Feeding, Home-remedy Practices, and Consultation with Health Care Providers During Childhood Illness in Rural Bangladesh

ABBAS BHUIYA[1] AND KIM STREATFIELD[2]

[1]Community Health Division; International Centre for Diarrhoeal Disease Research, Bangladesh, GPO Box 128, Dhaka 1000; [2]The Population Council, PO Box 6016, Gulshan, Dhaka 1212, Bangladesh

ABSTRACT

The nature of feeding, home-remedy practices, and consultation with health care providers during illnesses of children in Matlab, a rural subdistrict of Bangladesh, were studied. Data were collected between October 1986 and February 1987 from mothers of children aged 3-36 months. About half of the mothers initiated home-remedies for treating their children. The treatment included: pouring water on the head, feeding juice of herbs, using sanctified water and ORT. The type of treatment was dependent on the nature of illness. The use-rate of ORT was low. Breastfeeding was discontinued for 16% of the episodes; the reduction was the highest for fever with cough, followed by fever and diarrhoea. A reduction in intake of other foods was observed for 39% of the episodes with a total discontinuation for 10%. The reduction was the highest for dysentery, followed by diarrhoea, and fever with or without cough. Total withdrawal of foods other than breastmilk was the highest for diarrhoea. Contact with at least one health care provider of any type by the fifteenth day of illness was made for 41% of the episodes. The contact rate was significantly greater for children living in the health intervention area; for boys, for infants, for richer households, and for severe cases. A higher contact rate in cases of diarrhoeal illness was observed for children of illiterate mothers than that of literate ones.

Key words: Diarrhoea, Infantile; Infant feeding; Health care; Consultation

INTRODUCTION

Infant and child mortality rates in rural Bangladesh are still high. About 143 children per 1,000 live-births died before their fifth birthday in 1987 (1). Major causes of death include: diarrhoea, acute respiratory tract infections, and malnutrition (2-4). In Bangladesh, there is a mixed health care system including western, homoeopathic, and traditional medical practices (5-8). In recent years, oral rehydration therapy (ORT) has been extensively promoted to prevent dehydration from diarrhoea (9). Despite efforts by the government and non-government organizations, the mortality rate has shown only a modest improvement (10). It is not always possible to avoid illnesses, particularly in rural Bangladesh where sewage and excreta disposal is unhygienic, and scientific knowledge about disease prevention is poor (11,12). Curative measures, as a part of personal illness control, may play an important role in determining health and survival of the population, especially children (13).

In Bangladesh few studies have been carried out so far to understand the role of home-therapy in the health care management (14-16). In this study we attempted to document the nature of parental response to illness among children in terms of home-remedies and consultation with health care providers, and to identify important correlates of consultation with health care providers in a rural area of Bangladesh.

MATERIALS AND METHODS

The study area and population

Matlab, a low-lying delta intersected by the river Gumti and its numerous tributaries is situated 55 km southeast of Dhaka, the capital of Bangladesh. The *Thana* (Police Station and administrative block) headquarters is 15 km

Correspondence and reprint requests should be addressed to:
Dr. Abbas Bhuiya

away from its district town Chandpur. The major means of transportation within the area are walking, country boat, motorized country boat, and rickshaw. The climate is subtropical and temperatures vary from 10°C to 35°C. While there are six seasons in a year, the important ones include: winter (November-February), summer (March-June) and wet monsoon (July-October). The surface water level in the area starts rising in May and receding in September; during this period most of the farm lands are inundated.

As in most other parts of rural Bangladesh, the majority of the Matlab population is poor. Farming is the dominant occupation except in a few villages where fishing is the primary source of income. Most of the farmers are in marginal economic situations with less than 2 acres of land, and 30% are landless. About 45% of males and 73% of females over the age of 15 years received no formal education (unpublished data, 1982 ICDDR,B census).

Most of the houses are constructed of bamboos and mud with thatched or tin roof and mud floors. Ponds, rivers, and wells are major sources of water, although tube well water is used mainly for drinking purposes. Sanitation is also very poor. Although most of the households have fixed toilets with a platform, in most cases excreta is drained into the nearby surface water.

