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Vaccination Against Measles In Uttar Pradesh

Mala Amit Kumar Research scholar of Himalayan University Itanagar.
malaamit24@gmail.com

Dr. Amit Kumar Chauhan Guide, Himalayan University of Itanagar.

ABSTRACT

Measles is one of the most communicable diseases of childhood. Children less than five years of age have higher risk being exposed to measles in Uttar Pradesh as found in the surveys conducted by the government and other studies. Objectives: (1) To study trend and pattern of vaccination coverage in India in general and Uttar Pradesh in particular. (2) To assess the impact of socio-economic factors on vaccination coverage against measles in Uttar Pradesh. Material & methods: The data of different years of national family health surveys, collected by Ministry of health and Family Welfare, Government of India have been collectively used for analysis. Findings have been investigated with the help of binary logistic regression using. Results and discussion: Socio-economic factors like type of place of residence, mother's education, social group and wealth index of the family do have an impact on measles vaccination coverage in Uttar Pradesh. This study presents the need to achieve and maintain high immunization coverage in UP with special focus on people's.

Keywords: Health, Communicable disease, Measles, Vaccination, Immunization.

Introduction

Rapidly developing India is confronted with a large and diverse population having low standard of health status. The reason may be many (Poor educational attainment and low standard of living etc.) letting a signification number of children suffer from communicable diseases. According to estimate infant and child mortality is highest in Uttar Pradesh (NFHS 3).

The children under the age group of 0-5 years are most vulnerable to communicable diseases. The vaccination programme in India is covered under universal immunization programme since 1985[1]. They cover six major communicable diseases of infant and children namely T.B., Dipheria, Whooping cough, Tetanus, Polio and Measles. Measles is considered to be contributing largest to mortality among vaccine preventable diseases[2]. It is highly contagious

[1]Towards Universal Immunization, 1990. Ministry of Health and Family Welfare, Govt. of India: 1985.

[2] Steinhoff M. C., John T. J., (1982), " Appropriate strategy for immunization of children in India, IV: Measles and It's control, priority number one", IndJ Pediatr 1982; 42: 303-10.

respiratory infection caused by measles virus occurring in epidemics[3].
Measles, also known as Morbilli, is an infection of the respiratory system caused by a virus, specifically a Paramyxovirus of the genus Morbillivirus. Spread through respiration (contact with fluids from an infected person's nose and mouth, either directly or through aerosol transmission), and is highly contagious, 90 per cent of people without immunity sharing living space with an infected person will catch it. An alternative name for measles in English-speaking countries is Rubeola. Our understanding of the molecular features of the measles virus has lead to the ability to prevent measles by immunization. It has been five decades since the first isolation of measles virus was done in cell cultures, harmlessly and usefully live attenuated measles vaccines have been developed and now are used worldwide[4]. Its epidemiology and contribution of operational issues has lead to the success and failure of measles control programs in various populations.
In 1978, Indian government started "Expanded Program in Immunization" with an objective to decline the incidence rate of diphtheria, pertussis, tetanus, poliomyelitis, T.B. and typhoid by making vaccination service available to eligible children and pregnant women. It also aimed at reaching self-sufficiency in the production of vaccine required. This programme also had the facility to include other selected diseases like measles. For the successful eradication or control of measles a continuous and constant high level of immunity is required in the community[5].
The invaluable health education measures, improvement in sanitary conditions and removal of stringent religious convictions and dogmas involving health and disease may prove more beneficial in a country such as India.

Methods

The data used for study is taken from NFHS held in 1992-93, 1998-99 and 2004-05. NFHS considers a child to be vaccinated of measles if only during the survey a mother shows the card having vaccinated date, or mother herself reports of it. Henceforth paper tries to look at the coverage trend and pattern of measles vaccination 1992 to 2006 using the above mentioned data source both for India as a whole and Uttar Pradesh separately. Then the paper looks at the socio-economic factors affecting the vaccination process of measles in Uttar Pradesh using binary logistic regression. Uttar Pradesh has been separately covered in this paper as the state has shown one the lowest development in the vaccination rate all over India.

