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## **Socio-economic condition and its influence on the immunization status of their children in Rajasthan– an analysis of NFHS 4 data**

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### **Abstract**

In India, government is focusing a lot on public health issues and like other facilities immunization services are also accessible free in government health facilities. Despite of so many initiatives and programs, the immunization rate remains low in some areas. According to the National Family Health survey (NFHS-3),<sup>4</sup> in India only 44% of the children of age one to two years have received the basic package. For this study, NFHS 4 data and indicators are used to understand the association between the immunization coverage and factors like education level of the parents, location and women empowerment. NFHS-4 (2015-16) fieldwork for Rajasthan gathered information from 34,915 households, 41,965 women, and 5,892 men. There are number of variables which varies considerably across the globe and within the countries such as the degree of education, literacy, and independence of girls. This study shows that there is association between the socio demographic profile of the parents and immunization coverage of the children. Talking about Rajasthan context, the immunization coverage is around 62% which sets a long way to go. Considering the current status of 42% mothers who cannot read and considerable percent of parents lying in poorest group.

**Key words:** Immunization, Rajasthan, Mothers

### **Introduction**

Infectious diseases are a major cause of morbidity and mortality in children. One of the most cost effective and easy methods for the healthy wellbeing of a child is immunization (1). The goal of immunizing children against Tuberculosis, Polio, Diphtheria, Pertussis, Tetanus, Hepatitis B, and Measles, responsible for child mortality and morbidity, is indeed a noble one. The most important indicators mentioned in the Millennium Development Goals (MDGs) for which India is a signatory, are the under-five mortality rate (U5MR) and Infant Mortality Rate (IMR). About one-quarter or 25% of the under-five mortality is due to vaccine preventable diseases (2). National immunization program in India has a primary objective of reducing morbidity and mortality due to vaccine preventable diseases. Despite all the efforts put in by the governmental and non-governmental institutes for 100% immunization coverage, there are still pockets of low coverage areas (1). In India, government is focusing a lot on public health issues and like other facilities immunization services are also accessible free in government health facilities. Despite of so many initiatives and programs, the immunization rate remains low in some areas. According to the National Family Health survey (NFHS-3),<sup>4</sup> in India only 44% of the children of age one to two years have received the basic package.

NFHS is a demonstrative sample survey conducted all over India. NFHS 4 which was conducted during 2015-16 comprised gathering of data on health indicators from 29 states and six union territories. It collected evidence of trends in population, health and nutrition indicators. The health indicators focused on maternal child health and selected communicable and non-communicable diseases(3). The NFHS rounds use standardized questionnaires, sample designs, and field procedures to collect data. Below is the table(Table 1) depicting the indicators regarding immunization in the state of Rajasthan taken from NFHS 4 (2015-16) (3).

### **Aims and Objectives**

1. To assess the immunization coverage of children from 0 to 24 months in the state.
2. Linking the coverage with socio demographic condition of the parents in the state.

## Materials and Methods

For this study, NFHS 4 data and indicators are used to understand the association between the immunization coverage and factors like education level of the parents, location and women empowerment. NFHS-4 (2015-16) fieldwork for Rajasthan gathered information from 34,915 households, 41,965 women, and 5,892 men (3).

Through this study we tried to understand if there is any association between the literacy rate of adults, both men and women and empowerment of women in the state. We tried analyzing the data from NFHS 4 (2015-16) regarding economic condition and decision-making status of women in the family. Below is the table 3 taken from NFHS 4 which shows several indicators like whether women are involved in decision- making in the family or not, whether women are working in last 12 months or not and having their own saving account in the bank. These indicators somehow show how women are involved in taking any decision related with the health of their child.

When it comes to the empowerment of women it is considered both a driver and have an effect on vaccination programs. There are number of variables which varies considerably across the globe and within the countries such as the degree of education, literacy, and independence of girls (6). Where women have the information and autonomy to make health-related decision for their children, childhood immunization rates improve. In a study in Bihar State in rural India involving an empowerment program, where participating women were educated about health and hygiene, there was a higher rate of DTP, measles and BCG vaccination in their children compared to the non-participants in the villages running the program (6)

This study is designed in a way to understand the association between the education level of parents on the immunization status of the children by pooling NFHS 4 data. This pooled data is reviewed in order to show the expected outcome in the state of Rajasthan. For this review, factsheet from NFHS 4 have been used and referred highlighting the contributing factors for the same in the state of Rajasthan.

