Vol 5 Issue 1 July 2015

ISSN No :2231-5063

International Multidisciplinary Research Journal

Golden Research Thoughts

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RNI MAHMUL/2011/38595 **ISSN No.2231-5063**

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Golden Research Thoughts
ISSN 2231-5063

Impact Factor : 3.4052(UIF)
Volume - 5 | Issue - 1 | July - 2015

SOCIO-ECONOMIC DETERMINANTS OF CHILD IMMUNIZATION IN MEERUT CITY

Mithilesh Kumar Yadav

Abstract

One of the major determinants of physical health of child is infant immunization. In India especially after 1980s it is done through various central or state government immunization programmes. As a result some of the states in India have successfully implemented these immunization programmes like Tamil Nadu, Goa, Kerala and Himachal Pradesh but states like Uttar Pradesh are still far behind. A number of socio-economic factors affect the smooth implementation and success of these programmes. Since Uttar Pradesh is one of the worst performing states of India a study is required which focuses on various socio-economic determinants responsible for this. This paper will try to analyse various socio-economic determinants of child immunization in Meerut City one of the important cities of Uttar Pradesh situated in the national capital region of India.

Keywords :*Socio-Economic Determinants , Child Immunization , physical health .*

Short Profile

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INTRODUCTION:

Maintenance of physical health of the citizens is one of the prime indicators of socio- economic prosperity of a society. A society will be healthy and prosperous if it takes care of the health of children. Various underdeveloped countries have a number of malnourished children which further hinder their progress. These children are to be prevented from certain diseases at the pre and post natal stages of their growth. This is done all over the world through various programmes of immunization. International Conference on Population and Development (ICPD), organised by the United Nations at Cairo in 1994 is a major step in the implementation of population and development programmes (Srinivasan et al., 2007). The outcome of this conference initiated framing of population policies in favour of women rights and their reproductive health etc. Empowering women in this way has increased the implementation of programmes like child immunization. In India also these programmes are not new and especially started with population stabilisation programmes with the Swaminathan Committee in 1990s (Srinivasan et al., 2007). The aim was not only to reduce growing population but to achieve reproductive health and gender equity. This was one of the important factors helpful in child care. Primary healthcare in India comes under panchayats.

India succeeded in eradication of small pox in mid of 1970s which encouraged the government to launch Expanded Immunization Programme in 1978 in urban areas. This was followed by Universal Immunization Programme (UIP) launched in 1985 in the country. It became a part of Child

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Survival and Safe Motherhood Programme in 1992 and is currently one of the key areas under National Rural Health Mission (NRHM) since 2005. The objective of UIP was to reduce morbidity and mortality due to six vaccine preventable diseases (VPD) that is tuberculosis (TB), diphtheria, pertussis (whooping cough), tetanus, poliomyelitis and measles. Later on in 2007 one more vaccine of hepatitis B was added to UIP. Recently, Government of India decided to add four vaccines namely rotavirus, rubella and Japanese encephalitis, as well as the injectable polio vaccine to the programme to boost India's effort to achieve Millennium Development Goal (MDG). Since this study is based on the data of NFHS-3 survey conducted in India, it includes immunization against six preventable diseases.

A recent development in this regard is the launching of Mission Inderadhanush on 25 December, 2014 by the Ministry of Health and Family Welfare, Government of India as a special nationwide initiative to vaccinate all unvaccinated and partially vaccinated children under the Universal Immunization Programme by 2020. The main focus of this programme is on expanding the coverage of immunization from 65% in 2013 to about 90% children in the next five years. This will be achieved by targeting 201 high priority districts in the first phase and 297 districts in the second phase. The implementation of the first phase of the Mission Indradhanush in 201 high priority districts started from 7th April 2015 on World Health Day. Meerut is one of the districts of Uttar Pradesh selected for this purpose.

