

The universal immunization programme (UIP) was introduced in India 1985-86 with the objective to cover at least 85 percent of all infants against the six vaccine preventable diseases by 1990 and to achieve self-sufficiency in vaccine production and the manufacture of cold-chain equipment for storage purpose (Ministry of Health and Family Welfare, GoI 1991). Presently this scheme has introduced in every district of the country and the target now is to achieve 100 percent immunization coverage. Pulse polio campaign began in December 1995 as a part of major national effort to eliminate polio. A national Socio-Demographic goal was set up in National Population Policy (NPP) 2000, to achieve universal immunization of children against all vaccine preventable disease by 2010.

In National Family Health Survey (NFHS-2; 1998-99), children who received BCG, Measles and three doses of DPT and Polio (excluding Polio 0) are considered to be fully vaccinated based on the information obtained from a card or reported by the mother. The achievement of full immunization of children not only depends on the involvement of people but also to a large extent on the driving force of governance.

As during past 26 years, West Bengal (an east Indian state) is having a stable Govt. (the left front government), many Herculean tasks such as, land reform through Panchayats, distribution of vested land among land less schedule castes, tribes and the poor and the marginal farmers. But form the demographic point of view the state is still lagging in comparison to many South Indian States. As of now it has failed to reach the replacement level of fertility, where as most of the Southern States already reached at that level. Immunization coverage is far from complete coverage, although it has improved slightly from 34 percent in NFHS-1(1992-93) to 44 percent in NFHS-2(1998-99).

In West Bengal, only 44 percent of children aged 12-23 months were fully vaccinated (41 percent in village and 58 percent in urban) and 14 percent were not vaccinated at all (NFHS-2, 1998-99). The percentage of children who are not vaccinated is higher in rural areas than in urban. One reason for the poor achievement of full immunization coverage could be that, as only 52 percent of children have been vaccinated against measles. Dropout rates for the series of DPT and Polio vaccination are

also a problem. As it is observed, seventy eight percent of children received the first DPT dose, but only 58 percent received all three doses, while 84 percent of children received the first Polio vaccinations, but only 62 percent received all three doses of Polio. Although DPT and Polio vaccinations are to be given at the same time as per the routine immunization programme, the coverage rates are higher for Polio than for DPT, which is undoubtedly because of the pulse Polio campaign.

Methods and Materials:

The raw data of National Family Health Survey (NFHS-2, 1998-99) for the state of West Bengal has been used for this study. It was based on a representative sample of 4,408 women age 15 to 49, interviewed between 1st December 1998 and 23rd April 1999. In addition the survey collected information on 1,316 children born to eligible women in the three years preceding the survey. From these raw data, information on rural children aged between 9 months to 35 months (at the date of interview) has been extracted for the analysis purpose. There were 590 children in that age group and among them 35 children have died. The NFHS-2 does not give any information on the immunization status of dead children. So for the study purpose death children have been excluded, thus the sample size of 555 has been obtained for the present study. The analysis is based on a two-level logistic model that permits estimation of coefficients associated with random community effects as well as coefficients representing the effects of individual level, household level and community level covariates, controlling for these random effects. The multilevel logistic model is different from ordinary logistic regression as it provides fixed effect as well as random effect in the model (Goldstein, 1995).

Analysis and Discussion:

Result from the Empty model

From the obtained level of level-1 and level-2 variance the intra class correlation coefficient have been calculated. The value of it is coming as 0.537. This is the correlation in the immunization status between two randomly selected children in a randomly selected village without controlling for the individual and village level characteristics. The correlation shows the homogeneity of the status of immunization in a

village. In other words, if one child in a village is fully immunized, there is a strongly possibility of another child is also fully immunized.

Results of Multilevel Logistic regression model

The Multilevel logistic regression with different kinds of individual and village level characteristics gives us the odd-ratio for each categories as well as the intra class correlation coefficient. Here the intra class correlation coefficient is controlled for all the individual and village level background characteristics and here its value is coming 0.442. This value is lower than the value obtained from the empty model. This is because that the empty model was not controlled for different explanatory variables. But this correlation coefficient is also significant. So, even after controlling for the observed background characteristic the uptake of immunization is highly correlated in the community. The reason for such kinds of homogeneity in immunization status is the diffusion of culture and health behaviours among the people living in a community. From this result it is obvious that some sorts of difference in health practices works behind the immunization status of the children living in the same village.

It has been observed that among all the background characteristics at individual and village levels; the variables like, maternal education (secondary education), recipients of antenatal care during pregnancy, birth order of the children, mother's age at the time of delivery and the distance to the nearest transport facilities from the village are found to be significant.

The high odds ratio for the uptake of immunization at higher age says that the probabilities of being immunized of the children are high in the higher age. From this we can conclude that the parents of the children do not properly follow the immunization schedules by EPI guidelines.