

# Nutrition Interventions as a Strategy for Combating Nutritional Blindness in Selected Rural Locations of Bangladesh

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## Introduction

Dietary vitamin A or its precursor, carotene is required by every species of animal. Prolonged acute deficiency of vitamin A leads initially to nightblindness then to ultimate blindness. Going blind at an early age is one of the greatest tragedy on a human being<sup>1</sup>.

Amongst the existing nutritional problems of various dimensions and magnitudes in Bangladesh, nutritional blindness has been found to be an easily preventable yet difficult health problem to combat in our population.

Historically, the severity of nutritional blindness has been recorded through various surveys with specific recommendations for its prevention<sup>2,3</sup>

The green scenario of rural Bangladesh may mislead someone to develop an idea on adequate consumption practice of vegetables, fruits and other food sources by our population. However, to have a deeper "*insight*", one should look into the traditional food behaviour where the "*prestige value*" of vegetables and locally produced fruits are at the lowest level. As such, the vast majority of our population are having inadequate intake of these foods leading to various micronutrient deficiencies.

It is well documented that every year about 30,000 preschool children become blind due to vitamin A deficiency in their diet<sup>4</sup>. It was also reported that more than three percent of the preschool children were found to be nightblind living mostly around abundant source of vitamin A in their surroundings.

The recurrent episodes of diarrhoeal diseases as well as onset of measles deteriorate the nutritional status of the growing children who are easy prey of xerophthalmia. The lean period of seasonal production of vegetables and fruits is another key determinant for precipitating xerophthalmia during that season<sup>5</sup>. Appropriate technical knowhow is thus required for continued production of green leafy and other coloured vegetables throughout the year.

Knowledge barrier is a great curse for human being for their overall development. The already identified perpetual problem of vitamin A deficiency among our population can thus be prevented through various media approaches based on both qualitative as well as quantitative interventions to bridge the knowledge gap regarding potential food sources of vitamin A. Nutrition education is thus a means of bringing dietary change<sup>6</sup>.

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The present study is a purposive evaluation regarding special communication strategies rendered in the high-risk area of Lalmonirhat along with related inputs for continuation of the effects of the program conducted by World View International Foundation : Nutritional Blindness Prevention Program (WIF: NBPP) an NGO based at Srilanka. The program activities are totally managed by female official with participation of the local women volunteer.

The objectives of the study were : (i) To observe dietary habit of different sub-groups of study population (infants 5-12 months; children 13-71 months; children 72-108 months; pregnant women and lactating mothers). (ii) To examine the prevalence of night-blindness among children under nine years. (iii) To observe the awareness that has been initiated through program activities in terms of nutritional blindness. (iv) To assess the usefulness of general as well as special WIF approaches with emphasis on mothers group activities for the prevention of nutritional blindness.

### **Materials and Method**

The study is a purposive evaluation conducted amongst the selected beneficiaries of Lalmonirhat district. The broad study area is therefore pre-fixed. The detail study design was as follows.

The district of Lalmonirhat consists of five thanas. From among these thana two were selected purposively on the

basis of the size of population, typical rural locality, easy accessibility and availability of better physical facilities. The selected thana are Hatibandha and Kaligonj. From the selected thana three unions from Kaligonj and two unions from Hatibandha were statistically selected for the purpose of the study again on the basis of the size of population.

Each union has two women volunteers (WVS) who are responsible for "mothers group" formation in the villages of their working union. A women volunteer has to form at least 6 groups each consisting of 9 mothers. These mothers are known as group members (GM) while the remaining mothers are known as non-group members. Because of the time and resource constraint it was decided that 270 mothers group members (GM) and 729 non group members (NGM) would constitute the study sample. Accordingly from each union 54 group members and 146 non-group members were included in the study on the basis of the availability of mothers group as well as accessibility to non-group members. The collection of the data from the selected areas were undertaken through home visits during the month of October, 1992 by trained interviewer using a prescribed and pretested questionnaire.

