

FACTOR INFLUENCING OF CHILD IMMUNIZATION IN BANGLADESH

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ABSTRACT: *Immunization is the process of stimulating the body's immunity against certain infectious diseases by administering vaccines. Immunization is one of the main health interventions to prevent childhood morbidity and mortality. Immunization will become more effective if the child receive the full course of recommended immunization doses. Therefore, it is very important to study the status of immunization of children in Bangladesh. This study examines the effects of selected socio-economic, demographic, cultural, community and behavioral characteristics on the practice of childhood immunization in Bangladesh based on the data collected from 800 women whose last child were below five years of age during the period between January and March, 1992. All selected factors namely, are found to have significant relationship with acceptance of childhood immunization in bi-variate analysis. On the other hand how many respondents were completed their full does of vaccines by using descriptive statistics. As a results the children who are more likely to receive more complete immunization are; childrens whose parents are educated, children of parents who has a service holder, children of respondent who had no work, current age of respondents whose age is 21-30 years are completely better immunized, highest education level of respondent who achieving secondary and higher is completely better immunized the number of respondents who had used source of drinking water from the tube well, children who come from the better economic status households.*

KEYWORDS: Child immunization, influencing of child immunization.

INTRODUCTION

As in many other developing regions of the world, the core health problems in Bangladesh are related to high fertility, malnutrition and communicable diseases, particularly those involving environmental sanitation and personal hygiene. Crowded into a country of only 55,598 square miles of land are some 107.9 million people making Bangladesh most densely populated country in the World? Every year, about 3.5 million developing countries “die” and many more are crippled blinded or otherwise disabled from six major diseases that are preventable through immunization. For all the six diseases, vaccines and the means to provide them are readily available, relatively inexpensive and of proven effectiveness in saving lives. These six vaccine preventable diseases are measles, peruses (whooping cough), tetanus, polio, tuberculosis and diphtheria.

LITERATURE REVIEW

The importance of immunization program can be understood better if we remember that about 3.7 million babies are born in Bangladesh every year. About 2400 young children die every day making for 100 deaths every hour. Four percent of under-1 deaths of the world occur in Bangladesh. (The daily star, Feb. 14, 1991). Of 107.9 million population of Bangladesh about 18 millions are children below age five years. The risk of death is higher in these ages. Here, tetanus alone accounts for 223000 child deaths and measles accounts for 20000 to 40000 deaths every year (Govt. of Bangladesh, 1985s). Though immunization is more effective to reduce the infant mortality and the actual practice of immunization remains low. Government immunization service statistics for 1984 show that the national coverage for BCG was 1.5 percent, D.P.T. (3 doses) was 14 percent, polio (3 doses) was 1.1 percent and measles was 0.9 percent (Government of Bangladesh, 1985 s). Now-a-days acceptability of immunization is higher but its coverage remains low.

Demographic studies of childhood immunization differential have often shown household socio-economic factors and parental education as important factors in explaining different immunization levels among and within societies (Adekunle, 1978; Adjage, 1981; Akessode, 1982; Bachani et al., 1983; Bhuiya et al., 1987; Clark, 1983; Markland and Durand, 1976; Odebiyi and Ekong, 1982; Rahman et al., 1982; sathe and shah, 1985; Singarimbun et al.3 1986; Chakraborty, 1987). Yet very little is known about the precise mechanism through which these factors operate to result in differentials in the immunization level. The immunization technology is very effective in preventing illness which are potentially fatal and cause the major proportion of child deaths. So the study of utilization of immunization provides a useful model for the study of the personal illness control “proximate “determinants of mortality in the mostly and Chen framework. Moreover, in rural Bangladesh where the

water supply and sanitation infrastructure is primitive and public curative health services are almost non-existent, the examination of the practice of immunization could provide an explanation of class differences in the level of infant and childhood mortality

Objective of the study:

- To study the factors affecting the status of childhood immunization in Bangladesh
- To examine and evaluate the immunization status of children under five years in Bangladesh

Conceptual framework

The conceptual framework which is utilized to guide the analysis is presented in figure-1. The acceptance of immunization is viewed as a function of three sets of factors (i) factors associated with clients e.g. mother's beliefs attitudes and a behavior regarding immunization as well as socio-economic status (Occupation, education and income) (ii) factors associated with the health care providers e.g. work commitment and knowledge and attitudes regarding each type of immunization and (iii) factors associated with demographic, socio-cultural and community variables e.g. sex, age, religion, parity and distance of immunization centre from home.

