

Environmental Hygiene and Sanitation in a Bangladesh National Nutrition Program Area: The Case in Bhanga Upazila

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Abstract

A statistically selected representative sample of 482 households in Bhanga Upazila was studied to assess the mother's knowledge and practice of selected hygienic cares in an NNP area. Although a large number of the mothers knew at least one hygienic care, fewer mothers knew all hygienic cares and substantial gaps existed between knowledge and practice for most of the hygienic cares studied. Inaccessibility of facilities, high costs and lack of knowledge and motivation were the common reasons for wrong practice.

Literate mothers were twice more likely to know and almost thrice more likely to practice all the hygienic cares compared to the illiterate mothers. Mothers having literate husbands were almost twice more likely to know all the hygienic cares compared to those having illiterate husbands and mothers who knew all the hygienic cares were five times more likely to practice them compared to those who did not know them.

Apart from increased facilities a strong information and motivation campaign aimed at mothers would result in improved knowledge and practice of all hygiene cares realizing the full potential of NNP.

Key words : Environmental Hygiene, Sanitation

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Introduction

Inadequate dietary intake and infections are immediate causes of malnutrition¹. There also exists a synergistic relationship between the two aggravating each other. Dietary deficiency diseases reduce the body's resistance to infections and adversely affect the body's immune system. Infections again adversely affect food intake and nutritional status by loss of appetite, vomiting and loss of nitrogen through breakdown of tissue protein and mobilization of amino acids².

Improved hygienic cares can substantially prevent infections particularly against water borne and soil borne diseases and are important requirements for good nutrition and health. It is particularly important for the newborns and young children, as they are the most susceptible to infections. Neglect to these may result in even to death³.

The Government of Bangladesh has been implementing the Bangladesh National Nutrition Program (NNP), the follow up of the Bangladesh Integrated Nutrition Program (BINP), in 105 upazilas in the country with a view to address the maternal and child malnutrition in the country. Among other services the program provides monthly weight gain monitoring and promotion (WMP) to pregnant women, monthly growth monitoring and promotion (GMP) to under two year old children, daily supplementary feeding to severely malnourished children, growth faltered children and low BMI pregnant and postpartum mothers, micronutrient supplementation and referral. The services also include nutrition counseling to pregnant women and nursing mothers to inform and motivate them to adopt improved pregnancy, childcare and hygienic practices for safe and healthy growth of mothers and children. At the community level the program is implemented by a trained local Community Nutrition Promoter (CNP) responsible for a Community Nutrition Center (CNC) covering 1000 to 1500 populations under the supervision of contracted NGOs⁴.

Objectives

The main objective of the study is to assess the mothers' knowledge and practice of improved hygienic cares in an NNP area. Specifically the study examines the rates of right knowledge and practice, reasons for wrong practice, and relates the knowledge and practice with the socioeconomic and personal characteristics of the mothers.

Materials and Methods

The study was conducted in Bhanga, one of the first phase six BINP upazilas in Faridpur district. Data were collected in April 2005 from a statistically selected

representative sample of 528 households by the researchers themselves by personal interview of the mothers using a pre-tested questionnaire.

The households were selected in two stages. Bhanga had 195 CNCs. Assuming that, on the average, 70 households having 6 to 59 months old children will be available in each CNC, seven CNCs were selected systematically in the first stage. In the second stage all the households having 6 to 59 months old children in the selected CNCs were studied.

Results

Knowledge and Practice. Valid hygienic care data were available from 482 mothers.^c Some 80% to 100% of the mothers knew and 61% to 99% of the mothers practiced at least one hygienic care studied. Of those who knew a hygienic care 64% to 99% practiced it. However, 63% of the mothers knew all the hygienic cares and 27% practiced them. Of those who knew all the hygienic cares, 40% practiced them (Table 1).

Table 1. Mothers' Knowledge and Practice of Improved Hygienic Cares

Hygienic care	Knew (% mothers)	Practiced (% all mothers)	Practiced (% mothers who knew)
Drink tube well or tap water	99.6	99.4	99.4
Use tube well or tap water for washing and cleaning dishes	82.6	61.8	71.4
Dispose household garbage in a fixed covered place outside home	79.7	73.4	86.5
Defecate in sanitary latrine	91.1	74.9	81.5
Wash hands with soap and water after defecation	93.6	60.8	64.3
All cares	62.7	26.6	39.7

Reasons for Wrong Practice. Facility inaccessibility was, in general, the major reason for wrong practice of appropriate hygienic cares. Some 6% of the mothers did not practice appropriate hand washing after defecation, as it was expensive. 'Did not care', 'others do it so' and 'lack of time' were also frequent reasons for the wrong practice.

^b The sample size was calculated using the formula

$$n = \frac{Z_a^2 P(1 - P)}{d^2} f.$$

Where P = anticipated prevalence rate and $Z_a = 1.96$ at $\alpha = 0.05$. Assuming $d = 0.05$ and $f = 1.25$ the minimum sample size required for the prevalence of 50% is 480.

^c Some of the women did not participate in the program as they did not live there during the pregnancy or the program was temporarily inoperative due to the changeover of the contracting NGO. The samples were excluded from the study.

About 64% of the mothers did not dispose household garbage in fixed covered place outside home due to either they did not care about it or others did it so, and 11% did not do it for lack of time. (Table 2). The reasons were similar even for those who knew the cares.^d

Table 2. Reasons for Lack of Practice

Reasons	Did not drink tube well or tap water (% of mothers)	Did not use tube well or tap water for washing and cleaning dishes (% of mothers)	Did not dispose household garbage in fixed covered place (% of mothers)	Did not use sanitary latrine (% of mothers)	Did not wash hands with soap and water after defecation (% of mothers)
Facility inaccessible	100.00	67.8	24.6	92.6	0.0
Didn't care or others did so	0.0	18.9	64.3	0.0	18.9
Lack of time	0.0	13.3	11.1	3.3	16.4
Inconvenient	0.0	0.0	0.0	4.1	0.0
Expensive habit	0.0	0.0	0.0	0.0	64.7

Factors Affecting Knowledge and Practice. Bivariate analysis indicated that mothers' knowledge of all hygienic cares was unrelated to the mean household size, men farm size, husbands' occupation and mothers' participation in GMP sessions. It was significantly related to the levels of their own literacy, their husbands' literacy, household size and farm size. Practice was unrelated to the household size, but significantly related to all other variables (Table 3).

Table 3. Factors Affecting Knowledge and Practice of All Hygienic Cares

Factors	Know all cares	Do not know all cares	Sig. p-value ^a	Practice all cares	Do not practice all cares	Sig. p-value ^a
Mean household size (no. members)	5.6	5.6	0.928	5.8	5.5	0.132
Mean farm size (decimals)	90.9	58.3	0.080	124.3	60.5	0.001
Mothers' literacy:			0.000			0.000

^d All of them did not drink tube well or tap water, 75% did not use tube well or tap water for washing and cleaning dishes, 27% did not dispose household garbage hygienically and 91% did not use sanitary latrine, as the facilities were inaccessible, and 64% did not wash hands hygienically after defecation, as it was expensive. About 25% did not use tube well or tap water for washing and cleaning dishes, 73% did not dispose household garbage hygienically, 9% did not use sanitary latrine and 36% did not clean hands hygienically after defecation due to either they did not care about it or for lack of time or being inconvenient.

No schooling (no. women)	115	86		41	160	
Class I-V (no. women)	89	68		40	117	
Class VI or more (no. women)	98	26		57	67	
Husbands' literacy:			0.001			0.000
No schooling (no. husbands)	106	94		33	167	
Class I-V (no. husbands)	71	36		34	73	
Class VI or more (no. husbands)	125	50		71	104	
Household size:			0.037			0.185
Less than 5 members (no. hh)	95	41		36	100	
5-6 members (no. hh)	131	99		61	169	
7 members or more (no. hh)	76	40		41	75	
Farm size owned:			0.001			0.027
No land (no. hh)	105	93		46	152	
Less than 100 dec. (no. hh)	132	58		56	134	
100 dec. or more (no. hh)	65	29		36	58	
Husbands' occupation:			0.364			.000
Farmer (no. husbands)	99	62		38	123	
Laborer (no. husbands)	77	54		26	105	
Business & others (no. husbands)	126	64		74	116	
Participation in NNP GMP:			0.720			0.000
Regular (no. women)	171	108		100	179	
Irregular (no. women)	47	24		12	59	
Never or rare (no. women)	84	48		26	106	
Knowledge of all hygienic cares :						0.000
Knew (no. women)				120	182	
Did not know (no. women)				18	162	

a. The means were tested using independent sample t-test and the associations were tested using Chi-square.

Determinants of Knowledge and Practice. Binary logistic models were estimated to find the determinants of the mothers' knowledge and practice of all hygienic cares. The mothers' knowledge of all hygienic cares (know = 1, else = 0) and practice of all hygienic

cares (practice = 1. else = 0) were used as dependent variables and the levels of their literacy, their husbands' literacy, household size, farm size and their husbands' occupation were used as independent variables. In the knowledge model the levels of their participation in GMP sessions, and in the practice model the levels of their knowledge of all hygienic cares were also used as independent variables.

The coefficients of household size, farm size, and husbands' occupation were not significantly different from zero in both the models. The coefficient of mothers' participation in GMP was not significant in the knowledge model. When both mother's literacy and their husbands' literacy were included as independent variables in the practice model the coefficients of none of the variables were significant probably due to strong correlation between the variables ($r=0.655$, $p=0.000$). As a result the knowledge model was estimated using the mothers' literacy and their husbands' literacy as independent variables, and the practice model was estimated using the mothers' literacy and their knowledge of all hygienic cares as independent variables.

Literate mothers were twice more likely to know all the hygienic cares compared to the illiterate mothers, and mothers having literate husband were almost twice more likely to know all the hygienic cares compared to those having illiterate husbands. Mothers' participation in GMP sessions had no effect on their knowledge of all hygienic cares. Literate mothers were 2.7 times more likely to practice all the hygienic cares compared to the illiterate mothers and mothers who knew all the hygienic cares were 5 times more likely to practice them compared to those who did not know them (Table 4).

Table 4. Determinates of Mothers' Knowledge and Practice of All Hygienic Cares

Factors	Knew all hygienic cares				Practiced all hygienic cares			
	Odds ratio	95% CI		Sig. p-value	Odds ratio	95% CI		Sig. p-value
		Lower	Upper			Lower	Upper	
Semiliterate mother (class I-V)	0.771	0.484	1.230	0.276	1.382	0.822	2.323	0.223
Literate mother (class VI or more)	2.080	1.138	3.801	0.017	2.673	1.598	4.472	0.000
Semiliterate husband (class I-V)	1.814	1.080	3.049	0.024				
Literate husband (class VI or more)	1.707	1.018	2.862	0.043				
Knew all hygiene cares					5.269	3.051	9.100	0.000
Constant	1.134			0.421	0.081			0.000

Discussions and Policy Implications

Knowledge of hygiene cares was quite widespread among the mothers in the study area but practice of hygiene cares was low and fell short of knowledge for every care. The gaps were particularly high for using tube well or tap water for washing and cleaning

dishes, disposing household garbage in a fixed covered place outside homestead, defecating in sanitary latrine and washing hands with soap and water after defecation.

BINP midterm evaluation observed that 98% of the households used tube well water or tap water for drinking, 57% used tube well water or tap water for washing and cleaning dishes, 36% disposed household garbage in a fixed covered place outside home and 19% defecated in sanitary latrine. In comparison the situation has not improved much for drinking tube well water or tap water in the present survey. The rate of drinking tube well water or tap water is already high and further improvement is not probably possible. However, the situation has improved substantially for the other cares in the present survey, which may be attributed to the interventions of NNP.

The present study observed that although many mothers knew and practiced at least one hygienic care, relatively few knew and practiced all the cares. Unless all the mothers know and practice all the hygienic cares substantial improvement in environmental hygiene and sanitation is not possible.

The study provides some information on how to improve the knowledge and practice of environmental hygiene and sanitation. Although lack of facilities and high costs were important reasons for wrong practice, 'did not care' 'others do it so' and 'lack of time' were also frequent reasons for wrong practice. This implies that lack of knowledge and motivation was an important constraint for wrong practice. While creating more facilities is an option, an appropriate information and motivation campaign addressed to the mothers will substantially improve their knowledge and practice of improved hygienic cares.

Mother's literacy and husband's literacy substantially improved the mother's knowledge of all hygienic cares and mother's literacy and mother's knowledge of all hygienic cares substantially improved their practice of all hygienic cares. The frequency of mothers' participation in NNP sessions had no impact on their knowledge of all hygienic cares. This implies that hygienic cares and their benefits should be discussed with greater emphasis in NNP sessions to realize the full potential of NNP.

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