### **Result**

WIF : NBPP developed some nutrition messages and targeted them to the beneficiaries using some communication strategies. The strategies include folk song approach, women volunteer

approach, the electronic media approach (Radio, Television, Documentary film), the school approach (i.e. knowledge dissemination using the schools its teacher and students), poster and training. The six messages disseminated through these approaches are stated in

the foot note of Table-1. When the respondents were asked about the information sources in terms of these messages the following responses were received. All the responses in terms of specific messages are tabulated in Table1.

**Table 1.** Distribution of respondents by sources of receiving vitamin A specific nutrition messages in the study area.

Messages		Folk	Song	Women	volunteer	Poster	Training	Other	Sourcees		
		No.	%	No.	%	No.	%	No.	%	No.	%
M1	GM	18	7	234	87	0	0	12	4	4	1
	NGM	58	8	636	87	2	-	2	-	27	4
	Both	76	8	870	87	2	-	14	1	31	3
M2	GM	35	12	204	76	7	3	18	7	6	2
	NGM	69	9	613	84	8	1	3	-	29	4
	Both	104	11	817	82	15	2	21	2	35	3
M3	GM	13	5	201	75	15	5	15	6	26	10
	NGM	51	7	556	76	26	4	2	-	89	12
	Both	64	6	757	76	41	5	17	2	115	12
M4	GM	14	5	193	71	10	4	20	7	33	12
	NGM	66	9	529	72	38	5	3	-	84	11
	Both	80	8	722	72	48	5	23	2	117	11
M5	GM	16	6	212	79	18	6	13	5	10	2
	NGM	77	11	580	79	27	4	4	1	33	5
	Both	93	10	792	79	45	5	17	2	43	4
M6	GM	17	6	207	77	25	9	13	5	8	3
	NGM	59	8	589	80	37	5	4	1	36	5
	Both	76	8	796	80	62	7	17	2	44	4

Note : GM=Group Member, NGM=Non-group Member; - = Less than 1 Percent; Other sources + Cinema, Health Workers, school, neighbours/Relatives.

M1 = Give pregnant and lactating women leafy vegetables and yellow fruits because their children get nourishment from the mothers body. Continue breast feeding for at least two years.

M2 = illness causes vitamin A deficiency in children. To compensate it, feed them more green leafy vegetables and yellow fruits, Vegetables better be cooked with edible oil or peanuts.

M3 = Drink Tubewell water or boiled pond and ringwell water

M4 = A child suffering from diarrhoea should be given saline water and paste of vitamin A rich vegetables and rice. Mola and Dhela fish can also save child's sight. Mashing the fish's head makes it easier to swallow.

M5 = To prevent nutritional blindness feed your children green and coloured leafy vegetables together with potatoes and rice regularly.

M6 = Papaya and yellow fruits save your child's sight. Give them to children.

About 80 percent of the respondents received almost all these messages from woman volunteer of the program. Folksong was the second most important vehicle followed by poster and training to transfer messages from program to the target group. Other strategies such as the electronic media (Radio, television), school and Health worker approach did not prove to be successful in targeting the people of the study area. Table-2 shows the distribution of households by possession of vegetable gardens. It appears that 20 percent of the study households did not possess homegardens. Among sub-group the proportion of households owning some kinds of vegetable/fruit garden was higher (90 percent) in the group than in the non-group household. This certainly demonstrates the positive impact of group activities on the production as well as consumption of protective foods that prevent night blindness. Table-3 provides information of the type of vitamin A rice vegetables and fruits grown by season, purpose, and production practice. The table reveals

that most of the vegetables rich in vitamin A are grown in the winter or in the rainy season. Although no vegetables (specially leafy) are grown in the summer fruits like ripe mangoes and jackfruits are found in abundant quantities during this season. The proportion of household growing different vegetables/fruits during the program period was nearly doubled compared to the pre-program situation. Most of the vegetables/fruits grown at household levels were partly consumed and partly sold. This implies that homegarden not only increases the domestic consumption but also ensures food security to its growers. In terms of building of the awareness among respondents it is seen from Table-4 that the majority of respondents (82 percent) stated the lack of vitamin A in the diet to be the prime cause of nightblindness. The remaining respondents considered lack of food (10 percent), malnutrition, poverty etc, to be the cause of nightblindness. Among sub-groups, group members (93 percent) were found to be aware of the correct cause of night blindness more than the non-group members (82 percent.)