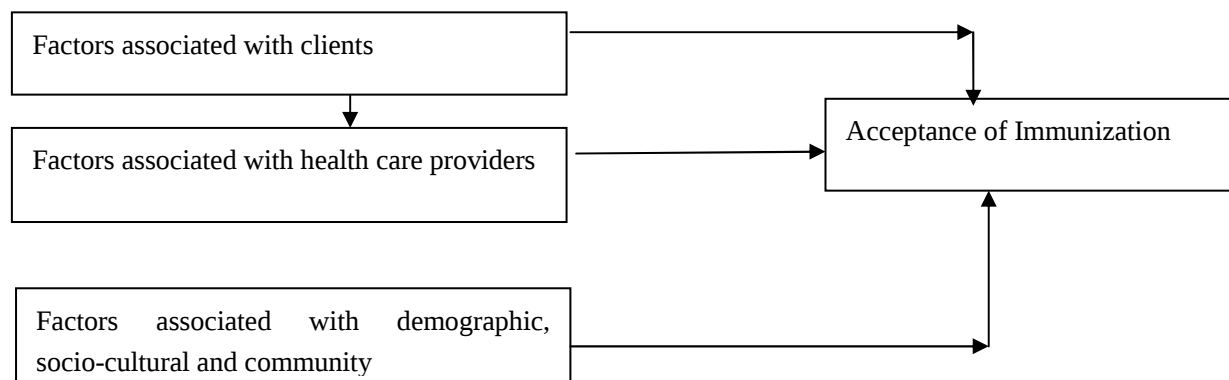


Figure-1: Conceptual framework of the relationship between selected factors and acceptance of immunization.

Data Source

The study uses a secondary data of which the source in Bangladesh. Demographic and Health Survey (BDHS), 2004. The survey was conducted under the authority of the National Institution of Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. Mitra and associates, a private research firm implemented the survey. Macro international Inc. of Calverton, Maryland provided technical assistance to the project as part of its international demographic and health survey program. Financial assistance was provided by the U.S. agency for international development (USAID) Bangladesh.

Four types of questionnaire were used for BDHS: a household questionnaire, a woman questionnaire, a man's questionnaire and a community questionnaire. The contents of these questionnaires were based on the DHS model a questionnaire which is designed for use in countries with relatively high levels of contraception use.

Data processing

In this analysis the data has been taken from Bangladesh Demographic and Health survey (BDHS-2004). Initially, the 2004 BDHS data (especially women's data set) was un-weighted. From the BDHS data file, at first we weighted the data file. Next the essential variables are extracted to make up a final file using some necessary techniques. This study utilizes the data from 2004 Bangladesh demographic and Health Survey (BDHS). A details description of the methodology of data collection including sample design for the survey. The sample for the 2004 BDHS covered the entire population residing in private dwelling units in the country.

Administratively, Bangladesh is divided into six divisions. In turn, each division is divided into districts, and in turn each district into upazilas. Each urban area in the upazilas is divided into wards, and into mahallas within the wards; each rural area in the upazilas is divided into parishads (UP) and into mouza within the UP'S. the urban area were stratified into three groups. They are (i) Standard metropolitan areas, (2) municipality areas and (3) other urban areas. These divisions allow the country base a whole to be easily separated into rural and urban areas.

For the 2001 census, subdivisions called enumeration areas (EA's) were created based on a convenient number of dwellings units. Because sketch maps of EAs were accessible. EAs were considered suitable to use as primary sampling units (PSUs) for the 2004 BDHS survey. A target number of completed interviews with eligible women for the 2004 BDHS were set at 10,000.00, based on information from the 1999-94 BDHS. The BDHS sample is a stratified; a multistage cluster consisting of 361 PSUs, 122 in the urban area and 239 in the rural areas, the number of PSUs was calculated in terms of an average of 28 completed interviews of eligible women per PSU.

METHODOLOGY

This paper or study is a quantitative research. To meet these objectives of the study we have considered individual bi-variate analysis for Child immunization (Dependent variable).

The statistical methods are applied on the analysis such as:-

1. Percentage of all influencing factor of child immunization which have completed or not.
2. Chi-square test.

Knowledge of appropriate age and number of doses for specific immunization

Knowledge of appropriate age and number of doses for specific immunization may be associated with the mother's motivation is seeking specific immunization for their children. It

could be argued that incorrect knowledge about the functions of vaccines need not necessarily by mean that the respondents (mothers) will be less likely to have their child immunized. So it is important to examine whether mothers knew the correct age range of their children at which immunization should be introduced. The results furnished in table 1 shows a low level of correct knowledge of respondents about the appropriate age range of children for immunization

Hypothesis Formulation

Hypothesis 1	Respondent who have better education tend to receive more complete immunization than respondent who have less education
Hypothesis 2	Partner who have better education tend to receive more complete immunization than partner who have less education
Hypothesis 3	Respondent who work in the formal sector tend to receive more complete immunization than respondent who work in the non-formal sector.
Hypothesis 4	Current age of respondents whose age is 21-30 years are completely better immunized with compare to others age group.
Hypothesis 5	Highest education level of respondent who achieving secondary and higher is completely better immunized with compare to others educational level.
Hypothesis 6	The number of respondents who had used source of drinking water from the tube well is highly immunized than others.
Hypothesis 7	Children who come from the better economic status households is highly immunized than others.