A number of studies focus on immunization programmes in various countries. These include study of various indicators associated with various diseases. A study based on Bangladesh Demographic and Health Survey (BDHS) 1993-94 by Biswas et al. (2001) identified that immunisation acceptance is associated with factors like education, occupation, household economic condition, mother's age at birth, sex of child, mother's TT immunisation acceptance, mother's health facility visit, health worker's visit to mothers and contraceptive use. Similarly Mondal et al. (2009) in their study of infant and child mortality in Rajshahi district of Bangladesh found that non-immunization of children is one of the factors responsible for high infant and child mortality among other factors like breastfeeding, mother's age at birth and birth interval. A study on infant immunisation points on the failure of vaccination programmes in Afghanistan. Security and geographic inequality in different regions were main reasons of failure (Mashal et al., 2007). The results of multivariate logistic regression analysis pointed a significant negative association between lack of security in the region and achievement of 80% coverage of immunization.

A number of Indian scholars have also analysed various factors responsible for immunization. The study by Patra (2008) on immunisation coverage based on National Family Health Survey-2(1998-99) data has applied a logistic regression and found that the likelihood of immunisation increases with urban residence, mother's education level, mother's exposure to mass media, mother's awareness about immunisation, antenatal care during pregnancy and other such variables. A study by Das and Dasgupta (2000) on immunisation programme of 15 major states showed that better performances are found in the politically better managed states as compared to the states which suffer from political mismanagement and instability. Danish Qadeer (2014) in his study on infant mortality behavior in Aligarh District of Uttar Pradesh explained that child immunization is an important component of child health programme in India but the results are not encouraging. Sharma (2008) in his research paper on child mortality and health in India found that states with large decline in below five year mortality also experienced significant increase in coverage of childhood vaccination. In another study, Sharma (2013) concluded that socioeconomic

determinants have a positive association with full childhood immunization in rural Uttar Pradesh. Ahmad Jameel et al. (2010) in their study on full immunization in rural Uttar Pradesh analysed that education status of women, number of ANM's visit , lack of awareness, perceived risk of non immunization, and fear of side effects of vaccination were the main factor for low immunization of child.

The above mentioned studies focus on the various aspects of child immunization and factors responsible for the success or failure of immunization programmes. Following these variables this paper will try to study the various socio-economic determinants responsible for child immunization in Meerut City of Uttar Pradesh state of India.

OBJECTIVES

The objective of this paper is to understand the status of child immunization programme in Meerut city through the data of NFHS-3 survey conducted in the year 2005-06 in India. It will also examine the various socio economic determinants responsible for child immunization in this city.

DATA FOR THE STUDY:

The data used for the study is taken from NFHS-3 survey conducted in 2005-06 in India. NFHS-3 collected information from a nationally representative sample of 124,385 women age 15-49 and 74,369 men age 15-54 in 109,041 households. A special feature of NFHS-3 is the provision of separate estimates of population, health, and nutrition indicators for eight cities (Chennai, Delhi, Hyderabad, Indore, Kolkata, Meerut, Mumbai, and Nagpur) and for the slum and non-slum populations in each of these cities. The raw data from NFHS-3 provide the opportunity to examine and explore how immunization coverage (partial or full) is associated with socio-economic and demographic variable of the locality.

For this study Meerut city is selected as it is only 70 km from national capital and is a part of mission Indradhanush Programme. Meerut district is one of the high priority districts among other 44 districts selected in Uttar Pradesh. NFHS-3 collected information on vaccination coverage for all living children born in five years preceding the survey. In the analysis children age 12-23 months who received specific vaccinations at any time before the interview and before 12 months of age, were considered for the study because both International and Government of India guidelines specify that children should be fully vaccinated by the time they complete one year.

METHODS:

The statistical technique used for the study is univariate, bivariate and multivariate analysis. Univariate analysis carried to assess the status of child immunization in Meerut city as a whole and also in slum and non slum area of Meerut city. Bivariate analysis is carried out to assess immunization status according to different background characteristics. A binary logistic regression performed considering immunization of children as predicted variable and age of the mother, sex of the child, birth order of the child, locality, religion of the household, caste, educational status of women, working status of mother, her exposure to mass media, standard of living, no of ANC visit to the household to find socio economic determinants, if any, significantly affecting the full immunization status of children.

