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## **Factors Responsible for Non- immunization of children under 5 years among Tea Tribes Community of Assam, India**

Dr. Sahidul Ahmed, Assistant Professor  
Deptt. of Education  
Amguri College, Amguri, Sivasagar, Assam  
&  
Dr. Mala Hazarika, Assistant Professor  
Deptt. of Assamese  
Amguri College, Amguri, Sivasagar, Assam

**Abstract:** The development of a nation depends on its children who will lead the nation in future. Immunization has been described as the first line of defense against disease, and one of the most effective health advantages available to children. In this study, we are mainly concentrating on the issue of non immunization of children under 5 years of age among the tea tribe community of Assam. This study was carried out in two districts of Upper Brahmaputra Valley of Assam namely Jorhat and Sivasagar. Both primary and secondary data were used for the study. SPSS was used for analyzed of data. The factors which are responsible for non immunization are gathered for the sample parents with the help of schedule and interview. Simple linear regression analysis was used to study the relation of Family income, father education, mother education and less distance of health with immunization.

**Key words:** children under 5 years, tea tribe, non immunization, Assam

### **Introduction:**

The development of a nation depends on its children who will lead the nation in future. Immunization has been described as the first line of defense against disease, and one of the most effective health advantages available to children [1, 2]. Long-term and sustainable community health begins with the health of its children and it is immunization which helps in disease prevention[3]. Of the available disease prevention interventions, immunizations are the most successful and cost-effective[4]. The vaccination program for six diseases: Pertussis, childhood tuberculosis, tetanus, polio, measles, and diphtheria were initiated in the year 1974 by the World Health Organization (WTO)[5]. Despite the awareness and effort in the immunization programme in India, we are still lagging behind from the goal of universal immunization programme (UIP) especially in the North-East region of the country [6, 7].

In this study, we are mainly concentrating on the issue of non immunization of children under 5 years of age among the tea tribe community of Assam. Historically, the tea

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tribes migrated to the mainland of Assam prior to Indian independence. Their migration can be traced back to British Raj, when the colonialists started to exploit the economic potential of the region through tea plantations in the early 1820s [8]. The Tea tribe is one of the most socially, economically and educationally marginalized communities of Assam. The tea tribe community and the Muslims of char area are the communities where the case of deathly disease is still can be found. In India, immunization services are offered free in public health facilities, but despite rapid increases, the immunization rate remains low in some areas and among some communities [9].

Available literature established the fact that socioeconomic factors, and infrastructure variables contribute to the immunization status of a child. Factors like Parental poverty, literacy and educational level of parents, the mother's lack of access to information, the absence of antenatal care, large family size, type of father's work and location of residence are associated with immunization in some countries [10].

As per NFHS-4, 2015-16, in India the national average for full immunization is 62 per cent. The NFHS-2 [11] had reported the fully immunization coverage in Assam was 19% but the report of the Government of Assam revealed the fully immunization coverage as 43% [12]. Some other study also indicates different coverage percentages due to the selection of different areas and use of different techniques in the evaluation of immunization coverage.

### **Objectives of the study**

1. To find out the various reasons for partial or non-immunization of children aged less than 5 years among the tea tribe community of Assam, India.
2. To evaluate the household factors associated with immunization.

### **Methodology and field study area**

This study was carried out in two districts of Upper Brahmaputra Valley of Assam. The study was conducted in Jorhat and Sivasagar district during the months of September and November 2020. We have visited 6 tea gardens in both the districts, three from each district. Children in the age group of 0-5 years were selected for the study.

For generation of primary data, from each tea garden, we interviewed 20 numbers of children's (aged under 5 years) parents with pre-structured proforma and thus the total

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sample size for the study became 120. The guardians name and address of under 5 years children were collected from the office of the Superintendent, Community Health Centers attached with the gardens. All the name are listed in the excel sheet and applying the systemic random sampling we selected 20 guardians/household from each garden as sample unit for this study. Although the sampling unit was the individual subject, the sampling was conducted on the household level. Two teams, having three persons prepared and each team is responsible for two tea gardens. Proper training of team members with regard to the method of data collection was conducted for error free data collection.

Relevant information on immunization status was gathered on the basis of documentary proof (immunization card provided by the Govt. of Assam). Relevant information on immunization status was gathered on the basis of documentary proof (immunization card) provided by the sub centers or government health department and if a card was not available, that children are skipped out. If a child taken all the vaccines provided feely by the health department in time are referred as ‘fully immunized’ and the vice- versa are referred as ‘not immunized’.