Table-1: Percentage of the distribution of respondents who have completely immunized.

Variable	Category	Immunization		Chi-square	P-value
		Incomplete (%)	Complete (%)		
Age of Child	Below 24 months	41.5 (3052)	58.5 (4278)	800.56	0.000***
	24 months and above	15.8 (651)	84.2 (3459)		
Roof Materials	Earth/ Bambo	9.5 (133)	90.5 (1272)	2797.026	0.000***
	Wood	8.9 (381)	91.1 (3890)		
	Others	55.3 (3189)	44.7 (2575)		
Wealth Index	Poor	42.3 (3155)	57.7 (4309)	970.109	0.000***
	Middle	10.7 (139)	89.3 (1162)		
	Rich	15.3 (409)	84.7 (2266)		
Religion	Muslim	13.4 (842)	86.6 (5464)	2321.196	0.000***

	Non-Muslim	55.7 (2861)	44.3 (2273)		
Type of Toilet Facilities	Modern Toilet	13.5 (548)	86.5 (3521)	1030.604	0.000***
	Open Toilet	42.8 (3155)	57.2 (4216)		
Age of Respondent at first birth	Below 20 years	12.7 (703)	87.3 (4820)	1881.573	0.000***
	20 years and above	50.7 (3000)	49.3 (2917)		
Source of drinking water	Pipe water	17.1 (129)	82.9 (626)	2769.834	0.000***
	Tube-well water	12.5 (742)	87.5 (5178)		
	Pond/River water	59.7 (2832)	40.3 (1913)		
Higher education of respondent	No education	44.6 (3152)	55.4 (3921)	1260.579	0.000***
	Primary	11.6 (250)	88.4 (1898)		
	Secondary and higher	13.6 (301)	86.4 (1918)		
Current Age of Respondent	14-20 years	11.9 (184)	88.4 (1357)	1749.669	0.000***
	21-30 years	13.4 (518)	86.6 (3337)		
	31 years and above	49.7 (3001)	50.3 (3043)		
Partner Education	No education	43.0 (3366)	57.0 (4454)	1286.987	0.000***
	Primary	10.1 (152)	89.9 (1360)		
	Secondary and higher	8.8 (185)	91.2 (1923)		
Respondent Occupation	Not working	8.8 (514)	91.2 (5297)	2985.235	0.000***
	Working	56.7 (3189)	43.3 (2440)		
	Not working	58.0 (3163)	42.0 (2292)		

Partner occupation	Service	9.7 (175)	90.3 (1636)	3125.546	0.000***
	Others	8.7 (365)	91.3 (3809)		
Access to mass media	No	40.3 (3435)	59.7 (5098)	954.087	0.000***
	Yes	9.2 (268)	90.8 (2639)		
Division	Barisal	13.0 (98)	87 (654)	1711.901	0.000***
	Khulna	9.6 (83)	90.4 (783)		
	Sylhet	21.7 (205)	78.3 (739)		
	Rajshahi	11.1 (146)	88.9 (1166)		
	Chittagong	12.4 (187)	87.6 (1316)		
	Dhaka	49.2 (2984)	50.8 (3079)		
Sex of child	Male	40.6 (3264)	59.4 (4780)	833.921	0.000***
	Female	12.9 (439)	87.1 (2957)		
Type of place of Residence	Urban	48.4 (3197)	51.6 (3408)	1835.285	0.000***
	Rural	10.5 (506)	89.5 (4329)		

CONCLUSION

Immunization is the process of stimulating the body's immunity against certain infectious diseases by administering vaccines. Immunization is one of the main health interventions to prevent childhood morbidity and mortality. Immunization will become more effective if the child receive the full course of recommended immunization doses. Therefore, it is very important to study the status of immunization of children in Bangladesh.

