Reasons for Dropout of EPI Vaccination according to Socio-economic Status of the Respondents in a Selected Urban Community in Rangpur District

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Abstract:

Background: Immunization is one of the most cost- effective health protective measures and has given priority in the world today. Although immunization coverage is progressing rapidly but dropout is an obstacle to achieve the desired goal. The objective of this study was to find out the reasons for dropout of EPI vaccination in a selected area on the basis of socio economic status. **Methods**: It was a descriptive, cross sectional study. The sample size was estimated by the WHO 30 clusters survey methodology. From each cluster 7 mothers were included and total sample size was 210. **Results:** The main reasons for dropout of vaccination on the basis of socio economic background were: the younger mother's child had higher dropout (34.8%) form immunization; the dropout was high among female infants (38.0%); high dropout (43.4%) was observed among the respondents who were housewife than the respondent engaged in other job (15.4%). It was found that the dropout rate was 44.4% among the illiterate mother and 27.5% among the literate mother. The dropout rate was 50.9% among the illiterate father whereas it was 29.3% among the literate father. The dropout rate was high among the divorced mother (40.0%) compared with married women (34.6%). The drop out of immunization was high among the respondents having low income (53.8%) compared with upper middle or higher income group (20.0%). The drop out was high among the small family size compared with large family of 7 and above. **Conclusions:** The study findings suggested that socioeconomic status improvement and increase literacy rate for coverage of EPI vaccination are required. That would reduce future dropout rate in EPI vaccination. Effective supervision & further strengthening of the health workers should ensure.

Indexing words: Dropout, EPI, Socio economic status, Selected Urban Community

Introduction:

Immunization is one of the most important essential elements of primary health care. A limited number of surveys had been carried out both in the country and abroad on dropout of EPI vaccination. High dropout of EPI vaccination is responsible for low coverage of Immunization program. A study on child Immunization: Trends and Determinants in Bangladesh. Data from the Bangladesh Demographic and Health Survey 1996-1997 have been used in this analysis. According to the information from both vaccination records and mothers' recall, only 54% of Bengladeshi children (12-23months) can be considered fully immunize, although the level of coverage for BCG and the first of DPT and polio exceeds 80%. Only 12% had no vaccination at all. Various factors, including mothers age, parity, sex of the child, place of residence, and region of residence, religion, mothers' education, economic status, electricity in the household, and exposure to mass media, appear to be significant in influencing the levels of child immunization in Bangladesh. It was also observed that immunization coverage is better for births to younger women and those of lower birth order. Among the socioeconomic variables, the educational levels of mother and father had the strongest positive effect on child immunization.[1]

The infant mortality rate has been reduced by 30% and the under five-mortality rate by 25% since 1990 may be due to immunization coverage. However, immunization coverage has declined primarily due to high dropout rates (30-40%).[2]

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In USA it is observed that vaccination-promotion strategies in the supplemental Nutrition Program for Women, Infants, and Children (WIC) have been shown to produce dramatic improvements in coverage and other health out comes.[3]

A study was conducted under the guidance and supervision of the department of population dynamics, National institute of preventive and social medicine (NIPSOM), Dhaka, in 1997 showed that in bi-variate analysis, it was found that no formal parental education, low income, no household possession, no access to piped water and low socioeconomic index was significanted with non-compliance of immunization ($p<0.001$), Others were husbands occupation as laborer, non sanitary latrine, low housing index ($p<0.01$) and 5 and above ($p<0.05$). Similarly, infant's age 6months and above, low parity ($p<0.001$), low maternal care receptivity, infant's weight for age below 75%, weight for height below 90% ($p<0.01$), maternal weight less than 40 kgs and age at marriage below 15 were significantly associated with non-compliance of immunization.[4]

The world continues to under use the most cost-effective public health intervention of all immunization. It is unacceptable that at least 2 million children still die each year from diseases for which vaccines are available at low cost. Immunization has been responsible for the most dramatic changes in the last few decades.[5]

In India, in the state of Bihar, Rajastan, UP, MP and NE states (combined) coverage levels were relatively lower. The coverage levels were also lower for children of illiterate mothers and in small, inaccessible and tribal village.[6]

The objective of this study was to find out the reasons for dropout of EPI vaccination in a selected area on the basis of sociodemographic status.

Methods:

This study was a descriptive type of cross sectional study carried out between the periods of January 2003 to June 2003. This study was carried conducted at different wards in Rangpur municipality. The mothers having children of ages ranging from 12-23 months with history of EPI vaccinations within one year age were subjects of the study. The sample size estimated by the WHO 30 clusters survey methodology and total simple size were 210.