Coverage Pattern

Vaccination coverage rates for measles by state in India from the data collected by the National family health survey report 1, 2 and 3 respectively is shown in table 1. At all India level, the

[3] Narajn J. P., Khare S., Ranat S. R. S. and Banerjee K. B., (1989), "Epidemic measles in an isolated Unvaccinated population, india. International epidemiological association", Vol. 18, No. 4, 952-958.
[4] Bruce G., Gellin et al., (1994), " Measles: State of the Art and Future Directions 170, Supplement 1. Measles Control --Resetting the Agenda: A Report of the Children's Vaccine Initiative Ad Hoc Committee on an Investment Strategy for Measles Control", pp. s3-s14Published by: Oxford University Press.
[5] Sutherland I. and Fayers P. M., (1971), British Medical Journal, 1V71, 1, 698.

report says that the measles vaccination coverage has increased by 16 per cent during a period of fourteen years (42.2 per cent in 1992-03 to 58.8 per cent in 2005-06). The highest increase is seen in the states like Meghalaya, West Bengal, Bihar and Orissa. On the other hand states with lowest performance are Nagaland and Uttar Pradesh. All India level data of measles vaccination shows gender wise differences in the vaccination coverage. A larger per cent of rural children are vaccinated than their counterparts (urban children). Highest vaccination rate for measles is for among the children whose mother has completed their primary education.

TABLE 1: TREND AND PATTERN OF MEASLES VACCINATION IN INDIA

INDIA/STATES	NFHS-1 (1992-03)	NFHS-2 (1998-99)	NFHS-3 (2005-06)
India	42.2	50.7	58.8
North			
Delhi	69.6	77.5	78.2
Haryana	60.9	72.2	75.5
Himachal Pradesh	71.5	89.1	86.3
Jammu & Kashmir	69.1	68.9	78.3
Punjab	64.8	76.5	78.0
Rajasthan	31.2	27.1	42.7
Uttaranchal	*	*	71.6
Central			
Chhattisgarh	*	*	62.5
Madhya Pradesh	40.7	35.5	61.4
Uttar Pradesh	26.3	34.6	37.7
East			
Bihar	14.6	16.6	40.4
Jharkhand	*	*	47.6
Orissa	40.2	54.0	66.5
West Bengal	42.5	52.4	74.7
Northeast			
Arunachal Pradesh	27.5	33.6	38.3
Assam	25.8	24.6	37.4
Manipur	37.0	45.8	52.8
Meghalaya	13.2	17.7	43.8
Mizoram	65.5	71.0	69.5
Nagaland	10.0	19.6	27.3
Sikkim	*	58.9	83.1
Tripura	28.9	*	59.9
West			
Goa	77.8	84.3	91.2
Gujarat	55.9	63.6	65.7
Maharashtra	70.2	84.3	84.7

South			
Andhra Pradesh	53.8	64.7	69.4
Karnataka	54.9	67.3	72.0
Kerala	60.5	84.6	82.1
Tamil Nadu	71.6	90.2	92.5

Source: National Family Health Survey, 1992-93, 1998-99, 2005-06.

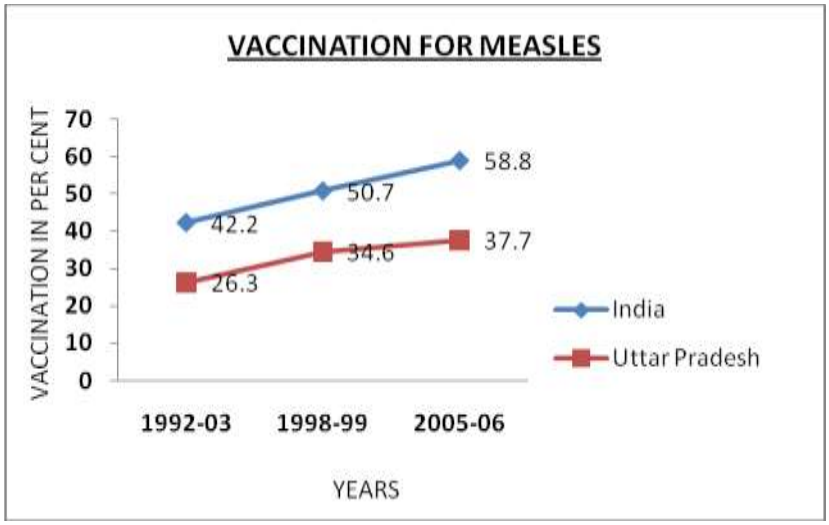

Figure 1

Source: National Family Health Survey, NHFS (I,II,III)

There are considerable interstate differences in the coverage rates for children receiving vaccination for measles in all the three reports of NFHS and Uttar Pradesh has been among the states which are below the national average always.

