



Original Article

Accuracy of Mothers' Reports Regarding Vaccination Status of Their Children in Urban Bangladesh

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Abstract

With the primary view to test the accuracy of the mothers reports regarding their children's immunization status, this study was carried out in the metropolitan areas of Rajshahi among the mothers of 12-23 months old children, Total 1500 mothers were included in this study as sample units by two stage cluster sampling method. In this study, child immunization card retention rate was 66.22%, Majority of the mothers reported accurately about their children's DPT (76%) and measles (85%) vaccination status. It suggests that urban mothers statements about their children' vaccination status is reliable. And in case of DPT young and educated mothers with higher family economic status and having fewer children were comparatively more reliable than others. Field workers should motivate and encourage the mothers to preserve their children's immunization cards.

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Introduction

Health workers are responsible for vaccination, maintain records and about who; when with how many doses are immunized¹. Vaccination cards are issued to each child at the time of vaccination. But in different studies it was showed that a considerable number of mothers can't provide the vaccination card/cards during its necessity. A survey¹ conducted in Sudan demonstrated that in one region only 44% of children, who had received measles vaccine, had vaccination card to prove it. In Bangladesh, according to findings of National Coverage Evaluation Survey (CES) in 1998, the national retention rate for the children's cards was 54%. During the CES it was found that 50% in Dhaka, 54% in Chittagong, 64% in Khulna and 51% in Rajshahi respectively². For that reasons like other countries, in Bangladesh health

workers also depend on other's statements for knowing their children's vaccination status.

Children vaccination card helps not only in follow up for completion of the vaccination schedule and for vaccination coverage survey but also required for curative purposes after completion of vaccination^{1,2}. It is important for health workers to know the accuracy of mother's reports about vaccination status of their children before immunizing her children who come to health facilities for curative care¹ namely treatment for injury. Very few number of mothers brought vaccination card with them when they came to a health facility for reasons other than to attend in immunization clinic.

Many experienced health workers believe that mother's reports of their children vaccination status are accurate. Much of this faith is based on

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comparisons of the presence or absence of a BCG scar with mother's reports of their children have been vaccinated. However, this suffers from the weakness that a BCG scar is a visible reminder to the mother of previous vaccination¹. A more pessimistic view is provided by a study carried out by Comstock et al. in the USA³, which reported that the information gathered in one household survey agreed with written pediatric records is only 43% of instances.

Hence, in this study an attempt was made to verify the validity of mothers' report about their children's vaccination status by exploring these facts of DPT and measles vaccine which reflect the others like BCG, Polio and hepatitis vaccines. And also to find out the Socio-demographic predictors of the mothers' statements.

Material and Methods

This study was conducted in the metropolitan area of Rajshahi district with the primary object to test the validity of the mothers reports regarding their children's immunization status and Socio-demographic predictors of the mothers' reports. The mothers of children aged 12-23 months and able to provide their children's vaccination card at the time of interview constituted the study population. A total of 1500 mothers were included in this study. To achieve the sample size, 2265 mothers of children aged 12-23 months and supposed to have their children's vaccination cards (as per the mothers' statements in favor to receive of any vaccine by her child) were visited. These 1500 mothers were selected from the 30 wards of Rajshahi metropolitan area by two stage cluster sampling. In the first stage 15 wards were selected from 30 wards of of Rajshahi metropolitan area. In the 2nd stage, 100 mothers were selected from each ward by random sampling. Ten data collectors (interviewers) made 5 teams of one male and one female for data collection. They collected data by a pretested structured interview schedule and check list. The interview schedule included questions on socio-demographic status of the mothers and their children's vaccination status (DPT and measles). The check list had two parts. The first part included information about the

children's vaccination status on the basis of their vaccination cards. The second part included the evaluative results regarding accuracy of the mothers' reports about their children's vaccination status comparing with the information recorded in the first part of the checklist.

Data were analyzed computer using SPSS for Descriptive as well as analytic techniques involving frequency distribution, computation of percentage, Chi-square test etc. were applied. Sensitivity and specificity of mother's statements regarding their children's DPT and measles vaccination status were calculated.

Results

A Total 2265 mothers having a child aged 12-23 months in Metropolitan areas of Rajshahi were visited to select the 1500 mothers having their children's immunization card for interviewing. The card retention rate was 66.22%.

Out of 1500 mothers, majority of them reported accurately about their children's DPT (76% and measles (85%) vaccination status (Fig. 1)

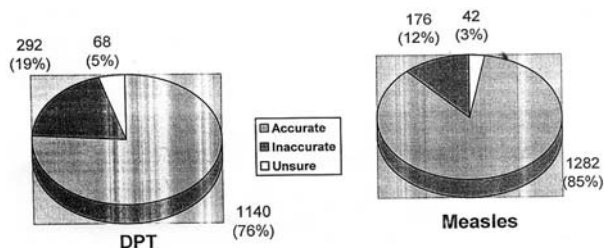


Fig. 1: Accuracy of mothers' statements about their vaccination status for DPT & measles. n=1500

Mothers Age, education status, family economic status, and parity were identified as important predictors of mothers' report about their children's vaccination status (Table 1),. But in case of measles, these maternal factors were factors were not identified as significant predictors (Table 2).