From different Mohollah each cluster was selected randomly by using COSAS software. From each cluster 7 mothers were selected purposively. A structured questionnaire and observational checklist were used for data collection through face to face interview and observation. The Percentage and other statistical calculations and analysis were done by using software SPSS version 11.

Results:

Out of 210 infants, 73(34.8%) were drop out from immunization and 137(65.2%) infants completed the vaccination against immunization schedule. The mean age of the respondents who drop out from immunization was 26.2±6.7 years and who did not were 27.5±6.3 years. No statistically significant mean age difference was found in terms of drop out of immunization and age of the respondents, although the younger mother tends to higher drop out from immunization than the older mother (Table 1).

Table 1: Distribution of respondents by age and drop out from immunization

Age in years	Drop out		Total
	Yes	No	
<20	10(38.5)	16(61.5)	26
20-29	41(37.6)	68(62.4)	109
≥ 30	22(29.3)	53(70.7)	75
Total	73(34.8)	137(65.2)	210
Mean±SD	26.2±6.7	27.5±6.3	27.1±6.5

N.B: Figure in parenthesis indicate percentage
t = -1.375, df = 208, p value = 0.171

Among the male infants, the drop out was 35(31.8%), whereas among the female infants, it was 38(38.0%), but the difference was not statistically significant ($p>0.05$), although the rate of drop out was high among the female infants than male infants (Table 2).

Table 2: Distribution of dropout infant by sex

Sex	Drop out		Total
	Yes	No	
Male	35(31.8)	75(68.2)	110
Female	38(38.0)	62(62.0)	100
Total	73(34.8)	137(65.2)	210

$X^2 = 0.883$, df = 1, p value = 0.347

It was evident from Table 10 that the rate of drop out from immunization was high 63(43.4%) among the respondents of housewife than the

respondents engaged in other job 10(15.4%) and the difference was statistically significant (p<0.01) (Table 3).

Table 3: Distribution of dropout respondents by occupation

Occupation (respondent)	Drop out		Total
	Yes	No	
Housewife	63(43.4)	82(56.6)	145
	10(15.4)	55(84.6)	65
Total	**73(34.8)**	**137(65.2)**	**210**

X^2 = 15.586, df = 1, p value = 0.001

It was evident that no statistically significant difference was found in terms of drop out of immunization and occupation of husbands (p>0.05), although the drop out was high among the infant's father engaged in manual job 27(38.6%) than the engaged in non-manual job-46(32.9%) (Table 4).

Table 4: Distribution of dropout respondents by occupation of husband

Occupation (Husband)	Drop out		Total
	Yes	No	
Housewife	46(32.9)	94(67.1)	140
Manual job	27(38.6)	43(61.4)	70
Total	**73(34.8)**	**137(65.2)**	**210**

X^2 = 0.672, df = 1, p value = 0.412

It was evident that the dropout rate was 40(44.4%) among the illiterate mother and 33(27.5%) among the literate mother. A statistically significant difference was found in terms of literacy and drop out of immunization (p<0.05) indicating the illiterate mother were not aware about immunization (Table 5).

Table 5: Distribution of dropout respondents by level of education of respondents

Level of education (respondent)	Drop out		Total
	Yes	No	
Illiterate	40(44.4)	50(55.6)	90
Literate	33(27.5)	87(72.5)	120
Total	73 (34.8)	137(65.2)	210

X^2 = 6.511, df = 1, p value = 0.011

Table 6 revealed that among the illiterate father, the dropout rate was 27(50.9%), whereas it was 46(29.3%) among the literate father and the difference was statistically significant (p<0.01) indicating the illiterate fathers were not aware about immunization.

Table 6: Distribution of dropout respondents by level of education of husband

Level of education (husband)	Drop out		Total
	Yes	No	
Illiterate	27(50.9)	26(49.1)	53
Literate	46(29.3)	111(70.7)	157
Total	**73(34.8)**	**137(65.2)**	**210**

X^2 = 8.185, DF = 1, p value = 0.004

It was noted that no statistically significant difference was found in terms of drop out of immunization and marital status of the respondents (p>0.05) although the drop out of immunization was high among the divorced mother (40.0%) compared with currently married women (34.6%) (Table 7).

