immunised at all or partially immunised, which results in higher infant and child morbidity and mortality. [1] In India, Even though there is increased accessibility of health care services in both urban and rural areas, the utilization of these services by different segments of the society are different.[2] 27.8% of Indian urban poor live in slums and are at highest risk of disease transmission and MCH indicators among slum-dwellers show that their health is 2-3 times worse than people living in better urban areas.[3]

Even though Wild poliovirus has not been found in India since 13 January 2011 and India has been declared as polio free in March 2014 still we are far behind other vaccine preventable diseases.[4, 5]

According to NFHS III data, only 44% of infants are completely immunized, which is much less than the desired goal of 85%.[6] Nationwide coverage levels for immunization services is more than 90% for all vaccines. More than 12.5 million under five children in developing countries die each year, 9 million of these are due to vaccine preventable diseases. Proper implementation of universal immunization can prevent these cases. [7]

In India, although the number of children with infectious diseases has decreased significantly, there still exist problems like non-immunization, partial immunization, delay in initiation and completion of immunization of children. It is estimated that in India about 57% of children attending a health facility leave the clinic without receiving the required vaccine. [7]

The child's health is dependent upon the mother's health and cannot be considered in isolation. Thus, Integrated Child Development Scheme (ICDS) was launched by Govt. of India by the Ministry of

Social and Women's Welfare on 2nd October 1975 (5th five year plan), in pursuance of the National Policy for children in 33 experimental blocks.[8] As on 30th September 2007, 6284 ICDS projects have been sanctioned out of which 5959 projects with 9.3 lakh anganwadi centers are functioning.[8,9,10]

Looking at the magnitude of the problem an attempt has been made in the present study to assess the immunization status of 3-6 years old children coming to Anganwadis of Urban field practice area of B.J.Govt. Medical College,Pune.

AIM AND OBJECTIVE

- To assess the immunization status of 3-6 years children coming to Anganwadis.

METHODOLOGY

The present cross-sectional study was conducted among children of 3-6 years old enrolled in angawadis under the field practice area of the Urban Health Training Centre at Mangalwar Peth,which is affiliated with the department of Community Medicine B.J.G.M.C.,Pune.

First of all, permission to carry out the study was sought from the concerned ICDS officer. A pre-designed, pretested and structured questionnaire was used for data collection. There were total 278 children enrolled in these anganwadis out of which only 254 children were coming to anganwadis. All 254 children were included in the study. An enquiry of remaining children was done with anganwadi teacher and in community and it was found that they were migrants and went to different place in search of job. Study was conducted from January 2013to June 2014. The age of the child was taken by immunization cards of children. Immunization history of the child was asked to the mother/guardian and was cross checked with immunization cards. Weight and height of child were measured as per the WHO guidelines.[11]

Statistical Methods: Data was entered in Microsoft Excel sheet and analysed using software SPSS version 17 and Open Epi version 2.3.Chisquare test was used.

Ethical consideration: 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.

Definition of few terminologies used:[12]

1. Completely immunized: Child who had received all doses of vaccine for which he/she was eligible by age.
2. Partially immunized: Child who had not been completely immunized but received only one or two doses of vaccine for his/her age as per schedule.
3. Un-immunized: A child who had not yet received any vaccine for the age, though eligible except polio drops in the pulse polio drive.

RESULTS

The study included 254 children between the age group of 3-6 years. Majority of children coming to anganwadis were in the age group of 48 - 60 months (39 %) followed by age group of 60-72 months (34.2 %) and then in age group of 36-48 months (26.8%). There were more number of female children in the age group of 48-60 months than their counterparts [56 (41.18%) and 43(36.44%)] respectively. (Table-1).

The number of children who were completely immunized was 85.43% as compared to 14.57% children who were partially immunized. (Tables: 2&3) and were comparable in all age groups studied. (Table 2). The percentage of completely immunized female children was higher (91.18%) than their counterparts (78.81%). (Table -3). The percentage of partially immunized children was highest in upper middle class (42.86%). We noted a higher percentage of partially immunized children in underweight, wasting and stunting (Table-5,6,7).

Table 1: Age and Sex Composition of Children Attending Anganwadis

Age group (Months)	Male n (%)	Female n (%)	Total n (%)
36-48	35(29.66)	33(24.26)	68 (26.77)
48–60	43(36.44)	56 (41.18)	99 (38.98)
>60	40(33.90)	47(34.56)	87(34.25)
Total	118 (100)	136 (100)	254 (100)

Note: Figures in parentheses indicate percentages

Table 2: Distribution of Children according to age group and Immunization Status

Age group (in months)	Immunization status		
	Completely Immunized n(%)	Partially Immunized n(%)	Total n (%)
36-48	57(83.82)	11(16.18)	68(100)
48-60	85(85.86)	14(14.14)	99(100)
>60	75(86.21)	12(13.79)	87(100)
Total	217(85.43)	37(14.57)	254(100)

**Note*: Figures in parentheses indicate percentages

$\chi^2 = 0.1978$, df = 2 , p = 0.9058

Table 3: Distribution of Children according to sex group and Immunization status.