Sensitivity (89.15%) and specificity (80.00%) of mothers' reports about their children's measles vaccination status were high. In case of DPT, sensitivity (89.15%) of mothers' reports was high but specificity (67.00%) was not so high as like that measles.

Table 1 Predictors of mothers' accuracy on DPT vaccination status

Predictors	Accuracy of reporting		Chi-square Significance
	Accurate N(%)	Inaccurate N (%)	
Age (years)			
<25 (N=759)	631 (83.14)	128 (16.86)	26.41 ***
25-34 (N=574)	448 (78.05)	126 (21.95)	
>34 (N=99)	61 (61.62)	38 (38.38)	
Educational Status			
Illiterate (N=231)	165 (71.43)	66 (28.57)	11.92 **
Primary level (N=451)	361 (80.04)	90 (19.96)	
Higher secondary & above N=759)	614 (81.87)	136 (18.13)	
Family Economic Status			
Poor (N=892)	691 (77.47)	201 (22.53)	7.314*
Middle class (N=446)	368 (82.51)	78 (17.49)	
Rich (N=94)	81 (86.17)	13 (13.83)	
Occupation			
House wife (N=1401)	1115 (79.59)	286 (21.41)	.021 ^{NS}
Worker (N=31)	25 (80.65)	6 (19.35)	
Parity			
Primipara (N=914)	761 (83.26)	153 (16.74)	21.06**
Multipara (N=425)	313 (73.65)	112 (26.35)	
Grandmultipara (N=93)	66 (70.97)	27 (29.03)	
^{NS} Non significant	*p<.05)	**p,.01	***p<.001

Table 2 Predictors of mothers' accuracy on measles vaccination status. n=1458

Predictors	Accuracy of reporting		Chi-square Significance
	Accurate N(%)	Inaccurate N (%)	
Age (years)			
<25 (N=774)	681 (87.98)	93 (12.03)	.472 ^{NS}
25-34 (N=583)	510 (87.48)	73 (12.52)	
>34 (N=101)	91 (90.10)	10 (9.90)	
Educational Status			
Illiterate (N=236)	199 (84.32)	37(15.68)	4.162 ^{NS}
Primary level (N=460)	403(87.61)	57 (12.39)	
Higher secondary & above N=762)	680 (89.24)	82 (10.76)	
Family Economic Status			
Poor (N=899)	781 (86.87)	118 (13.13)	2.80 ^{NS}
Middle class (N=455)	406 (89.23)	49 (10.77)	
Rich (N=104)	95 (91.35)	9 (8.65)	
Occupation			
House wife (N=1419)	1254 (88.37)	165 (11. 63)	.419 ^{NS}
Worker (N=39)	28 (71.79)	11 (28.21)	
Parity			
Primipara (N=924)	819 (88.64)	153 (16.74)	2.23 ^{NS}
Multipara (N=436)	381 (87.39)	112 (26.35)	
Grandmultipara (N=98)	82 (83.67)	16 (16.33)	
^{NS} Non significant			

Table-3: Sensitivity & specificity of mothers' reports about their children's DPT (by dose) & measles vaccination status.

	DPT	Measles
Sensitivity ^a	86.07	89.15
Specificity ^b	67.00	80.00

^aPercentage of vaccinated children whose mothers reported they were vaccinated.

^bPercentage of unvaccinated children whose mothers reported they were vaccinated

Discussion

Children's vaccination card retention rate in Rajshahi was 59.7% in 1998⁴. At present it was increased to 66.0%, but still it was unsatisfactory.

The results of the study show that the mothers' statement's vaccination was reliable and authentic. The value of sensitivities and specificities of the mothers' reports about inoculation of these vaccines also indicate like that. It corresponded with the findings of Gareaballah et al (1989)¹ and Ullah et al. (2000)⁵. But it was observed that mothers' reports regarding DPT vaccination were less reliable than that of measles. It might be due to multiple dose of the DPT and longer recall time. The above facts suggested that dose of vaccination and duration of recall time were the important determinant of the accuracy of mothers' statements. It agreed with the findings of Ullah et al. in (2000)⁵.

It was seen that more mothers were unsure about the vaccine having higher doses. It corresponded with the findings of Gareaballah et al (1989)¹ and Ullah et al. (2000)⁵.

No socio-demographic factors of the mothers were associated with the accuracy of the mothers'

statements regarding measles vaccines in this study. But some socio-demographic factors like age, educational status, family economic condition and parity were identified as the important predictors of accuracy of the mothers' statements regarding their children's' DPT vaccination status. Comparatively Young and educated Mothers with higher family economic status and having less children were more reliable than others about their children's' DPT vaccination status. It suggested that we should consider the socio-demographic factors to predict the accuracy of mothers' statements regarding DPT vaccination only not in case of measles.

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