The relation of immunization status with factors namely, gender of children, location, caste, and health facilities available in the village/ward was tested to examine the determinants of non immunization in Assam and a multivariate logistic regression analysis was carried out. The binary dependent variable took two values: 1 if the child was not immunized and 0 if the child was immunized and the factors affecting the immunization status were tested by multiple regression models.

Secondary data was collected from different government publications, books, journals, e-journals, publications of semi government organizations and institutions, universities, research institutions, World Bank, WHO, UNESCO, UNICEF and NGOs and reports of different committees on immunization aspects. The collected data was processed and tabulated. All the relevant statistical measures like percentage, average, correlation and regression etc. have been used to analyze the data with the help of SPSS.

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## Results

As observed from the table No. 1, among the study group (children under 5), 57.5 percent are male and 42.5 percent are female. About 37.5 percent of the study group's mothers were illiterate and 15 percent children's fathers were illiterate. It is observed that all the non-immunized children's parents are illiterate. Immunization cards were available with 85 percent of the study group (at the time of visit). Around 83.33 percent children birth occurred in hospital and sub centres, whereas 16.67 percent birth occurred in home/maternal place.

Vaccination coverage is as follows. About 60 percent of children were completed immunization, 25 percent were partially immunized and 15 percent children were not immunized. The gender of the child significantly affects the immunization status of the children. Male children had more complete immunization than the female counterpart. Socio-economic status, distance from hospital/health facilities, daily consumption of alcohol, place of delivery (health centres) are significantly associated with immunization of the children of the tea tribe community of Assam.

The children of the illiterate fathers and mothers were more unimmunized when compared with the educated fathers and mothers of children. It is very interesting that family monthly income is not positively associated with immunization. Out of the 15 percent of children who were not immunized, some families' monthly income is among the highest of the sample group.

## Discussion

In this study, vaccination coverage is found as follows: 60 percent of the children were completely immunized, 25 percent were partially immunized and 15 percent of the children were not immunized. Among the fully immunized children, 55.55 percent are male and 44.45 are percent are female. So, we have seen a little gender discrimination among the fully immunized children. About 66.66 percent of partially immunized children are male as compared to 33.33 percent are female.

In the present study, immunization cards were available with 85% of the mothers' of children (102). We find that coverage of immunization is better in case of children who had their immunization cards available compared to children who did not have immunization cards. This shows that mothers probably were well motivated and have understood the

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importance of vaccination and follow up. It is very interesting to observe that all the children's mothers who are not immunized are illiterates. Similar results were also found in the studies conducted by Tapare et al. and Kadri et al.

Table No.1: gender wise Immunization status of the Children

Socio-demographic factors	Immunization status of Children (N=120)		
	Complete N=60	Partial (N=25)	Unimmunized (N=15)
<b>Sex</b>			
Male	40 (55.55)	20(66.66)	6 (40.0)
Female	32 (44.55)	10 (33.64)	9 (60.0)

Source: Field Study

Table No.2 shows the response of the respondents when we asked about the causes for not immunization. The most common reason for not immunizing the child according to the respondent was: time of immunization inconvenient (29.17%) followed by postponed until another time (22.50%). A good number did not complete the immunization because of fear of side effects and its related expenditure (15.83%). Two very alarming factors which were pointed out by the respondents for non immunization of their children are: asking money by the health worker (14.17%) and rough behaviour of the health worker (10.83%). Kadri et al.15 also revealed that the main reason for dropout or non-immunization of the children may be ignorance and illiteracy among parents. Punithet al. also revealed that unaware of the need of immunization followed by fear of side reaction was the major reason for non-acceptance/discontinuation of immunization.

**Table No 2: Reasons for the partial immunization or non-immunization**

<b>Reasons for non immunization</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Lack of information</b>		
Unaware for need for immunization	10	8.33
Unaware of need to return for 2nd and 3rd dose	7	5.83
Place and / or time of immunization unknown	12	10.00
Fear of side effects / reactions	19	15.83
Wrong ideas about contraindications	4	3.33
<b>Lack of motivation</b>		
Postponed until another time	27	22.50
<b>Reasons for partial immunization</b>		
Place of immunization too far	17	14.17
Time of immunization inconvenient	35	29.17
Vaccinator absent	8	6.67
Vaccine not available	2	1.67
Mother too busy	10	8.33
Family problem including illness of mother	15	12.50
Child ill not brought	6	5.00
Child ill, brought but not given immunization	9	7.50
Long waiting time	7	5.83
Father not allowed to go for	6	5.00
Rough behaviour of the Health Worker	13	10.83
Asking money by health worker	17	14.17
Others	15	12.50

Source: Field Study

**Factors associated with immunization (Household factors)**

In this study, we also intend to evaluate the household factors associated with immunization of the children under 5 years of age. And for the said objective, we gathered the household data related with sample children. To assess the household factors related with

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immunization, we had done a regression analysis with the help of SPSS. The result of the regression analysis is as follows.