RESULTS:

As per the definition of NFHS-3, children of the age 12-23 months who received BCG, measles, and three doses each of DPT and polio (excluding Polio 0) before the age of 12 months are considered to be fully vaccinated. In this sense in India as a whole 43.5 percent of children age 12-23 months are fully vaccinated and 5 percent have not received any vaccinations at all. The best performing states

were Tamil Nadu (80.9 percent), Goa (78.6), Kerala (75.3) and Himachal Pradesh (74.2). Uttar Pradesh was among worst performing states where only 23 percent of children of the age 12-23 months were fully immunized. Among BIMARUO states (Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh & Orissa) the performance of Uttar Pradesh was worst.

Table1: Status of child immunization in Meerut city

Vaccination Status	Meerut City	
	Number	Percent
No vaccination	1	0.5
Partial vaccination	120	57.7
Complete vaccination	87	41.8
Total	208	100

The above table shows the status of child immunization in Meerut city. It is shown that the percentage of vaccination is good though around 58% is partial vaccination. This means that these children dropped one or two doses of some vaccine.

In Meerut city among 208 children of the age 12-23 months, 41.8 % of children were fully vaccinated except one. In Uttar Pradesh the status of Meerut city was good but it was still below national average.

Table 2: Status of child immunization in slum and non-slum area of Meerut City

Level of vaccination	Meerut City	
	Slum Area (In percentage)	Non-slum Area (In percentage)
No Vaccination	0.00	0.75
Partial Vaccination	62.16	55.22
Complete Vaccination	37.84	44.03
	100	100

Table 2 shows the comparison of status of child immunization in slum and non-slum area of Meerut city. It is evident that immunization coverage in non-slum area is better than the slum area. In slum area around 38 percent children of the age 12-23 months were fully immunized however in non-slum area the coverage was 44 percent.

Table 3: Coverage of seven vaccines in slum and non-slum area of Meerut city

Vaccination	Slum Area (In percentage)	Non-slum Area (In percentage)	Meerut City Total (In percentage)
BCG	62.39	82.83	72.12
DPT-1	63.30	73.74	68.27
Polio-1	99.08	97.98	98.56
DPT-2	56.88	68.69	62.50
Polio-2	97.25	95.96	96.63
DPT-3	46.79	52.53	49.52
Measles	44.95	60.61	52.40
Complete Vaccination	37.84	44.03	41.8

The above table shows that maximum vaccination is found in case of Polio and least is found in case of DPT and measles. The coverage for BCG, DPT, and polio vaccinations is much higher than for 'all vaccinations'. The relatively low percentages of children vaccinated with the third dose of DPT and measles are mainly responsible for the low proportion of children fully vaccinated.

