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STUDY OF SOCIO DEMOGRAPHIC FACTORS INFLUENCING THE VACCINATION STATUS OF CHILDREN.

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ABSTRACT

Background: Immunization has been one of the most significant, cost-effective and stimulatory public health interventions. Although a definitive immunization program has been advocated for children in our country, the immunization coverage is far from satisfactory. The current study seeks to assess vaccination coverage and socio demographic factors affecting immunization status of children. This study helps to understand the problems to better manage the program at the local level. **Materials And Methods**: A cross-sectional survey was conducted in Bhanwrasla area of Indore city in march-2014 to June-2014. 200 children between 01 to 05 years were included in the study. Data were collected by a predesigned, pre-tested, semi structured questionnaire by house to house visit. **Results:** The coverage level was 46.86% for complete vaccination. Illiteracy of parents, (30.73%) and lack of knowledge regarding immunization (24.16%) were the most common reasons for incomplete vaccination. Low parental age, lower socioeconomic class, home delivery, less antenatal visits, birth order etc. are significantly associated, while gender was not significantly associated with vaccination coverage of children in the study area. **Conclusion**: Observation from the present study points towards pressing the need to accelerate efforts of more focused interventions towards the target group (i.e. illiterate parents, lower socioeconomic class, etc.) for improving the situation in the study area.

KEYWORDS: Immunizationstatus, Coverage, Socio demographic factors.

INTRODUCTION

The meaning of word immunization in 21st century has gone beyond the protection against 6basic vaccine prevent- able diseases. Many new vaccines have come in market in during last decadeImmunizationhasbeenoneofthemostsignificant, cost-effective and stimulatory public health interventions.Aboutone-quarter, or25%, ofunder-5mortality isdue tovaccine-preven table diseases.[1] The World Health Organization (WHO) launched the Expanded Programon Immunization (EPI)in 1974 globally with focusonpreventiono fthes ix childhoodvaccine-preventablediseasesbytheyear 2000.[2] Immunization Program in India was introduced in 1978 as Expanded Program of Immunization. Thisgainedmomentumin1985as Universal Immunization Program (UIP) and implemented in phased mannerto coveralldistricts in the country by 1989-90.[3] Further, a national socio-demographicgoal wassetup in National Population Policy (NPP) 2000to achieveuniversal immunization ofchildren againstallvaccine- preven table diseasesby 2010.[4] Urbanization isgrowing inIndia.Mostof this growth is due to migration, industrializationand with primary immunizationin the urban slums. Innatural growth (through b i r t h). With the rapid growth of big cities, an impending threat of outbreak of vaccine-preventable diseases always exists due to the high population density continuous influx of a new pool of infective agents with the immigrating population and poor coverage orderto controlandeliminate thevaccine preventablediseasesitis important toknow the vaccination coverageandreasons fornon- vaccination. Protection through immunization against vaccine preventable diseases, disabilities and death is the birth right of every child. Vaccines remain one of the most cost-effective public health initiatives.[5] A lot of progress has been made globally as far as protection against six vaccine preventable diseases is concerned; yet the coverage against VPDs remains far from complete. Recent estimates suggest that approximately 34 million children are not completely immunized with almost 98 per cent of them residing in developing countries.[6] Vaccination coverage in India is also far from complete despite a longstanding commitment to universal coverage. A recent evaluation of VPD coverage in India found that 18 million children did not receive any coverage in 2001-2002.[7] Hence the present study was undertakenwithaim offindingoutvaccination coverage. Coverage data aretraditionally considered asthe best indicators ofan immunization program'sperformancebecause they reflect the management of, access to, and utilization of services. Thisstudy isalsodonetofindoutvarious reasons responsiblefor the suboptimalcoverageof vaccination. Therearefew populationbasedstudies on the factors associated with immunization coverageinindustrialareafrom ourcountry. The currentstudy

wasundertakenwith objectiveof seeking associationofsocio demographic factors andvaccinationstatusofchildren. Thisstudyhelps tounderstandtheneeds/problemsto bettermanage the programat the locallevel.

MATERIALS AND METHODS

The community based cross sectional study was carried out in the Bhanwraslaarea, a rural area of Indore city from March-2014 to June-2014. 200 children in the age group of 1 to 5 years were selected for this study. Data were collected by using a pretested semi structured questionnaire from guardians of children during house to house visit after their verbal consent. The selection of children had been done by simple random method. The method used for the determination of the vaccination status was 'the vaccination card or the recall'. The primary respondent was the mother of the child; and in case of her absence, the father acted as the next respondent. In case of absence of both of them, an adult in the household who remained with the child for most of the time or had taken the child for immunization on at least one occasion was interviewed. The questionnaire seeks information regarding various socio-demographic factors about the vaccination status and reasons for incomplete vaccination of the children. Modified kuppuswamy's classification was used for socioeconomic class. The child was considered as 'Completely vaccinated' if he/ she had received one dose each of BCG and measles and three doses each of DPT and oral polio by his/her first birthday. Those who had missed any one vaccine out of the six primary vaccines were described as 'Incompletely vaccinated'. Statistical analysis was done by odds ratio and chi square test. A p-value of <0.05 was considered significant. Regression analysis was alsoperformed with immunization status as the dependent variable and the risk factors as independent variables.