### **Regression Model**

Simple linear regression analysis was used for the second objective of the study. “Family income, father education, mother education and less distance of health center have a positive impact on immunization”

$$Y = a + b_1FI + b_2FE + b_3ME + b_4LDHC + U$$

Coefficients are  $b_1$ ,  $b_2$ ,  $b_3$  and  $b_4$ .  $U$  represents the disturbance (error) term of the model.

Independent variables

**FI**= child annual family income in rupees.

**FE**= child Father’s Education in years of schooling.

**ME**= child Mother’s Education in years of schooling.

**LDHC**= Less distance of health centre

Dependent variable

**Y**= Immunization of children

Expected relations with dependent variables

1. Family income of the children is positively associated immunization
2. Father’s education of children is positively associated with the immunization.
3. Mother education of children is positively associated with immunization.
4. Less distance of health centre is positively associated with immunization.

**Summary output of regression analysis**

Regression statistics

Multiple R	<b>0.776 (a)</b>
R square	<b>0.538</b>
Adjust R Square	<b>0.574</b>
Standard Error	<b>12.24257</b>
F stat	<b>41.854</b>

Table No.3: Result of t Test

Model	Un standardized Coefficients		Standardized Coefficients	t
	B	Std. Error	Beta	
(Constant )	16.205	3.153		5.139
FI	-2.268E-05	.000	-.158	-1.402
FE	-.709	.459	-.196	-1.547
ME	3.225	.379	1.015	8.617
LDHC	1.013	.114	.325	2.117

Source: Field Survey

Our r square value is 0.534. It means that 4 variables together can explain 54 per cent of the model and rest 41 per cent may be explained by the other factors not mentioned in our regression model.

It is believed that the relationship between children immunization and children family income is positive as those families are more concerned about the health of their children. But our regression results could not prove this association, because our coefficient value is -.158 and negative insignificant t-value **-1.402** shows that there is an inverse relation.

It was expected that children immunization is positively related to children father’s education as because an educated father can understand the importance of immunization. The



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result of this study shows that the coefficient value is **-.196** and there is negative insignificant t value -1.547. It signifies that the relationship is negative. So, our expectation was wrong.

It was assumed that mother's education is positively related to the children immunization. An educated mother is more knowledgeable about the importance of vaccination for their children. This relation is accepted by the coefficient value 1.015 and positive highly significant t-value of 8.617. Our study reveals the fact that there is a positive relation between the said variables.

It was also assumed that less distance of health centre from the house of the child is positively associated with immunization. The result of this study shows that the coefficient value is **.325** and there is positive significant t value 2.117. It signifies that the relationship is positive.

### **Conclusion**

In this study we found that the overall coverage of immunization among the tea tribe community is not very good or satisfactory in Assam. Though a large majority of children are immunized but still many left out from the benefits of immunization/ vaccination. Immunization is often cited as being one of the most cost-effective public health interventions. Hence, more vigilant surveys should be conducted so that these pockets are identified properly and proper actions can be taken.

### **Recommendation**

As we already mentioned that tea tribe community is one of the most marginalized communities of Assam. From this study, we can suggest a recommendation that for better immunization of the children of tea tribe community of Assam, the state Govt. should establish more number of primary health sub-centres in the tea tribe community concentrated areas so that this vulnerable section can easily immunize their children with minimum effort. Moreover, health worker must get some basic training before joining in the areas of tea tribe community concentrated areas about the issue of handling this vulnerable community.

### **Further Research**

This study is limited to a few tea garden areas of Sivasgar and Jorhat district. Sivasgar and Jorhat districts of Assam are having the highest literacy rate in the state. Our study reveals the

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fact that large portions of people of tea tribe community are still not know the importance of immunization even in the most literate district of Assam. So we can assume that the situation in the less literate district of Assam is more alarming compared to the mentioned above district. So, we suggested the young researchers as well as the experienced researchers that they can undergo a study will covering the whole geographical area of Assam. A study can also be made on non immunization status, comparison the upper Assam and lower Assam geographical area.

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#### **Annexure : Selected Tea Gardens**

Selected tea states for the study, Jorhat

1. Cinnamara Tea Estate
2. Haroocharai Tea Estate
3. Bhelaguri Tea Estate

Selected tea states for the study, sivasagar

1. Borbam Tea Estate
2. Borsillah Tea Estate
3. Amgoorie Tea Factory