## Results

NFHS delivers extensive data on the demographic and health indicators which is further used as reference standard by many national and/or international organizations, policy makers and also provides the wider picture of the health worldwide. After Covid 19 pandemic, there is no second thought on the impact and importance of vaccination. With the exception of safe water, no other modality has had such a major effect on mortality reduction and population growth” (8). NFHS 4 has provided data related to the immunization coverage in the state with all other socio- economic details.

## Discussion

Immunization coverage increases with mother’s education (5). The full coverage of immunization is an important issue for the survival of younger children. A recent study by world Health Organization (7) about inequality in child immunization pointed out that socio-economic and demographic differences in child immunization coverage have been receiving less attention than geographical monitoring within the immunization programmes. The impact of socio-economic inequality adversely affects children and for this a significant proportion of infant and children suffer from morbidity and mortality during their childhood (4). For information on immunization coverage, vaccination card is used to derive the NFHS data. For this information both the vaccination card and mother’s memory is used to record and capture the data.

## Conclusion

This study shows that there is association between the socio demographic profile of the parents and immunization coverage of the children. Talking about Rajasthan context, we see that the immunization coverage is around 62% which sets a long way to go. Considering the current status of 42% mothers who can not read and considerable percent of parents lying in poorest group, government need to drive. Despite of so many initiatives and programme related schemes, India is still struggling to the universal health coverage which includes immunization as well. Although the average health condition of the people have improved but still there is a long way to go. There is another challenge or bottleneck in the same which is uniform improvement in health conditions among and within all states and regions in the country. Although India has achieved high level of economic growth and development, but still it could not ensure egalitarian distribution and accessibility of beneficial social services to all sections of population (4). There is still more to be done especially in reaching to the poorer sections in our society so as to deliver health care and allied services which is both affordable and accessible. In a nut- shell, poverty is the main cause of all sorts of backwardness, and to strengthen the immunization coverage of children, poverty related routes have to be removed from the society.

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**Ethics:** The data used are reports available in public domain which do not include any individual level datasets hence no separate ethical approval was required.

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## TABLES

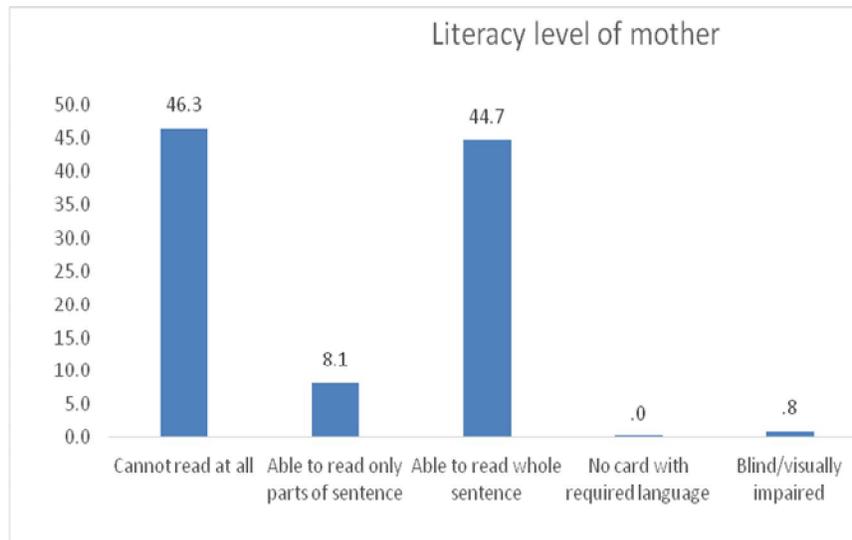
Table 1. Key Indicators showing immunization status in Rajasthan

Sr No	Indicators	NFHS 4(2015-16)		
		Urban	Rural	Total
1	Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT) (%)	60.9	53.1	54.8
2	Children age 12-23 months who have received BCG (%)	95.3	87.0	88.8
3	Children age 12-23 months who have received 3 doses of polio vaccine (%)	68.5	64.5	65.4
4	Children age 12-23 months who have received 3 doses of DPT vaccine (%)	78.4	69.8	71.6
5	Children age 12-23 months who have received measles vaccine (%)	86.5	75.8	78.1
6	Children age 12-23 months who have received 3 doses of Hepatitis B vaccine (%)	58.0	51.7	53.1
7	Children age 9-59 months who received a vitamin A dose in last 6 months (%)	47.3	37.5	39.6
8	Children age 12-23 months who received most of the vaccinations in public health facility (%)	88.8	96.0	94.4
9	Children age 12-23 months who received most of the vaccinations in private health facility (%)	11.1	2.4	4.4