RESULTS

Total 200 children were included in the study. Some socio demographic characteristics of these children were depicted in Table-1. About 68.59% of mothers were illiterate, 20.56% educated up to primary level, 6% educated up to secondary level and remaining up to higher secondary level. Majority of mothers (65.55%) were house wives and rest of 35.77% engaged in labour work at industries. Majority of fathers (62.67%) were illiterate, 16.29% educated up to primary level, 15.76% educated up to secondary level and remaining up to higher secondary level. Most of fathers (90.16%) worked in industries while rest of engaged in agricultural work. Out of total surveyed children, vaccination card was seen among 39.96%.

It is observed in the present study that 46.86% of children completed all the recommended vaccines and 44.33% received one or more vaccines, but did not complete all the recommended doses. 40.17% of mothers did not visit health facility for Antenatal care during pregnancy while 32.83% visited health facility one to three times during their pregnancy and 18% of mothers visited health facilities more than three times during their pregnancy. Out of total studied children, 61.77% delivered in home and rest of delivered in hospitals (in Government and private hospitals). The common reasons for incomplete vaccination were:Illiteracy of parents, (30.73%) lack of knowledge about immunization (24.16%); distance (16.79%), immunization has side-effects (7.17%) and other like OPV was thought to be the only vaccination, vaccination timing etc.Table-2 showsthe association between various socio demographic factors and immunization status of children. Majority of mothers of incompletely vaccinated children were from 12 to 24 years age group. Out of total fathers aged between 17 to 24 years, 78% of fathers had incompletely vaccinated children. So, lower age of parents significantly associated with incomplete immunization (p<0.01). Literacy of mother (OR=11.66) and father (OR=15.69) was significantly associated with complete vaccination of children (p<0.01). It was also observed that the proportion of completely immunized and incompletely immunized children were similar in each age group of children. Similarly there was no significant difference between immunization status of children and gender of children (p>0.05) Statistical analysis clearly revealed significant association between the vaccination status of children and socioeconomic status of their families (p<0.01). Table-3 shows the association between place of delivery, antenatal visit and vaccination coverage of children. Out of total children whose mother did not visit health facility during antenatal period, 81.13% children remainedincompletelyvaccinated. While, Out of total children whose mother had been visited health facility one to three times during antenatal period, 81.4% of children were completely vaccinated. So, number of antenatal visit was significantly associated with vaccination coverage of children (p<0.01). Children born in a hospital were more likely to be completely vaccinated as compared to those born at home and this difference is statistically significant (p<0.01).

Table 1: Frequency of children between 01 to 05 years of age regarding Socio demographic characteristics

Determinants	Children (%)	
	No.	
Age group of children (in months)		
12-23		34.17
24-35		33.33
36-47		14.17
48-60		18.33
Sex		
Male		56.67
Female		43.33
Birth Order		
1		42.5
2-3		46.67
> or = 4		10.83
Socioeconomic status		
Social class 1		0
Social class 2		4.17
Social class 3		14.17
Social class 4		65
Social class 5		16.66
Age group of Mothers (in years)		
15 - 24		45
25 - 34		45.83
> 34		9.17
Age group of Fathers (in years)		
15 - 24		20.83%
25 - 34		60.83
> 34		18.33

Table 2: Immunization status of children in relation to socio demographic factors

Variable	Immunization		Chi-square value	p value
	Complete (%)	Incomple te . (%)		
Mother'sage (inyrs)				
15-24	37.04	62.96	X^2= 10.16	P <0.01
25-34	67.27	32.73		
>34	45.45	54.55		
Father'sage (inyears)				
15-24	20	80	X^2= 13.02	P <0.01
25-34	61.64	38.36		
>34	54.55	45.45		
Mother'sEducation				
Illiterate	37.21	62.79	X^2= 25.40	P <0.01
Literate	88.24	11.76		
Father'sEducation				
Illiterate	32.5	67.5	X^2= 35.30	P <0.01
Literate	90	10		
Age ofchildren(in month)				
12-23	51.22	48.78	X^2= 0.77	P >0.05
24-35	47.5	52.5		
36-47	52.94	47.06		
48-60	59.09	40.91		
Children'sGender				
Male	54.41	45.59	X^2= 0.47	P >0.05
Female	48.08	51.92		
BirthOrder				
1	47.06	52.94	X^2= 0.763	P >0.05
2-3	55.36	44.64		
>or=4	53.85	46.15		
Socioeconomicstatus				
1	00	00	X^2= 11.49	P <0.01
2	80	20		
3	76.47	23.53		
4	40 (51.28)	48.72		
5	25	75		

