Comparative Analysis of Different Media Approaches in the Prevention of Nutritional Blindness in Selected Communities in Bangladesh

S M Keramat Ali, Saha Sukanta, Md. Aminul Haque Bhuyan, Nur Ahmed, M Abdullah and M A Malek

Institute of Nutrition and Food Science, University of Dhaka, Dhaka, Bangladesh.

Introduction

Nutritional blindness is one of the major public health problems in Bangladesh. Like other prevailing nutritional disorders, nutritional blindness can be prevented with proper nutrition intervention [1]. Many studies during the past decades have highlighted the magnitude of nutritional blindness particularly among the children. The causal foctors along with their associations were also determined[2,3,4]. The dietary intake of vitamin A per capita/day has decreased from 1590 IU in 1962-64 to 763 IU in 1981-82 [2,4]. Low vitamin-A intake correlates with the suffering of 900,000 under six children from xerophthalmia every year as found by a national study[5].

Although most nutrient intake closely associated with the socioeconomic conditions of the households, yet no correlation between income and dietary intake of vitamin A was found in the previous three national nutrition surveys[2-4]. Therefore, a logical deduction may be drawn that nutritional blindness due to vitamin A deficiency is primarily associated with improper hygienic conditions, lack of nutritional knowledge and not merely due to the lack of purchasing power[6].

It is obvious that knowledge greatly influences behaviour and the course of acceptability of knowledge, traditional behaviour or practices are likely to change. However, it is needed to let the population be aware, especially in the risk areas of the country, of the causes and prevention of nutritional blindness. This calls for a package dessimination approaches of appropriate messages on the causative factors as well as preventive measures as long-term intervention for the solution of vitamin A deficiency problem.

This study is an attempt to evaluate such a package dessiminational approach of Worldview International

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Foundation : Nutritional Bilindness Prevention Programme (WIF : NBPP) about the prevention of nutritional blindness undertaken in Dinajpur district in order to 1) measure the prevalence of night blindness in the programme area, 2) to investigate and analyse the effectiveness of the programme which in turn has specific objectives and messages to dessiminate (Annexure 1 and 3) to assess effective method(s) of information dessimination practiced by WIF : NBPP Dinajpur in order to analyse the effectiveness of various media approaches.

Materials and Methods

Random sampling design was followed for the study. In the first stage, four out of eigtht Thanas in Dinajpur district were selected randomly. The selected Thanas were Dinajpur Sadar, Fulbari, Ghoraghat and Birampur. In the second stage, one union from each of the selected Thanas were selected randomly. Finally, the selected union was divided into several village clusters. The size of each cluster was deliberately made to consist approximately 600 households. One such cluster was then randomly selected for the study. Finally 2100 households were interviewed in four locations. The study was a cross-sectional one. The study period was between May and September, 1990.

A Structured questionnaire was developed for the study. It was pre-tested in the field to establish reliability.

After excluding the refusal cases, a total of 2044 households were accepted for analysis. After necessary editing, all the data were computed, the analysis were then carried out using SPSS packages. Simple statistics was used for some of the explanatory variables.

Results

Prevalence of night blindness :

Table-1 shows that 66 children upto 15 years of age were found to suffer from night blindness in the study area. The prevalence was 3.23%. Comparing with the baseline survey[7], the prevalence of night blind (NB) children per 100 households has been decreased by about 2.69%. The prevalence per 100 children was also found to reduce from 3.92 to 1.27 (Table-1).

Production and consumption of Vegetables & fruits :

Table-2 shows the comparative figure on the cultivation of specific vegetables and fruits. It appears from the table that some vegetables like pui leaf, red amaranth leaf, amaranth leaf, gourd leaf,

colocassia leaf and sweet pumkin were found to be cultivated more frequently by the households ranging from 72% to 84%. There is a remarkable increasing tendency in producing vegetables and fruits by the households (Table-2) in the year 1991 than 1987.

Table 1: Prevalence of night blindness in Dinajpur compared to baseline survey in 1987.

Age group	HH having NB child	No. of NB Child	Total No. of HH studied	Total No. of children	Prevalence NB/100HH	NB/100 children
1-6 yrs	27	27	1478	2394	1.82	1.13
7-9 yrs.	13	15	297	1164	5.05	1.29
10-15 yrs	24	24	269	1627	8.92	1.47
1-15 yrs	64	66	2044	5185	3.23	1.27
1-15 yrs	57	60	1014	1529	5.92	3.92

(Baseline survey)

Table 2 : Percent distribution of households by cultivation of specific vegetables and fruits compared to baseline study

Food items	Percent of households by cultivation	
	Present study '91	Baseline study '87
Vegetables		
Pui leaf	83.4	35.1
Red amaranth leaf	74.4	5.3
Amaranth leaf	68.6	-
Gourd leaf	83.8	-
Colocassia leaf	51.6	-
Sweet pumpkin	71.6	43.8
Fruits		
Mango	57.8	49.8
Jack fruit	55.9	226
Papaya	23.9	12.3
Banana	42.7	17.5

Night blindness is locally known as Alo andhari' in Dinajpur area. The respondents were asked about the causative factors and preventive measures of nightblindness. Table-3 showed more than half of the respondents (52.3%) gave correct answer about the causes of nightblindness.

