

Study on reasons of dropout of immunization in children in selected slum area of Dhaka city, Bangladesh

Latifur Rahman¹, Haridas Biswas², Tofazzel Hossain³, Abdul Mazid Khan⁴, Ishaq Ali Khan⁵

¹Associate Professor and Head, Department of Community Medicine; ²Associate Professor & Head, Department of Forensic Medicine; ³Associate Professor, Department of Pharmacology; ⁴Assistant Professor, Department of Cardiology, Diabetic Association Medical College, Faridpur. ⁵Lecturer, Department of Community Medicine, Faridpur Medical College, Faridpur, Bangladesh.

Abstract

The Expanded Programme on Immunization is one of the most cost-effective, powerful and safe public health interventions. This cross-sectional study carried out at a selected slum in Dhaka city, Bangladesh to examine the reasons of dropout of immunization in children. Mothers having children 11-23 months with history of EPI dropout were included in the study. A total of 128 mothers were interviewed. Out of 128 respondents 32.8% were in the age of 26-30 yrs; 96.9% were married, 65.7% were housewife, 62.5% had 4-6 members in the family, 50.78% had primary education & rest 10.15% had secondary level education. Approximately 53.1% of the husbands of the respondents were day laborers, and 57.8% of the family had a monthly income in range of Tk. 2001-3000. Out of 128 dropout children, 31.2% were in the age group 11-13 months and 28.2% were in the age group 20 months and above. During the interview, respondents were able to show the EPI Card of their children. The main reasons for dropping out were a lack of awareness to complete the vaccination schedule (25%), and illness of child (21.9%). The other reasons were fear of reaction (9.4%) and business of the mother (9.4%). There is a need to intensify efforts to increase access for immunization, strengthen surveillance and promote health education to reduce the drop-outs in slum areas.

Keywords: EPI, Vaccination, Dropout, Slum areas, Dhaka.

Introduction

The Expanded Programme on Immunization (EPI) is one of the most cost-effective, powerful and safe public health interventions and is considered to be one of the main programs for achieving Millennium Development Goal 4 (MDG 4).^{1,2} Vaccines continue to have a tremendous impact on public health, saving millions of lives each year. In Bangladesh, EPI was launched on 7th April 1979 to reduce the mortality, morbidity and disability of children.³ The diseases which are preventable by immunization usually strike the children early during infancy or the pre-school period. In Bangladesh, infant and under five mortality rates were 49 and 52 per 1,000 live births respectively in 2009 which was still very high.⁴ Though national EPI coverage is good in Bangladesh, EPI coverage in the slum areas is reported to be low.⁵ It was reported that the awareness of EPI, knowledge of vaccines, and acceptance of complete doses of vaccines are higher among the middle class and lower middle class compared to slum dwellers.⁶ Acceptance of complete doses of vaccines is highest among the middle class (75%), intermediate among the lower middle class (60%), and lowest among slum dwellers (48%).⁶

In Dhaka city, an estimated 3.4 million people live in some 5000 slums.⁷ Slum living has important social and health consequences. The majority of the slum dwellers migrated to Dhaka for economic reasons, and had

Practice Points

- EPI is one of the most cost-effective, powerful and safe public health interventions
- Lack of awareness among mothers as the most important cause for dropouts in vaccination programs in slum areas.
- Dropout rate is greater among younger children and family size had no relationship with the reasons of dropout.
- Age, occupation, and the socioeconomic condition of mothers were identified as the contributory factors for higher dropout rate.
- There is a need to intensify efforts to increase access for immunization, strengthen surveillance and promote health education to reduce the drop-outs in slum areas.

unacceptable levels of malnutrition, hygiene and health, deprivation of essential services and high infant and maternal mortality. To make a uniform progress in the health service, effective measures in EPI can save the slum children and this would be helpful to achieve the target of MGD. The aim of this study was to examine the reasons of dropout of immunization in children in slum areas of Dhaka city, Bangladesh.

Correspondence: Dr. Latifur Rahman Associate Professor & Head, Dept. of Community Medicine, Diabetic Association Medical College, Faridpur. E-mail: latifur50@yahoo.com.

Materials and methods

A cross-sectional study was conducted among 128 respondents of two slums, Godaraghat and Vasantek slums, of Dhaka city, Bangladesh. Mothers with children of 11-23 months of age with a history of EPI dropouts were included in the study. The study was done from 1st July to 30th September, 2008. Data was collected through a pre-tested structured questionnaire and through face to face interviews by the researcher himself.

Results

The detailed socio-demographic status of the respondents is shown in Table 1. Out of 128 respondents 32.8% were in the age of 26-30 yrs; 96.9% were married, 65.7% were housewife, 62.5% had 4-6 members in the family, and 50.78% had primary level education. The mean age of the respondents was 27.5 with SD 6.3 and the average family size was 4.7.

Table 1: Socio-demographic status of the respondents

Variables	Frequency (%)
<i>Age</i>	
16-20 yrs	20 (15.6%)
21-25 yrs	28 (21.9%)
26-30 yrs	42 (32.8%)
31-35 yrs	24 (18.7%)
36-40 yrs	10 (7.9%)
41+ yrs	4 (3.1%)
<i>Occupation</i>	
Housewife	84 (65.7%)
Maid servant	24 (18.8%)
Business	10 (7.8%)
<i>Educational Status</i>	
Illiterate	50 (39.06%)
Primary	65 (50.78%)
Secondary	13 (10.15%)
<i>Family size</i>	
<4	36 (28.1%)
4-6	80 (62.5%)
7+	12 (9.4%)
<i>No of children in the family</i>	
1-2 children	68 (53.1%)
3-4 children	50 (39.1%)
5-6 children	6 (4.7%)
7+ children	4 (3.1%)
<i>Husband's occupation</i>	
Day labor	68 (53.1%)
Business	40 (31.3%)
Service	16 (12.5%)
Others	4 (3.1%)
<i>Monthly income of family (Taka)</i>	
500- 1000	2 (1.6%)
1001-2000	18 (14.0%)
2001-3000	74 (57.8%)
3001+	34 (26.6%)

Approximately 53.1% of the husbands of the respondents were day laborers, and 57.8% of the family had a monthly income in range Tk. 2001-3000.