Table 7: Distribution of dropout respondents by marital status

Marital status	Drop out		Total
	Yes	No	
Married	71(34.6)	134(65.4)	205
Divorced	2(40.0)	3(60.0)	5
Total	**73(34.8)**	**137(65.2)**	**210**

X^2 = 0.062, df = 1, p value = 0.803

It was observed that the drop out of immunization was high among the respondents having low income (53.8%) compared with upper middle or higher income group (20.0%) and the difference was statistically significant (p<0.01) indicating the respondents with low income were not aware about immunization (Table 8).

Table 8: Distribution of dropout respondents by monthly income

Monthly income	Drop out		Total
	Yes	No	
Low (Tk.<2500)	35(53.8)	30(46.2)	65
Lower middle (Tk.2500-5000)	25(31.3)	55(68.8)	80
Upper middle (Tk. 5000-10000)	10(20.0)	40(80.0)	50
Higher (Tk. ≥ 10000)	3(20.0)	12(80.0)	15
Total	**73(34.8)**	**137(65.2)**	**210**

X^2 = 17.120, df = 3, p value = 0.001

It was revealed that no statistically significant difference was found in terms of drop out of

immunization and religion of respondents (p>0.05) although it was observed that the drop out was just a bit high among the Muslim respondents (34.9%) than the non-Muslim counterpart (33.3%) (Table 9).

Table 9: Distribution of dropout respondents by religion

Religion	Drop out		Total
	Yes	No	
Muslim	65(34.9)	121(65.1)	186
Non-muslim	8(33.3)	16(66.7)	24
Total	**73(34.8)**	**137(65.2)**	**210**

$X^2 = 0.024$, df = 1, p value = 0.876

The mean family size of the drop out family was 5.1±1.4and that of non-drop out family was 5.2±1.5. No statistically significant difference was found in terms of drop out of immunization and family size (p>0.05), although the drop out was high among the small family size compared with large family of 7 and above (Table 10).

Table 10: Distribution of dropout respondents by family size

Family size	Drop out		Total
	Yes	No	
3-4	39(34.5)	74(65.5)	113
5-6	27(38.0)	44(62.0)	71
≥7	7(26.9)	19(73.1)	26
	73(34.8)	137(65.2)	210
Total	5.1±1.4	5.2±1.5	5.2±1.5

$X^2 = 1.042$, df = 2, p value = 0.594

Discussion:

From this study it was evident that among the mothers of age group below 20years highest percentage of dropout was present and 20 to 29 years age group was in second position. Majority of the respondents were young aged group and this has similarities with the study conducted by Khanom[7] where she showed that young mothers were less aware and experience about the six killer diseases as well as wives were dominated by their husbands or mother-in-law. But another study done by Hossain[8] showed that dropout cases were more likely to occur in the children of middle aged (20-30) mothers. It was evident that the rate of drop out from immunization was high 63(43.4%) among the respondents who were housewife than the respondents engaged in other job 10(15.4%) and the difference was statistically significant (p<0.01).This occupational variation may be due to difference in characteristics of the population in respect of socioeconomic and cultural variation. In another study conducted by Azad[9] majority of the respondents were housewife. In regard to educational status, it was found that among children of illiterate respondents, the highest percentage of dropout was present and among children of illiterate respondent's husbands, the highest percent of dropout was present. This educational level of respondents and their husbands had similarity with the study conducted by Rahman[10] where majority of the respondents and their husbands were illiterate. The educational level of mother and father had the strongest positive effect on child immunization.[11] Regarding family size, majority of dropout cases was in the small family in comparison with large family size. The present study had a similarity with the study conducted by Jamiruddin[12] where majority dropout was observed in the family who had 4-6 members.

Considering family income, majority of dropout cases was from those families who had monthly income below Tk. 2500.00. But in the study conducted by Jamirudin,[12] maximum family monthly income was Tk. 2001.0 to 2500.00.

Conclusion & recommendation:

The findings of the study suggested that the majority dropout cases belonged to younger mothers. The younger mothers were less experienced about the childhood infectious diseases and lack of empowerment as a new member in the family.

The dropout was high among female infants. High dropout was observed among the respondents of housewife than the respondent engaged in other job. It was evident that the dropout rate was high among the illiterate mother and father than the literate mother and father. The dropout rate was high among the divorced mother compared with married women. The drop out of immunization was high among the respondents having low income compared with upper middle or higher income group. The drop out was high among the small family size compared with large family of 7 and above. So improvement of socioeconomic status and literacy rate to reduce dropout rate in EPI vaccination are required. Parents should be motivated for completion the EPI vaccine schedule for their child. The government and the media should play their role for prevention of dropout. Further in depth studies are needed to determine the actual reasons for dropout cases.

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