Health care in the area is provided by a variety of practitioners: allopathic, homeopathic, kabiraj, and totka (5). Allopathic practitioners base their diagnosis and treatment on modern scientific concepts. The homeopathic practioners follow an old school of medicine, originally developed in Europe, based on concepts of health and disease whereby the cure is attempted by applying minute amounts of specific antidotes against assumed causes of illness (5). Kabiraj applies the traditional indigeneous system of medicine based upon Ayurvedic concepts and uses herbs, minerals, and dietary restrictions. The totka combines Ayurvedic, Yunani, and shamanistic systems of ancient folk medicine without a unified concept of health and disease. Among the population, belief in supernatural and mystical causation and cure of diseases is common.

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) has been operating a demographic surveillance system (DSS) in the area since 1966. Nearly half of the DSS villages has been receiving intensive maternal child health care and family planning programme inputs at the doorstep from ICDDR,B since the later half of seventies. The other half of the DSS villages of Matlab is a part of a comparison area without MCH-FP intervention programmes, but have free distribution of ORS packets and registration of vital events in addition to usual government activities.

The fertility and mortality rates in the study area are high. The infant mortality rates in 1986 in the MCH-FP and comparison areas were 87 and 90 per 1,000 live births respectively. In the same year, the mortality rates among children aged 1-4 years in the MCH-FP and comparison areas were 13 and 21 per 1,000 respectively. Total fertility rates for that year were 4.3 and 5.5 children per women in the MCH-FP and comparison areas respectively (17). In both areas, fertility and mortality are generally declining.

Data sources and methods

Data were collected between October 1986 and February 1987 from seven villages in the Matlab DSS area. The study villages were selected in such a way that nearly half of the study children came from the MCH-FP area, and the rest from the comparison area of ICDDR,B. Operational convenience of the field work was a factor in selecting the villages; however, care was taken not to select special villages, such as the ones near the Matlab town and hospitals.

For the purpose of the present study 1,128 children who were living in the study villages during the first visit and were born between 1 October 1983 and 30 June 1986 and their mothers (n=966) were included in the survey.

Information about morbidity of children and response to illnesses during the fifteen days preceding the date of interview was collected from the mothers once a month for three consecutive months. Data were collected by eight local female interviewers. The interviewers had at least twelfth grade of schooling. They were trained for one week for data collection by the first author. During training their progress was monitored until their performance reached a satisfactory level. Spot-checking in the field and scrutiny of the completed questionnaires were carried out regularly to ensure the quality of data.

The study children came from 759 households. Economic status of households was assessed by ownership of bedding materials, kerosine lamp, watch, radio, and bike. Households with none of the above items were considered as having low status, those with bedding and/or lamp as medium, and others as high.

Mothers' education was measured by completed years of schooling: no education, 1-5 years, and six or more years of schooling. The last two categories were merged in multivariate analysis because of the small number of observations.

Information about the severity of illness was collected from the mothers. They were asked to classify the condition as: mild, moderate, and severe. The first two categories were pooled for multivariate analysis of the correlates of contact with any health care providers because of similarity in contact rates among the children of these two categories and to avoid problems that may arise due to small numbers.

Table 1. Nature of home-remedies and change in feeding practice during illness with reasons among children in Matlab, Bangladesh