**Table 2 :** Household distribution by possession of vegetable/fruit Garden.

Status	Group Member		Non-Group Member		All	
	No	%	No	%	No	%
Possess	242	90	545	75	787	79
Don't Possess	28	10	184	25	212	21
Total	270	100	729	100	999	100

**Table-3 :** Type of vitamin A rich vegetables and fruits grown by season, purpose and production practice.

Vagatables/Fruits	Season		Production practice		Purpose	
	Rainy	Winter	Before program	During program	Family consumption	Family consumption and selling
Spinach/Lai.	No. 94	551	318	654	232	406
Shak	Precent 12	70	40	83	29	52
Puishak	No. 434	97	332	555	249	294
	Percent 55	12	42	71	2	37
Kalmishak	No. 212	92	89	313	179	144
	Percent 27	12	11	40	23	18
Sweet gourd/ Laushak	No. 83	505	413	598	343	342
	Percent 11	64	52	76	31	43
Kochushak	No. 341	75	235	456	294	150
	Percent 43	9	30	58	37	19
Weet gourd	No. 108	123	298	415	176	228
	Percent 14	16	38	53	22	29
Carrot	No. 11	180	36	195	80	99
	Percent 1	23	5	23	10	13
Ripe Papaya	No. 240	103	240	459	212	241
	Precent 32	13	30	58	27	31

**Table 4 :** Distribution of the respondents by their response of the causes of nightblindness (answers are not mutually exclusive).

Causes	No. of Respondents					
	Group Member		Non-Group Member		All	
	No.	%	No.	%	No.	%
Lack of Vitamin A	252	93	570	78	822	82
Lack of Food	12	4	84	12	96	10
Malnutrition	3	1	20	3	23	2
Others	3	1	26	3	29	3
Don't Know	0	0	29	4	29	3
	270	100	720	100	999	100

Table-5. assesses the efficiency of the different message dissemination techniques in terms of cost involvement. The table reveals that women volunteer as well as the folksong approaches (the two most effective approaches in targeting beneficiaries) were not cost effective. The cost effective approaches included the poster/calendar followed by the radio/in the study location of Lalmonirhat district.

### Discussion

The program under study is basically a communication program aimed at raising the awareness level of rural population regarding prevention of nutritional blindness. The mothers constituted the focal point of service delivery in the program and through formation of women group and other media its activities were channelized and implemented.

The study incorporated a high proportion of group members compared to non-group members. This study critically analysed the strategies adopted by WIF: NBPP in disseminating nutritional messages for the prevention of nutritional blindness. Among the various message dissemination strategies the women volunteer as well as the folk song approaches though found to be effective were not again found to be cost-effective. The least cost techniques could not reach the target group effectively and there were some families who were still ignorant about the WIF message dissemination techniques. Even the group activities could not motivate all the beneficiaries to go for home gardening and there were some families who found not aware to the right cause of the nightblindness. Since home gardening raises domestic production and consumption of vitamin A rich vegetables/fruits on long term

**Table 5 :** Effectiveness of different WIF message dissemination technique in terms of cost involvement.

Techniques	Positive response (percent)	Average yearly program cost (in 000 taka)
Women worker of the Project	94.7	621.1
Folk song	70.9	180.2
Documentary film	50.9	69.7
Poster/calendar	48.3	32.9
Radio	18.0	66.5
School Program	9.9	54.3
Television	6.7	33.2

basis and contributes to household food security the need for its expansion both at household and group levels should be emphasized more. Finally, the dissemination strategies for nutritional

blindness prevention should still be modified on the basis of cost effectiveness and long term sustainance of the benefits derived from the program activities.

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