Table 3 : Mother's knowledge about the causes nightblindness

Lack of Vit A	Lack of vitamin	Lack of food	Due to malnutrition	Poverty	Others	Don't know
52.3	31.3	24.3	2.2	0.2	0.2	0.3

Mothers (respondents) had excellent knowledge about the preventive measures of nightblindness. Majority of the mothers mentioned about different foods including mola and dhela fish to be taken for the prevention of nightblindness (Table-4)

Table 4 : Mother's knowledge about preventive measures of nightblindness (answers are not mutually exclusive)

Measures	Only vegetables	Only fruits	Only food from animal sources	All sources of food
Precentages	99.8	99.0	95.7	95.0

In terms of practice, 60 to 77% of the mothers fed vegetables, fruits and foods from animal sources to their young children (Table-5) Only about 23-32% mothers liked to share these food with all the family members.

Table 5 : Precent distribution of mothers by their practice of giving vegetables, fruits and foods from animal sources to different family members.

Family members	Vegetables	Fruits	Food from animal sources
Children 6m-6 yrs	77.3	70.3	60.1
Children > 6 yrs	10.4	11.4	11.5
Adults	2.3	3.6	3.6
Preg. & lactating mothers	18.1	18.5	15.2
Elderly persons	0.3	0.3	1.2
Nightblind children	2.3	0.8	3.6
All family members	23.7	22.6	32.9

The frequency of feeding leafy vegetables to nightblind children (NBC) and nonnightblind children (NNBC) during last seven days were recorded. It was found that 40% and 34% of NBC as well as NNBC Children were fed green leafy vegetables more than 4 times a day as shown in Table 6.

Table 6 : Percent distribution of mothers of NBC and NNBC by frequency of feeding of vegetables during last 7 days to their children

Frequency	Response of mothers regarding leafy vegetables		Response of mothers regardihng other vegetables	
	NBC	NNBC	NBC	NNBC
Once	13.3	8.2	8.3	2.2
Twice	16.7	11.5	18.3	15.8
Thrice	15.0	22.0	20.0	26.2
Four times	21.7	21.0	21.7	20.4
More than 4 times	40.0	34.0	30.0	30.9

The media approaches as the source of information regarding preventive measures of nightblindness were investigated. The respondents were mothers, fathers and an available adult member of the family. It was found that WIF: NBPP women volunteers and folk singers were the most important sources followed by documentary films and radio messages of WIF sources (Table-7). About 95% mothers mentioned that women volunteers were the major sources while 45% fathers stated folk singers as the major source. Compared to mothers, a relatively higher number of fathers (39%) and adult members (45%) mentioned documentary film as one of the main sources of information.

Table 7 : Percent distribution of respondents by their response about the sources of information on the preventive measure of night blindness

Sources of information	Mother	Father	Available adult family members
1. Folk singers	90.0	82.8	73.6
2. NBPP women volunteers	94.6	67.2	71.7
3. Documentary films	31.7	39.8	45.3
4. Radio a) WIF source	23.6	27.0	22.6
b) HKI source	4.9	6.6	7.5
5. TV a) WIF source	6.1	3.3	5.7
b) HKI source	1.6	1.6	7.5
6. Govt. health volunteers	5.8	4.9	3.8
7. school teachers/students	2.1	4.1	3.8
8. Posters 6.1	6.6	3.8	
9. Training at the village	0.7	1.6	0.0
10. Neighbours	5.4	9.0	3.8

Table-7 also shows that village leaders and training sessions at the village level were the most insignificant sources. The most effective media was however identified as radio in terms of money spent for the programme followed by documentary film, folk singers and women volunteers (Table-8). Again training programme together with TV/School programme and poster/calendar were found most insignificant sources.

Table 8 : Effectiveness of different media in terms of cost involved

Media	Weighted average of positive responses by respondents (%)	Average yearly programme cost Tk) (in '000 Tk)	Money ot be spent for 100% positive response (in '000 Tk) a logical extrapolation
Folk Singers	87.8	309.0	351.9
NBPP : Women volunteers	88.8	686.3	772.8
Documentary film	33.4	107.9	323.4
Radio	24.1	57.1	237.3
TV	5.6	150.9	2695.7
School programme	2.5	144.0	5760.2
Posters/Calander	6.0	459.9	7640.2
Training at village level	0.8	53.9	6347.5

The folk singers and women volunteers were identified further as significant media from the stated specific knowledge of mothers regarding cause of night blindness (Table-9).