Action	Fever %	Fever+cough %	Diarrhoea %	Dysentery %	Others %
Home-remedies					
None	40.5	30.4	57.8	52.3	54.5
Water on head	54.2	66.4	16.7	10.4	17.2
Herb juice	3.3	2.9	10.4	23.8	17.2
Sanctified water	0.7	0.0	3.4	3.0	3.0
ORT	0.0	0.0	4.5	3.0	0.0
Others	1.3	0.3	7.2	7.5	8.1
Number of episodes	452	375	443	298	134
Breastfeeding					
Continued	84.2	78.7	83.9	91.6	91.5
Reduced	15.7	21.3	15.3	7.9	8.5
Stopped	0.3	0.0	0.8	0.5	0.0
Number of episodes[*]	387	314	355	202	106
Reasons for reduction or					
discontinuation of breastmilk					
Refused to eat	96.7	100.0	87.7	94.1	100.0
Considered harmful	3.3	0.0	12.3	5.9	0.0
Number of episodes	61	67	57	17	9
Other foods					
Continued	53.1	52.2	45.4	49.3	56.8
Reduced	37.2	37.0	38.2	44.1	30.3
Stopped	9.7	10.8	16.4	6.6	12.9
Number of episodes[**]	422	362	421		286
Reasons for reduction or					
discontinuation of other foods					
Refused to eat	75.3	67.1	66.1	53.1	89.5
Considered harmful	24.7	32.9	33.9	46.9	10.5
Number of episodes	198	173	230	145	57

*breastfed children; ** supplemented children; ORT = Oral rehydration therapy

Retrospective information on contact with health care providers was collected from mothers on the day of interview. If a health care provider was contacted, the day of contact was recorded. The date of cure was also recorded.

Analysis of this type of data poses two kinds of problems: some episodes were continuing on the day of interview, and some were cured during the 15 days for which no contact with any health care providers was made. Straightforward analysis of this kind of data may produce misleading results. Analysis of contact with health care providers should use the available information fully. A discrete time life-table technique of data analysis (18) was used to avoid the above problems.

The life-table technique referred to above was implemented by creating 15 data files – one for each day of duration – in the following manner. There were a total of 1,702 episodes during three visits. Among them, those who were cured or for whom a contact was made on the first day were excluded on the second day. The process was continued up to the 15th day. The number of episodes, thus, obtained on each day and the corresponding cummulative life-table contact rates were calculated (19). The data files, one for each day, contained indication whether a contact was made on that day along with other independent variables.

Finally, all the observations in the 15 files were pooled for a logistic regression analysis of contact with any health care providers as the dichotomized dependent variable. The above exercise resulted in 17,720 records. All the independent variables included in this analysis were treated as categorical variables and a 'deviation' coding scheme was used for analyzing the data with SPSS/PC+ (20-22).

RESULTS

Basic characteristics

Of all the episodes, 27% had symptoms of fever only, 22% had fever with cough, 26% had watery diarrhoea, 18% had dysentery (mucoid and bloody stool), and the rest had other symptoms.

Thirty-one percent of the episodes were reported to be cured during the 15-day period, and the rest were continuing on the day of interview. The mothers considered 34% of the episodes as very severe, 37% as moderate, and the rest not so severe. Forty-eight percent of the episodes was among the female children.

Home-remedy

For 54% of the episodes some kind of home-remedy was used. Home-remedies included washing head with water, feeding herbal juice, sanctified water, and ORT. Nature of home-remedies was somewhat dependent on the type of illness. Use of ORT was low. The nature of home-remedies used in different types of sicknesses is presented in table I.

Home-remedies were mostly initiated by mothers (43%) or grandmothers (6%); joint initiative was for 4% of the episodes, and for the remaining 1% of the cases, it was initiated by other members in the household.

Feeding during sickness

Feeding patterns during periods of sickness are shown in table I. Reduction in feeding, breast milk and other food,

was reported in some cases. Some did so because they believed that feeding might be harmful.

Table II. Types of health care provider contacted and advice received during illness among young children by illness

Provider/advice	Fever %	Fever+cough %	Diarrhoea %	Dysentery %	Others %
Type of provider					
Allopath	53.3	55.5	39.3	58.7	54.2
Homeopath	39.3	42.9	29.0	24.6	29.2
Traditional practitioner	25.0	15.9	16.6		
Religious practitioner	0.7	0.0	6.7	0.8	0.0
Advice about medicine					
Medicine to take	77.7	90.8	54.2	75.4	52.1
ORT	0.0	0.0	9.2	0.7	0.0
Others	22.3	9.1	36.6	23.9	47.9
Advice regarding food					
None	93.3	93.3	93.4	81.7	95.8
Reduce	2.2	4.2	2.2	6.4	2.1
Stop	4.5	2.5	4.4	11.9	2.1