This study explores the status of immunization of children under five years in Bangladesh. It examines factors affecting childhood immunization, including selected socioeconomic and demographic factors, namely characteristics of respondents, characteristics of partner, characteristics of children and characteristics of households. Based on secondary data from the 2004 Bangladesh Demographic and Health Survey, a multistage cluster consisting of 361 PSUs, 122 in the urban area and 239 in the rural areas, the number of PSUs was calculated in

terms of an average of 28 completed interviews of eligible women per PSU were selected as unit of analysis in this study. Findings of this study can be summarized as follows:

The expanded program on Immunization in Bangladesh set the objective of universal child immunization by the year 2004, however this objective can only be realized by providing people full access to immunization facilities and at the sometime creating a community demand for immunization services. This study tries to identify the factors that seem to influence the acceptance of immunization services. In general the findings of this study support the proposition that utilization of childhood immunization is related to overall knowledge about immunization services and socio-economic characteristics of the respondents. Greatest neglect for such services is evident among groups with poor knowledge and awareness, limited education and non-white collar occupations. The mechanism through which education affects the practice of childhood immunization is through better knowledge of the appropriate age of children for immunization. Greater awareness of the disease risk and favorable attitudes towards immunization as a perceived means of prevention of immunization disease. These findings suggest the need for providing adequate education to the public concerning the need for preventive health care. The primary health care strategy should be geared to produce greater health awareness. Based on more reliable information sources, it is not surprising that sex of child influence the acceptance of childhood immunization significantly. In many developing countries like Bangladesh soon are considered to be economically high valued. From the table-1 it is seen that the respondents of the age of child 24 months and above are immunized maximum.

From the table-1, it is found that respondent with child immunization by child is significant effect. Above discussion table-1 made it is clear that the Roof materials which are made by Earth/Bamboo and Wood are completed higher immunization than others. In same table the lowest portion of the respondent are poor respondents who have completed the immunization. In same table poor respondents are 42.3% incomplete and 57.7% complete immunized. Similarly the respondents of middle class are 10.7% incomplete and 89.3% complete immunized. Finally for the respondents of rich classes 15.3% incomplete and 84.7% complete immunized. In the same table, among the respondent from Muslim religious complete maximum immunization than the others. Again the respondents who have modern toilet are immunized maximum than the others. Again the ages of respondents who age at below 19 years are immunized maximum with compare to others. From table-1, the respondents who use tube well water are immunized maximum. From the highest education level of respondent table-1, it is seen that among illiterate (no education) respondent 55.4% complete and 44.6% incomplete immunization. It is also remarkable that among the secondary and higher educated respondent complete maximum immunization. It is also seen that the respondent education level (No education/Primary/Secondary/Higher) is significantly related to the practice of immunization among their children. In the same table-1, it is shown

that the current age of respondents at the age 14-20 years are immunized maximum than all other age groups and current age of respondents are significantly related to the practice of immunization among their children. From table -1 it is seen that the partner who have completed primary education are immunized maximum and partner education levels are significantly related to the practice of immunization among their children. Again the respondent whom occupation is not working is immunized maximum and respondent occupation levels are significantly related to practice immunization among their children. Again the respondents whose have access to mass media complete immunized and that's significantly related to the practice of immunization among their children. It is remarkable that the respondents among Khulna division complete maximum immunization and divisions are significantly related to the practice of immunization among their children. Again the female respondent's from sex of child are immunized maximum and sex of child (Male and Female) is significantly related to the practice of immunization among their children. Again the respondents whose residence is rural immunized maximum and Type place residence is significantly related to the practice of immunization among their children.

According to the above results, most of the proposed hypotheses are supported because this relationship is found to be significant. This analysis establishes that the children who are more likely to receive more complete immunization are:

- Childrens whose parents are educated.
- Children of parents who has a service holder.
- Children of respondent who had no work.
- Current age of respondents whose age is 21-30 years are completely better immunized.
- Highest education level of respondent who achieving secondary and higher is completely better immunized.
- The no. of respondents who had used source of drinking water from the tube well.
- Children who come from the better economic status households.

RECOMMENDATION FOR POLICY IMPLEMENTATION

In order to increase immunization coverage and to ensure the completeness of immunization, based on the findings in this study it is recommended:

For children whose parents have low education, it is recommended that all health center and health personnel should pay more special attention to encourage and educate the parents about the values and benefits of the vaccination and vaccine preventable diseases and its consequences to children's health.

For those whose parents work in not working where parents usually do not receive adequate information, it is necessary to provide the parents with some health information by distributing printed matter such as brochures, pamphlets and leaflets.

For children whose mothers have little access to health services including access to prenatal care service, place of delivery, and assistant at delivery, it is important to encourage mother

to use health facilities. Health personnel assigned in the area of these mothers should conduct home visits and inform the mothers of the services available in the health facilities. They should also inform the mothers about the benefits of having the children immunized.

Government should introduce free of charge of immunization services. So the poor parent feels reluctant to immunize their children. In terms of birth order, a mother would like to treat her children equally. So it is important to encourage mothers to provide equal treatment in order to take care of her children.

Regarding household's economic status, health provider should pay more attention on the poor or low economic groups to meet their special needs. It is also important to continue programs to improve the economic condition for most of the families who are in low economic status. Income generating activities such as home industries like handicraft making, home gardening, and animal rising should be encouraged to improve the economic condition of these households. They should be given financial support, if necessary, by government until such time that they are able to stand on their own.

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