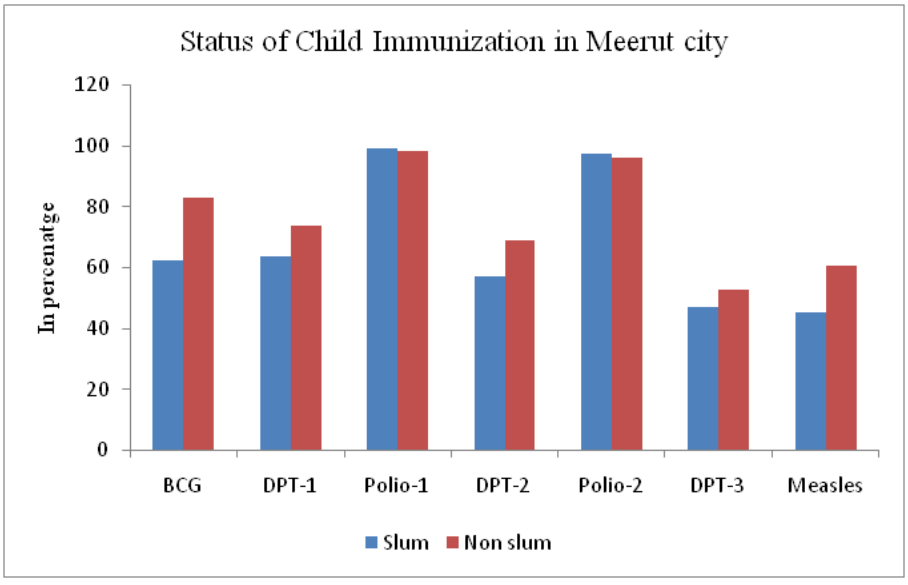

Table 4: Descriptive statistics of the some of the variable of the sample in Meerut city

Variables	Percentage of full Immunization
Number 208	**41.8**
Sex of the child	
Boy Child	40.2
Girl Child	44

Birth Order	
1st Order	53.7
2-3rd Order	41
4th and above Order	25
Caste	
General	66.2
SC	24.2
OBC	35.9
Religion (Hindu)	
Hindu	55
Muslim	20.3
Others	62.5
Family type	
Nuclear	38.7
Non-Nuclear	48.3
Education	
No Education	14.7
Primary	22.2
Secondary	48.4
Higher	82
Working Status of Mother	
Not working	45.3
Working	25.7
Standard of Living Index	
Low	16.7
Medium	18.8
High	51
Wealth Index	
Poor	16.7
Middle	15
Rich	23.1
Richest	60.9
Exposure to mass media	
Not Exposed	25.5
Exposed	46.9

The above table shows bi-variate analysis of full immunized children of the age 12-23 months across different demographic and socioeconomic variables. The table clearly indicates that complete immunization is more among female child than male child, among lower birth order than higher birth order, general caste than other caste, higher education of mother than no or primary education of mother, higher standard of living than lower standard, rich class than poor class and having exposure to mass media than not having exposed to media.

Table 5: Logistic regression result

Variables	Category	Sig.	Odds Ratio
Mothers age	(15-24) Years ®	0.064	
	(25-29) Years	0.073	0.379
	(30-44) Years	0.871	1.117
Sex of the Child	Male ®		
	Female	0.501	0.771

Birth Order	1 ®	0.175	
	(2-3)	0.468	0.721
	(4 or above)	0.27	2.485
Caste	Genearal ®	0.13	
	SC	0.548	0.692
	OBC	0.045*	0.39
Religion (Hindu)	(Hindu) ®	0.684	
	Muslim	0.414	0.65
	Others	0.767	1.435
Family type	Nuclear ®		
	Non-Nuclear	0.811	0.901
Locality Slum	Slum ®		
	Non-slum	0.674	0.84
Education	No Eduaction ®	0.001	
	Primary	0.717	1.308
	Secondary	0.003**	5.979
	Higher	0.00**	25.117
Working Status of Mother	Not working®		
	Working	0.417	0.621
SLI	Low ®	0.9	
	Medium	0.98	1.047
	High	0.851	1.424
Wealth Index	Poor ®	0.93	
	Middle	0.838	1.369
	Rich	0.737	1.639
	Richest	0.606	2.236
Exposure to mass media	Not Exposed ®		
	Exposed	0.263	0.547
Constant		0.484	0.398

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The above logistic regression result shows that there is consistently positive relationship between immunisation and mother's education which is statistically significant. Children of mother having secondary education are around six times more likely to be fully immunized than the mother having no education. Similarly Children's of mother having higher education are 25 times more likely to be fully immunized than the children of mother having no education. The other socio-economic variable that comes out be significant is caste. The children's of OBC caste is less likely to be fully immunized than the children of general caste.

CONCLUSION:

The analyses of various socioeconomic determinants show that mother's education is one of the dominating factors responsible for child immunization in Meerut city. The second

factor responsible is caste as less immunization was found in case of other backward castes as compared to the children belonging to general caste.

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