Table 2 shows the age distribution of dropout children; out of 128 children 31.2% were in the age group 11-13 months and 28.2% were in the age group 20 months and above. During the interview, respondents were able to show the EPI Card of their children.

Table 2: Age distribution of dropout children

Age of children	Frequency (%)
11-13 month	40 (31.2)
14-16 month	24 (18.8%)
17-19 month	28 (21.8%)
20+ month	36 (28.2%)

Table 3 shows that the major causes for dropout which include lack of awareness of need for further immunization (25%) and illness of child (21.9%). Age, occupation, and socioeconomic condition of mothers are contributory factors of dropout of EPI vaccination. There is an association between the above factors and dropout of EPI vaccination, which is statically significant ($P < 0.05$).

Table 3: Stated reasons of dropout of EPI vaccination (children 11-23 month)

Reasons of dropout	Frequency (%)
Unaware of need for further immunization	32 (25%)
Fear of side reaction	12 (9.4%)
Wrong ideas about contra indication	8 (6.3%)
Place/time of immunization unknown	8 (6.3%)
Illness of child	28 (21.9%)
Mother too busy	12 (9.4%)
Time inconvenient	10 (7.8%)
Place of immunization to far	6 (4.6%)
Family problem including illness of mother	4 (3.1%)
Long waiting time	4 (3.1%)
Others	4 (3.1%)

Discussion

The aim of this study was to determine the reasons of dropout of EPI vaccination of children. In this study, a quarter of the children were dropped out due to the lack of awareness of importance of further immunization among mothers and more than one-fifth of the children were not taken to the immunization center by mothers due to the illness of their children. These findings were supported by the findings of the other studies conducted in urban areas of Bangladesh.^{5,6,8,9} Studies conducted in the Dhaka district (urban and rural) highlighted that the major reason for incomplete vaccination was lack of knowledge regarding subsequent doses (46%); the number of responses were much higher than the present

study.¹⁰ Another study examined that child immunization coverage in rural hard-to-reach *haor* areas of Bangladesh and identified the following reasons for low complete immunization coverage: irregular/cancelled EPI sessions, fear of side effects, mothers' poor knowledge about benefits of complete vaccination, lack of mothers' knowledge about EPI sessions, geographical barriers etc.¹¹

From this study it is evident that the mean age of the respondents was 27.5 years which is similar (25 years) to the study conducted by Khan *et al.*⁶ The study also demonstrated that maximum dropout occurred among the middle aged group of mothers (26-30 years). This is also similar to the study by Khan *et al.*,⁶ where researches showed that young mothers <25 years are more likely to complete vaccination than older mothers. However, the study by Tariqul Islam *et al.*¹² showed that dropout cases were more numerous among younger mothers (22.5-26.5 years). This variation may be due to a natural variability or due to differences in sample size and sampling area.

With regard to the occupation of the respondents, 65.7% were housewives and most of the respondents' husbands (53.1%) were day laborers. The study also disclosed that 39.06% of the respondents were illiterate and approximately half of the mothers had primary level education. This low education level of parents certainly had an impact on the rate of EPI vaccination dropouts⁶ and, probably, this low literacy rate created a lack of awareness among mothers in regards to the uptake of vaccination.

In this study, the average family size was 4.7 and approximately one third of the families had 4-6 members. However, family size had no relationship with the reasons of dropout. The average number of children was 2.7, and 53.1% of the families had 1-2 children while 39.1% had 3-4 children. The study conducted by Tariqul Islam *et al.*¹² showed similar findings: 57% of the respondents had 1-2 children and 40% had 3-4 children.

We found that the majority of the children who dropped out (31.2%) were in the 11-23 months age group which indicates that the dropout rate is greater among younger children. In the previous studies,^{6,12} the age distribution of children who dropped out were not mentioned.

The prevalence of vaccine-preventable diseases is more common in urban slums due to high density of population and poor hygienic conditions. One-quarter of the population of the Dhaka City Corporation lives in slum households.¹³ In Bangladesh, although 75% of children aged 12-23 months are fully immunized,⁵ the coverage in urban slums remains low as evident from this study and other previous studies. According to EPI Survey Coverage Report 2011, the proportion of fully-immunized children in the Dhaka City Corporation was 68.4%, whereas the coverage in slums was 59.5%.¹⁴ Specific programs targeted to slum areas could improve the quality of life of the urban poor, decrease the vaccination dropout, and increase the immunization coverage.^{15,16}

Conclusion

This study has highlighted lack of awareness among mothers as the most important cause for dropouts in vaccination programs in slum areas. Age, occupation, and the socioeconomic condition of mothers were identified as the contributory factors for higher dropout rates. Effective intervention is needed to improve full immunization coverage in slum areas by strengthening the EPI programs and mobilizing the community, modifying the EPI session schedule, opening additional and more convenient outreach sites, community involvement, and improved training for healthcare providers.

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