Table 9 : Comparison of different media in relation to stated specific knowledge of mothers on cause of night blindness

Media	Lack of food	Lack of vitamin	Lack of vitamin A	Malnutrition
1 Folk singer	89.2*	92.6*	89.4*	92.3*
2. Women volunteers	93.9*	93.6*	95.7*	92.3
3. Documentary film	26.4	30.3	46.6	53.8
4. Radio	18.9	18.6	30.1	15.4
5. TV	4.7	3.2	9.0	10.0
6. School programme	2.7	2.7	2.5	0.0
7. Posters	4.7	6.4	7.6	15.4
8. Training at village level	0.7	0.0	1.2	0.0

*Significant at 1% level

Discussion

Nutrition education programme has long been given importance for the prevention of diseases of public health significance WIF:NBPP activities are planned for developing a model for the eradication of night blindness by media approach dissemination of nutritional knowledge of vitamin A and its rich sources amongst the target population. Present evaluation report thus highlights the achievements of media approaches of WIF:NBPP.

It is evident from the study that night blindness per 100 households was reduced by 2.69 percent among the children of 1-15 years old and the reduction was also achieved by 2.65 percent when nightblindness per 100 children was considered. The rate of nightblindness per 100 children of 1-6 years age group in the present study was found to be 1.13 percent. This indicated a remarkable achievement in the reduction of night blindness in the study area.

Regarding awareness about the causes of nightblindness, majority of the redspondents (83.6%) were found to be aquainted with the overall causes "lack of vitamin A" and "lack of vitamin" (Table 3) Mothers were mostly illiterate (68%). So it was very hard for them to distinguish between vitamin A and vitamin. Therefore, both the answers were considered to be correct.

Almost all the respondents (over 96.7%) were convinced that nightblindness could be prevented by providing food (Table 4). The baseline awareness was only 18% and the target of NBPP was to achieve 80% awareness. Therefore, the awareness among the target group increased significantly. About 79% of the households possessed homestead gardens. They were accustomed to seasonal cultivation of vegetables. Table 2 demonstrates that except spinach, other leafy vegetables were found to be cultivated by more than 60% of households. More than 40% of the households cultivated fruits. This indicates considerable success by the programme activities because the programme had the cultivation target of 60% vegetables and 40% fruits amongst the households.

Moreover, the programme had good achievement in educational and motivational activities in respect of changing feeding practices. More than 70% households gave coloured vegetables and fruits to their young children compared to 55% at the baseline (Table 5). The frequency of feeding revealed that achievement was over 40%. Mothers gave vegetables more than 4 times per week to their children (Table 6).

While considering the media approaches, the women volunteers motivated the mothers and the folk

singers motivating the fathers were identified as most important source of information regarding preventive measure of night blindness (Table 7). Women volunteers are well accepted by the mothers as revealed in the present study.

Fathers and available adult members of the family (usually male) stated documentary film as an useful source of information dissemination. Usually male members enjoy film show which was displayed in a particular place in the village. The female members of the family cannot go owing to the cultural barrier.

It is evident from Table 8 thet radio stands as the most cost effective media for knowledge disseminadtion about nightblindness followed by documentary film and folk singer approach. However, considering finacial and other factors, the approaches using folk singers and women volunteers should be taken as the most useful media for motivational and for educational purpose (Table 8).

Although school programme was not a cost effective approach, yet its beneficial efforts should be viewed as a long term demonstration effect over the village people. This was revealed through informal discussions with the village people during observational study.

When the comparisons among different media were made in respect of disseminadtion of knowledge for preventive measures about night-blindness, folk singer and women volunteers were identified further as very significant sources (Table 9).

Summary

The study was an evaluation of Worldwiew International Foundation (WIF): Nutritional Blindness Prevention Programme (NBPP) activities in Dinajpur area, of Bangladesh. The WIF : NBPP has a package disseminational approach for the prevention of nutritional blindness. It included the approach components like folk singers, women volunteers, documentary films, radio, TV, school programme, posters/calendar displaying and training at village level. These media were used for educational and motivational purpose to prevent nightblindness. The study was conducted in 4 randomly selected thanas with 2000 households between May and September, 1990. In comparison to baseline survey performed three years back it was found that night blindness was reduced by 2.65 per 100 children. More than 90% mothers were aware about the causes and preventive measures of nightblindness as against 18% at the baseline. Regarding media approach, women volunteers and folk singers were found very significant. These media were found to educate more than 92% and 89% mothers respectively ($P<0.001$). About 75% households were growing vitamin A rich vegetables and fruits in their

households. Seasonal cultivation of vegetables and fruits increased from 10% to over 60% and from 7% to nearly 40% respectively while comparing with baseline study. More than 70% of households fed children, pregnant and lactating mothers with vitamin A rich vegetebles and fruits compared to baseline figure of 19%. The findings reveal that the media disseminational intervention programme achieved the dasired reduction in the prevalence of night blindness in the programme area.The programmes in the TV were less witnessed by the rural people as they have limited access to TV sets. Display of posters/calendars and training at village level were found not to be very effective.

Finally, it may be concluded that the integrated approaches of WIF : NBPP was found to be successful in reducing night blindness within its targetted period.

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