Sex	Immunization status		
	Completely Immunized n(%)	Partially Immunized n(%)	Total n(%)
Male	93(78.81)	25(21.19)	118(100)
Female	124(91.18)	12(8.82)	136(100)
Total	217(85.43)	37(14.57)	254(100)

**Note*: Figures in parentheses indicate percentages

$\chi^2 = 7.76$, df = 1, p = 0.005343

Table 4: Distribution of Children according to Socio- economic status and Immunization status.

Socio-economic status	Immunization status		
	Completely Immunized n(%)	Partially Immunized n(%)	Total n (%)
Upper middle	4(57.14)	3(42.86)	7(100)
Lower middle	45(77.59)	13(22.41)	58(100)
Upper lower	120(90.23)	13(9.77)	133(100)
Lower	48(85.71)	8(14.29)	56(100)
Total	217(85.43)	37(14.57)	254(100)

**Note*: Figures in parentheses indicate percentages

$\chi^2 = 9.829$, df =3, p = 0.02007

Table 5: Distribution of children according to nutritional status (WHO weight for age) and their Immunization status.

Nutritional status (Underweight)	Immunization status		Total n(%)
	Completely Immunized n(%)	Partially Immunized n(%)	
Normal	119(90.84)	12(9.16)	131(100)
Moderate	56(78.87)	15(21.13)	71(100)
Severe	42(80.77)	10(19.23)	52(100)
Total	217(85.43)	37(14.57)	254(100)

**Note*: Figures in parentheses indicate percentages

$\chi^2 = 6.441$, df =2, p = 0.01171

Table 6: Distribution of children according to nutritional status (WHO weight for height) and immunization status of children

Nutritional status (Wasting)	Immunization status		Total n(%)
	Completely Immunized n(%)	Partially Immunized n(%)	
Normal	184(83.64)	36(16.36)	220(100)
Moderate	25(100)	0(0)	25(100)
Severe	8(88.89)	1(11.11)	9(100)
Total	217(85.43)	37(14.57)	254(100)

**Note*: Figures in parentheses indicate percentages

$\chi^2 = 4.28$, df =1, p = 0.04

Table 7: Distribution of children according to nutritional status (WHO height for age) and immunization status of children.

Nutritional status (Stunting)	Immunization status		Total(%)
	Completely Immunized (%)	Partially Immunized (%)	
Normal	116(88.55)	15(11.45)	131(100)
Moderate	38(86.36)	6(13.64)	44(100)
Severe	63(79.75)	16(20.25)	79(100)
Total	217(85.43)	37(14.57)	254(100)

**Note*: Figures in parentheses indicate percentages

$\chi^2 = 3.106$, df =2, p = 0.212

DISCUSSION

In the present study most of the children coming to anganwadis were in the age group of 4- 5 years with more number of females. This finding was consistent with the study conducted by Tandon, Gandhi N. et al.[13] But the findings were in contrast to the study conducted by Saxena P et al. in urban slums of Agra district which showed that 52.85% were male .[14]However, as far as sex difference among children coming to anganwadi is concerned, the findings were in contrast to the study conducted by Kshirsagar V D et al. which showed that maximum number of children were in age group of 36-48 months (45.1%).[15]

Majority of children were completely immunized (85.43%).This finding was in contrast to the cross-sectional study conducted by Saxena P et al. who found it only 30%.[14] This might be due to better knowledge and higher literacy rate of population residing in our area.

The immunized children were uniformly distributed in all the age groups. This was in contrast to the study conducted by P.Pande et al. which showed the immunization coverage complete for age was 27% and the immunization coverage increased with increase in age.[16]

There were more number of female children than their counterparts and it was found to be statistically significant ($p < 0.05$). This was in contrast to the study conducted by Sharma S Institute in Working Paper Series where it showed that the national coverage of completely immunized children among male were 46.6% and that of females children were 44.9%.[17]

We tried to correlate the relationship between socio-economic class and immunization level. We observed that percentage of partially immunized children was highest in upper middle class and the association was found to be statistically significant. ($p<0.05$). A study conducted by Thukral M et al showed that the number of children decreased with increase in socio-economic status.[18]

There were more number of children with normal weight who were completely immunized than

partially immunized and unimmunized children. However, only underweight and wasting were significantly associated. ($p<0.05$) and the occurrence of stunting with malnutrition might be due to chance.

SUMMARY AND CONCLUSION

1) Majority of children were fully immunized. (85.43%). No association was found between different age groups and immunization status. ($p=0.9058$).
2) It was also observed that number of male children (21.19%) who were partially immunized were more as compared to the female children (8.82%). After doing further analysis we came to know that these children were from lower socioeconomic status.
3) When the weight for age of the child and immunization status was correlated, it was found that completely immunized children had less of underweight and wasting as compared to partially immunized children. ($p<0.05$). Stunting were more in the groups who had normal nutritional status. This finding might be due to co-incidence as was not statistically significant.

RECOMMENDATIONS

Though majority of the population recognized the importance of immunization, a superficial knowledge of the schedule among parents regarding immunization and failure of health workers in motivation of the target population for completing the immunization schedule, may led to a proportion of the children being partially immunized. Every effort should be taken to complete the immunization of child as it has been seen that partially immunized and unimmunized children were more malnourished as compared to their counterpart.

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