Measles Vaccination Coverage in Uttar Pradesh

Uttar Pradesh has highest population growth rate and contributes 16.16 per cent of the total population in India. During 1991- 2001 increased by 26 per cent and recorded the population of 199,581,477 people on 1 March 2011. Recent census shows that there are 29,728,235 children between 0-6 years. There has been only 10 per cent rise in the measles vaccination since 1992 to 2006 in Uttar Pradesh (Table 1). Differences can be seen in the rate of vaccination according to sex, type of place of residence, social group, mother's education and wealth index of the family as show in the table (Table 2) given below:

Table 2: Vaccination Coverage in Uttar Pradesh

Background Characteristics	Not Vaccinated	Vaccinated

Sex		
Male	31.31	19.36
Female	30.81	16.04
Type of Residence		
Urban	18.76	14.66
Rural	43.36	20.76
Social Group		
Scheduled caste	16.26	7.33
Scheduled tribe	0.81	0.1
Other backward class	33.46	16.66
None of above	11.63	11.25
Mother's Education		
No education	44.12	15.44
Incomplete primary	1.98	1.054
Complete primary	4.51	2.63
Incomplete secondary	8.40	8.86
Complete secondary	1.36	2.49
Higher	1.74	5.13
Wealth Index		
Poorest	17.40	5.71
Poorer	15.86	6.18
Middle	11.69	6.63
Richer	10.85	6.77
Richest	6.31	10.43

Source: National Family Health Survey, 2005-06.

In the above given data it is seen that mothers with secondary education have the highest percentage of vaccinated child in heir households. Similarly, the richest people in the society have higher number of vaccinated children in compare to any other class. It is seen that with the rise in the wealth of the population more and more parents get their child vaccinated of measles.

Results and Discussion

The vaccination coverage for UP has been analyzed taking some background characteristics like place of residence, social group, education and wealth index. Logistic regression was performed with above mentioned background characteristics considering them as independent variable and vaccination coverage as dependent variable. All the variables have shown a high level of significance. It can be clearly seen that the children in the rural areas are more likely to be vaccinated than the urban areas. This can be the result of NRHM which had complete focus on rural areas only. The vaccination tendency for measles is much lower among the schedule caste than any other social group.

Illiterate people are less likely to give vaccine to their children. The literacy rate in Uttar Pradesh is low and especially among the women. According to 2001, census it accounts to 43 per cent which was 16 per cent below the nation average of the country. The educational level is a best indicator of health care utilization as it increases the likelihood of going for vaccination. Similar results are obtained here too in case of Uttar Pradesh. Higher the mother is educated the more they get their children immunized.

The positive relationship can be seen with the vaccination and wealth index. Planning Commission for the year 2004-05 revealed that Uttar Pradesh had 59 million people below the poverty line, which is most for any state in India. Increase in the wealth witnessed increase in mother showing the vaccination report card rather than just reporting verbally about their children getting vaccinated.

TABLE 3: INPACT OF SOCIO-ECONOMIC VARIBALES ON VACCINATION AGAINST MEASLES (Binary Logistic Regression)

Background Characteristics	Reference Category	B	Sing.	Exp. (b)	Difference
Type of Place of Residence	Urban				
Urban					
Rural		0.316	.001	1.372	37
Social Group	SC				
SC			0.087		
ST		.900	.093	.487	49.3
OBC		.083	.346	1.087	8.7
Others		.190	.073	1.209	20.9
Level of Education	Illiterate				
Illiterate			.000		
Below Primary		.460	.000	1.584	58.4
Middle		.819	.000	2.268	126.8
Higher		1.556	.000	4.738	373.8
Wealth Index	Poorest				
Poorest			0.000		
Poor		.066	.543	1.068	6.8
Middle		.293	.011	1.340	34
Richer		.408	.001	1.504	50.4
Richest		.041	.000	2.563	156.3

Source: Computed from National Family Health Survey, 2005-06.

Conclusion

Since the First Five Year Plan (in 1951-56), the Government of India has initiated several programmes to strengthen maternal and child health services in India. Over the years, these programmes have focused on several dimensions of maternal and child health. The Universal Immunization Programme provides children with vaccinations against six vaccine-preventable diseases. In India the vaccination coverage has been increasing but the pace is very slow with marked regional variations. There is a need to promote the programme more efficiently and rigorously in the state. Socio-economic conditions and immunizing children against measles shows a proportionate relationship in the study. Thus, revealing the need of strengthening coverage. The organizations responsible for the provision of such services should be user sensitive and response to the changes in the population of the concerned area and class.

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