Table III. Rate of contact with health care provider by days since onset of illness among children in Matlab

Days since onset	Number of episodes	No. of recovery before contacting health care provider	No. of contacts with health care provider %	Contact rate %	Cummulative contact rate (life-table)
0	1702	28	5	0.3	0.3
1	1669	54	46	2.8	3.1
2	1569	52	77	4.9	7.8
3	1440	31	86	6.0	13.3
4	1323	22	85	6.4	18.9
5	1216	14	62	5.1	23.0
6	1140	11	53	4.6	26.6
7	1076	6	31	2.9	28.7
8	1039	4	37	3.6	31.3
9	998	6	21	2.1	32.7
10	971	6	34	2.2	34.2
11	931	1	22	2.4	35.8
12	908	3	20	2.2	37.2
13	885	0	32	3.6	39.4
14	853	0	15	1.8	40.5
Total	17720	238	626	3.5	-

Consulting health care providers

Among the various health care providers contacted, allopaths were the most common followed by homeopaths, traditional practitioners (*kabiraj* and *totka*) and religious practitioners (Table II). Contact with at least one health care provider of any type by the fifteenth day of illness was made for 41% of the episodes (Table III). Consulting traditional practitioners was quite common in cases of diarrhoeal diseases. The advice given by them included medicines, ORT, pouring water on head, special food to eat or restriction on some foods, and even medicines to apply externally depending on the nature of illness (Table II). For more than 90% of the illnesses, no specific advice on food was given. Advice to reduce normal feeding was the highest (6.4%) for dysentery, while 12% was advised to stop feeding normal food (Table II).

Correlates of consulting health care providers

Relationship of age and sex of children, economic status of the household, mothers' education, health programme interventions, and type and severity of illness with the contact of health care providers was examined. Results of univariate and multivariate analyses are presented in table IV. The degree of severity of illnesses as perceived by the mothers was found to have a statistically significant influence on the contact of health care providers, irrespective of types of illnesses.

Univariate analysis revealed that all the variables excepting mothers' education had a significant statistical relationship with contacting a health care provider (Table IV). Health care providers were contacted more for infants than for others; the contact rate was higher for boys than for girls; the contact rate for children from the 'rich' households was the highest. There was no difference in contact rates for children of economically low and medium households. A 60% higher contact rate was observed for children living in the ICDDR,B's intervention area than those from the non-intervention area. The contact rate was 43% higher for diarrhoea and dysentery than for other symptoms.

The results of logistic regression analysis are presented in table IV. A similar pattern of relationship was observed in univariate and multivariate analyses. An investigation of two-way interaction effects of the independent variables revealed that the relationship between the type of illness and the contact rate was significantly dependent on mothers' education. Similarly, the relationship between the severity of illness and the contact rate was dependent on sex of children.

The predicted contact rates on the basis of logistic regression for all possible categories of the variables involved in interaction are presented within parentheses in table IV. The higher contact rate for diarrhoea was true only for children of illiterate mothers. For other diseases, the contact rate was higher for children of literate mothers than for those of illiterate mothers. Similarly, the higher contact rate for male children was only observed for severe cases, while for moderate and mild cases, there was no sex discrimination.

Table IV. Results of univariate and multivariate analyses of relationship between contact rate and various independent variables