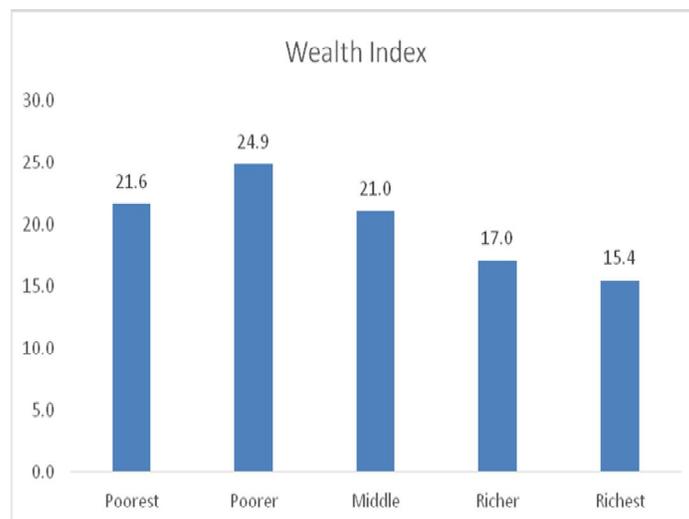
Table:2: Table depicting Women’s empowerment in NFHS 4 (2015-16)

Sr No	Indicators	NFHS 4(2015-16)		
		Urban	Rural	Total
1	Currently married women who usually participate in household decisions (%)	86.5	80.1	81.7
2	Women who worked in the last 12 months who were paid in cash (%)	16.8	19.3	18.6
3	Women owning a house and/or land (alone or jointly with others) (%)	22.8	24.5	24.1
4	Women having a bank or savings account that they themselves use (%)	66.8	55.2	58.2
5	Women having a mobile phone that they themselves use (%)	61.2	34.4	41.4

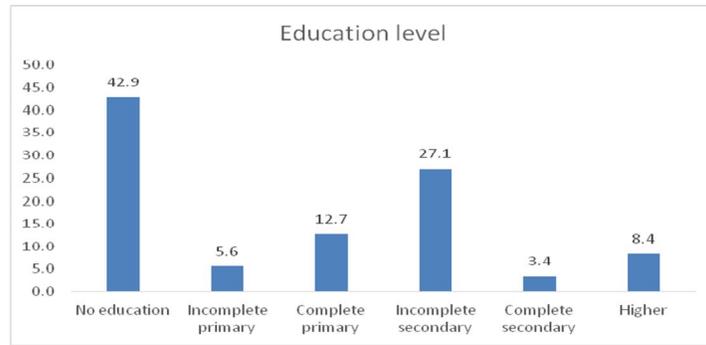
Graph:1 Characteristics of Adults (age 15-49)in NFHS 4 (2015-16)



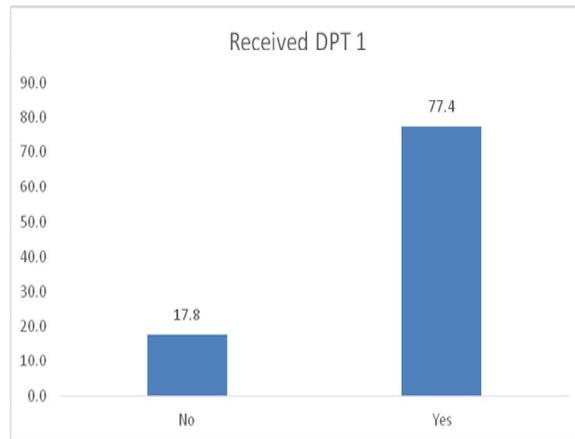
Graph: 2: Wealth Index of parents



Graph: 3: Education level of parents

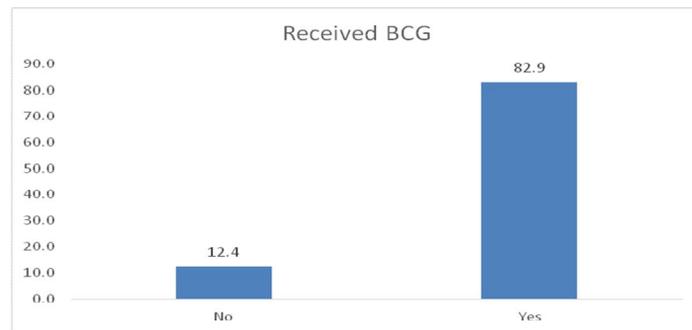


Graph: 4: percentage of Children who received DPT 1



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Graph: 5: percentage of Children who received BCG



Graph: 6: percentage of Children who received Measles