Table 3: Association between place of delivery, antenatal visit and Immunization coverage of children

Age Group Variable	Immunization		Chi-square value	p value
	Complete No. (%)	Incomplete No.(%)		
No Of Anc Visit (%)				
15-24	37.04	62.96	X2 = 1.16	P < 0.01
25-34	67.27	32.73		
>34	45.45	54.55		
Place Of Delivery				
15-24	20	80	X2 = 23.82	P < 0.01
25-34	61.64	38.36		
>34	54.55	45.45		

DISCUSSION

Immunization program is one of the most cost- effective health strategies ever employed.UIP is one of the few 100 percent centrally sponsored family welfare programs and provides support for vaccine storage, training of medical and paramedical staff.[7] In spite of that, data regarding Immunization coverage found in this study is not satisfactory and needs a serious 'look in' by the government of India before finalizing the next Health planning by the Policy makers in the government. The present study assessed the vaccination coverageand factors associated with it among children of Bhanwraslaarea of Indore city. It was observed that 46.86% were completely vaccinated in the present study which was slightly lower than UNICEF report 2011.[8] This difference may be due to regional variation (between urban slum area and dared industrial area away from the city) and survey technique. The low level of completely vaccinated children in the present study may be due to the area represents rural based population. This is more relevant in the area where majority of working persons belong to lower socioeconomic class and less educated. It is observed in the present study that vaccination card was available among 39.79% of children indicating less importance was given to the document by people. Illiteracy of parents, (30.73%) and lack of knowledge regarding vaccination (29.31%) were the mostcommon reasons for incomplete vaccination in thepresent study. Nath B et al in 2005 at urban slums of Lucknow district revealed unavailability of parents (17.2%), carelessness (11.7%) and lack of knowledge regarding the subsequent vaccination (10.4%) as reasons for partial vaccination.[9] While Dr. Varshachaudhary et al in an urban area of Bareilly city in 2010 observed that ignorance was the main reason for partial and non- immunization of children (50%).[10] In the present study, gender was not significantly associated with immunization status of children. Similar result

regarding gender was found in the another study at urban slum of Mumbai by Sanket V Kulkarni, Mansi K Chavan who reported that the sex of the child did not affect significantly the immunization of the child.[11] Contrary to this finding, D Kumar, A Agrawal and S Gomber observed male children were significantly more completely immunized as compared to female children aged 12 to 60 months in 2007 at a Tertiary-care Hospital of North India.[12] While it is revealed in an another study at urban slums of Lucknow district by Nath B et al in 2005 that higher birth order (>2) had significant independent association with partial immunization9. Parental illiteracy was significantlyassociated withincomplete vaccination of children in the present study. Similar finding of the close association between parental educations has also been documented by other studies.[10,13-15] The present study revealed high odds ratio for complete vaccination for the children of mothers whose age is 25 yrs and more. This indicates the probability of children being vaccinated is high whose mother's age is higher. Similar findings was observed by HariharSahoo.[15] Lower age of parents significantly associated with incomplete vaccination (p<0.01) suggesting that lower age of marriage and child bearing was associated with incomplete vaccination of children. In the present study lower socio economic status was significantly associated with incomplete vaccination of children. Similar findings were observed by Vilas R. Malkar et al in rural area of Beed district (Maharashtra) in 2010 and MadhuriInamdar et al in school children of Indore district in 2011.[16] Theyobserved that higher proportion of children from the families belonging to upper socioeconomic class had significantly completed their immunization successfully and vice versa.[16] The difference is probably due to difference in attitude, education, awareness and affordability. Present study revealed that children born in a hospital were significantly more likely to be completely vaccinated as compared to those born at home. Similar finding was observed by other authors.[11-13, 16] Present study also revealed that number of antenatal visit was significantly associated with vaccination coverage of children. 81.13% children remain incompletely vaccinated whose mother did not visit health facility during antenatal period. Similar observation seen in the study by H. Sahu who observed that the odds of immunizing the children are higher among those mothers who have gone through full antenatal care as compared to those mothers who have not gone for any antenatal care.[15] So, number of antenatal visit has a positive impact on child vaccination coverage.

CONCLUSION

The present study highlights that the vaccination status of children inBhanwraslaarea is low and certain factors like low educational status of parents, lower age of parents, lower socioeconomic class, home delivery, less antenatal visit etc. areclosely associated with it. Illiteracy and knowledge of parents regarding vaccination were the most common reasons forincomplete vaccination.

CONFLICT OF INTERESTS: no.

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