Variable	No. of episodes	Univariate analysis		Logistic regression	
		Contact rate (%)	Chi-square	Coeffi-cient	Wald statistics
Age in months			14.06[b]		12.72[b]
<11	3613	4.2		.15	
11-17	4217	3.9		.07	
18-23	2682	3.6		-.01	
24+	7208	2.9		-.21	
Sex			4.18[c]		4.12[c]
Male	9055	3.8		.09	
Female	8665	3.2		-.09	
Economic status			7.02[c]		4.92[d]
Low	3519	3.3		-.08	
Medium	8030	3.3		-.05	
High	6171	4.0		.13	
Mothers' education			0.89[ns]		0.01[ns]
None	13032	3.5		.01	
Some	4688	3.8		-.01	
Health programme			38.27[a]		38.38[a]
MCH-FP	7717	4.5		.26	
Comparison	10003	2.8		-.26	
Type of illness			20.29[a]		2.03[ns]
Diarrhoea	7427	4.3		.07	
Others	10293	3.0		-.07	
Severity of illness			124.64[a]		96.15[a]
Severe	5590	5.8		.42	
Moderate	6857	2.8		-.42	
Mild	5273	2.1		*	
Type of illness and mothers' education					4.57[c]
Diarrhoea-no education				.10 (.046)	
Other illnesses-no education				-.10 (.033)	
Diarrhoea-some education				-.10 (.037)	
Other illnesses-some education				.10 (.040)	
Sex and severity					3.61[d]
Male-severe				.08 (.067)	
Male-not severe				-.08 (.026)	
Female-severe				-.08 (.049)	
Female-not severe				.08 (.026)	
Constant				-3.21	3749.07[a]

Note: figures in parentheses are predicted proportion of contacting a health care provider
a = p<0.001; b =p<0.01; c = p<0.05; d = p<0.10; ns = not significant at 10%.
* = merged with the previous category 'moderate'.

DISCUSSION

Use of ORT as a home-remedy was quite low. It was surprising especially in Matlab where ICDDR,B has been promoting it for a long time. Mothers were fully aware of ORT and its efficacy. However, they consider ORS as distasteful, and hard to make young children drink (23). This may be an important reason for the low use rate of ORT as a home-remedy for diarrhoeal diseases.

Withdrawal of food during diarrhoea is considered an important mechanism affecting the health of children in Bangladesh (24). The breastfeeding situation in the study villages was not a major problem. The reasons for discontinuation or reduction of normal feeding included refusal by children and imposition by caretaker. It showed the importance of anorexia in reducing food intake during diarrhoea which has been reported previously (25). Nevertheless, despite all health campaigns, imposed reduction was the highest for diarrhoea. In most cases, it was imposed on the ground that continuation of normal food would be harmful. This is an area where health education programmes should give special attention for improving child health and survival in this community.

The fact that for 59% of the episodes no contact was made with any kind of health care providers by the fifteenth day was of concern. In most cases, the parents considered it unnecessary. This may indicate either a lack of awareness among the parents regarding adverse consequences of an illness on child health, or that the parents were indifferent. Prevailing female disadvantageousness in health status and high mortality in this community have been observed in other studies (23,26-28). Discrimination against girls in seeking health care was revealed in this community on the basis of lower hospital admission rate (29) and purchase of medicine (30). However, evidence in support of the gender discrimination in health care as revealed in this study is methodologically stronger. Given these findings, the low level of contact with health care providers may have been due to lack of awareness, while the lower rate of contact for girls than for boys in cases of severe illness may be an indication of negligence.

In conclusion, for improved child health and survival, the community members should be made aware of the importance of consultation with an appropriate health care provider during sickness. Attempts should be made to understand the contexts of home-remedies and to assess their impact on health before prescribing any actions to abandon them. Inappropriate feeding practice during illness is still a problem, and ways should be found to minimize this. The low use rate of ORT and low contact rate for diarrhoea in case of children of literate mothers should be investigated further. The problem of discrimination against female children has a broader and more complex sociocultural implications that needs to be properly assessed.

ACKNOWLEDGEMENTS

REFERENCES

1. International Centre for Diarrhoeal Disease Research, Bangladesh. Demographic Surveillance System - Matlab: Registration of demographic events - 1987. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1992.

2. Chen LC, Rahman M, Sarder AM. Epidemiology and causes of death among children in a rural area of Bangladesh. *Int J Epidemiol* 1980;9:25-33.

3. Fauveau V, Briend A, Chakraborty J, Sarder AM. The contribution of severe malnutrition to childhood mortality: implications for targeting nutrition programmes. *Food Nutr Bull* 1990;12:215-9.

4. Fauveau V, Yunus M, