Watch Report

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National Immunization Day 1996: Performance and Differentials

Abstract: This report assesses the performance of *National Immunization Day (NID)* and examines the role of development agencies on NID performance in rural Bangladesh. By analyzing a nationally representative survey data the study reveals that the social mobilization aspects of NID created a positive environment in preventing poliomyelitis and nightblindness by immunizing under 5 children. The impact of the credit-based development program was significant in raising the participation of children in NID activities although considerable demographic, socioeconomic and regional differences in participation were visible. The study suggests that social mobilization activities must be a regular and routine activity if the performance level is to be improved in future.

Introduction

The Expanded Program on Immunization (EPI) in Bangladesh was found cost-effective and convenient public health intervention with a tremendous potential for mortality reductions among children (Koenig et al., 1991; Foster, 1984). The government and other development agencies have routinely been operating mass communication activities to increase the community participation in immunizing children for more than a decade. Although the coverage reached to nearly 79% in 1995, the efforts have produced very little in terms of making the mothers aware about the need, type of doses, and the diseases that could be prevented by EPI (Hadi et al., 1995). Given this backdrop, the 16 April and 16 May of 1996 were observed as *National Immunization Day (NID)* by the government and concerned NGOs. On 16 April only polio, and on 16 May both polio and vitamin A were given to all children aged under 5 years. The purpose of observing the National Immunization Day was not only to provide preventive measures against polio and nightblindness among children but to create and sustain awareness of EPI particularly among mothers having children. This report presents the performance of NID in terms of participation of children in the campaign and investigates the impact of the development program of NGOs on coverage in rural Bangladesh.

Materials and Method

Data for this study came from *Watch*, a nationally representative intensive monitoring system of BRAC covering 70 villages in ten districts of Bangladesh. *Watch* maintains a database where basic demographic and socioeconomic information are updated. A sampling frame consisting of all children aged under 5 years in April 1996 was prepared. Systematic random sampling technique was followed to select sample children where one from every four children was selected. The sample size was 2,169. Of them, nearly a third came from households involved either with BRAC or other NGOs while the other two-third households were not involved with such development programs. In our analysis, the non-program households are categorized into *target* and *non-target* based on their eligibility to be involved in credit-based development program. This approach allowed us to compare the performance of NID among three groups viz. children of households i) participated with any non-government development organization, ii) eligible but never involved with any NGO, and iii) not poor enough to receive support from NGOs.

Findings and Discussion

Compared to EPI coverage (GOB, 1995; Hadi et al., 1995), the NID performance appeared to be very poor as only about 62% children received all three doses of vaccines (Table 1). About 79.4% of the children received

polio vaccine in April, 81.1% in May and nearly 72.7% of the children attended for vitamin A in May.

Table 1. Acceptance of NID vaccines by type and demographic characteristics

Age and Sex	Polio April	Polio May	Vitamin-A May	Total Doses
All	79.4	81.1	72.7	61.8
Age				
1 or less	77.3	81.8	44.2	37.4
1-4	81.3	82.0	81.0	69.4
5	75.3	77.3	75.5	62.8
Sex				
Male	79.1	81.3	73.9	62.5
Female	79.8	80.9	71.3	61.1

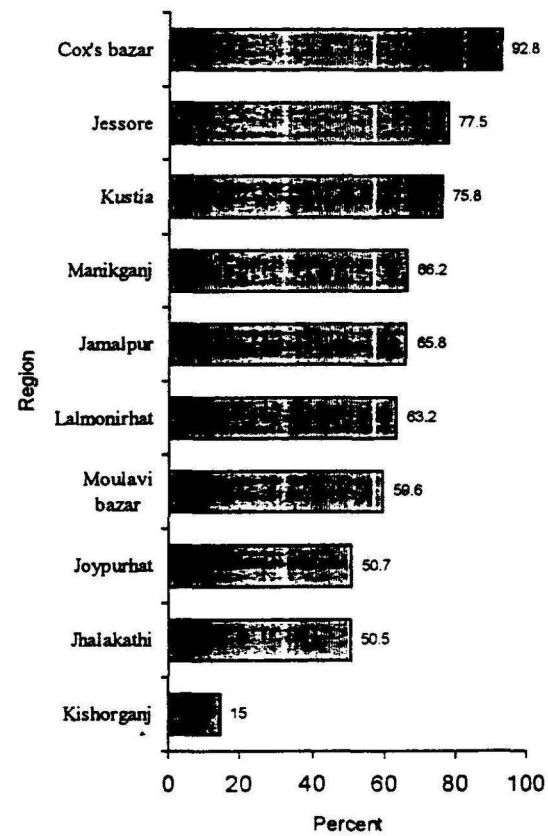
NID coverage appeared to have an inverse U-shape relationship with age of children ($p<.01$) as coverage was very low among infants and older children compared to 1-4 year old children. The reason of low coverage among infants was the difficulty and inconvenience to bring young children particularly the neonates to EPI centers. Relatively low coverage among older children was caused by the problem of identifying eligible children (in terms of age) because a large number of children aged around 5 years were wrongly overlooked by the providers.

Table 2. Acceptance of NID vaccines by type and socioeconomic characteristics

Socioeconomic characteristics	Polio April	Polio May	Vitamin-A May	Total Doses
Mother's Education				
No schooling	78.4	79.6	71.1	59.8
I - V	80.9	82.8	73.7	64.4
VI +	82.2	86.5	78.7	67.7
Land Ownership				
Landless	80.2	82.2	73.1	62.9
1 - 199 dec	79.1	80.2	72.0	60.8
200 + dec	77.2	78.9	72.4	59.8
Father's Occupation				
Agriculture	79.2	80.7	71.7	61.4
Business	79.6	82.2	75.9	62.7
Service	81.1	84.8	76.8	65.6
Program Involvement				
None (Non target)	77.4	79.9	72.1	58.8
None (Target)	78.6	80.5	70.7	61.0
NGO member	82.4	83.3	75.9	65.8

It should be noted here that all the children attended the EPI center on the 16 May campaign were not given both polio and vitamin A. This was more true for infants than others because of the general perception that vitamin A should not be given before a child reaches 6 months of age. No significant sex variation in coverage was found although more male then female children received vaccines in May.

Figure 1. Coverage of all NID doses by region



Socioeconomic differentials of various NID doses are shown in Table 2. As found in other EPI studies, mothers' years of schooling remained as a positive and significant force ($p<.01$) in raising participation in this kind of campaign (Streatfield et al., 1991; Koenig et al., 1991; Hadi et al., 1995). Though not statistically significant, land ownership appeared to be negatively associated with NID coverage indicating that social mobilization during NID was able to reach the economically poor section of the community. This finding was also supported by the fact that variation in NID coverage by occupation was very small except if the father was employed in a formal sector. Employed fathers, being better educated, were more likely to get their children immunized than others ($p<0.1$). Table 2 also shows that the acceptance of NID vaccines in both April and May was significantly higher

among children of the households involved with credit-based development NGOs than children of households not involved with such development activities.

A wide regional variation in coverage of all NID doses was found ranging between 93% in the southern region of Cox's Bazar and only 15% in the haor region of Kishoreganj (Figure 1). While the reasons of such variation were not known, problems in communicating potential parents and organizing NID camps in remote rural areas seemed to be important factors of poor attendance as reflected in the coverage in riverine and haor regions of Jhalakathi and Kishoreganj.

Table 3. Change in participation of children between April and May by program involvement

Program Involvement	No Change		Change	
	Both	Never	Drop	New
All	69.2	9.2	9.8	11.8
None (Non target)	66.0	9.3	11.0	13.7
None (Target)	68.9	10.7	9.1	11.3
NGO member	72.5	7.2	9.6	10.7

How successful was NID campaign as social mobilization effort? Table 3 shows the changes in the participation of children between April and May by program involvement measured by the acceptance of polio vaccines. About 69.2% of the children attended in both months and 9.2% received none in either of the months. About 9.8% children received polio vaccines in April but dropped out in May while 11.8% did not attend in April but received polio vaccines in May.

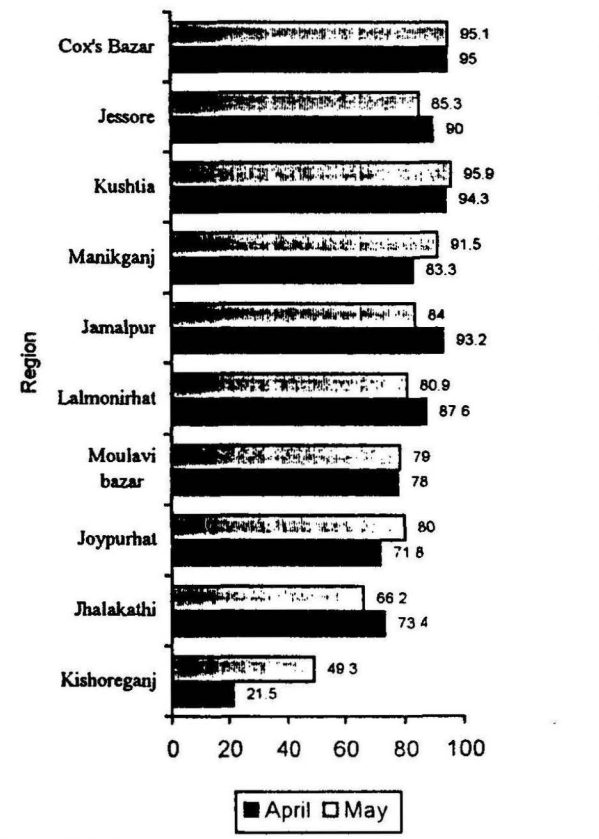
Table 4. Change in participation of children between April and May by region

Region	No Change		Change	
	Both	Never	Drop	New
Manikganj	78.3	3.5	13.1	5.1
Joypurhat	59.8	8.1	20.1	12.0
Jamalpur	79.4	3.1	4.1	13.4
Lalmonirhat	71.3	2.9	9.6	16.3
Kustia	90.2	0.5	5.7	3.6
Jessore	77.5	2.5	7.8	12.3
Jhalakathi	59.6	19.7	6.6	14.1
Cox's bazar	92.5	3.4	2.2	1.9
Moulavi bazar	62.2	6.1	16.3	15.3
Kishorganj	15.0	43.7	34.5	6.8

When the continuity of participation in NID mobilization effort was differentiated by program involvement, it appeared that children of NGO members (72.5%) were much more likely ($p<.01$) to participate in both months than either the children of socioeconomically similar (target) non-program households (68.9%) or the children of non-target better-off households (66%). The change in participation in terms of both dropout or new recruit in the campaign was generally higher among children of households not involved with NGOs.

Change in participation between months by region is shown in Table 4. Retention (i.e. participation in both months) rates were quite high in Cox's Bazar (92.5%) and Kushtia (90.2%) regions and was very low in Kishoreganj region (15%). A large proportion of children either dropped out or entered as new recruit in such regions as Kishoreganj, Jaypurhat, Moulavibazar and Lalmonirhat indicating that mobilization effort was inadequate in those regions.

Figure 2. Change in the acceptance of polio by month and region



Social mobilization effort was examined further in Figure 2 where coverage of polio in both months by region are compared. It appeared that the performance sustained or even increased in a number of regions namely Cox's Bazar, Jessore, Jamalpur, Lalmonirhat and Jhalakhathi. On the other hand, participation dropped out in nearly equal number of regions indicating that mobilization

campaign was either inadequate or poorly organized in a large part of the country.

Table 5. Odds ratios of selected variables to predict the acceptance of all three doses of NID vaccines

Predictor	Model I	Model II
Program Intervention		
None (Not target)	1.0	1.0
None (Target)	1.12	1.17
NGO member	1.29*	1.31*
Age		
1 or less	0.26**	0.26**
2-4	1.0	1.0
5	0.73*	0.77*
Sex		
Male	1.0	1.0
Female	0.94	0.93
Mother's Education		
No schooling		1.0
I - V		1.29*
VI +		1.57**
Land Ownership		
Landless		1.0
1 - 199 dec		0.85
200 + dec		0.86
Father's Occupation		
Agriculture		1.0
Business		0.95
Service		0.96

* $p < .05$, two-tailed test
** $p < .01$, two-tailed test

The impact of development program on the participation in NID efforts was examined by employing logit regression analysis (Table 5). Model I shows that children of the households involved with NGOs were 29% more likely ($p<.05$) to receive all doses of immunization than the children of non-program socioeconomically better off households controlling for age and sex of children. The model also supports our earlier finding that the infants and older (4+ year) children were less likely to receive NID vaccines than 1-4 years old children. The participation was slightly lower among female than male children although the difference was not statistically significant. Model II indicates that adding mothers' education, amount of land owned and occupation of father in Model I does not change the positive effect of development program on NID participation. This suggests that while mothers' education was positively associated with NID coverage, variation in the amount of land owned and fathers' occupation had little role in explaining the differences in coverage.

The report concludes that social mobilization aspects of NID, as reflected in the polio and vitamin A coverage rates, were able to create a positive environment towards the national program in preventing poliomyelitis and nightblindness. The performance of NID could be even better if confusions regarding the eligibility to give vitamin A to children under 6 months could be avoided, older children were better identified, and NID activities in remote areas were better supervised. Lastly, the study suggests that social mobilization efforts must be a regular and routine activity as practiced by NGOs if the current level of performance is to improve in future.

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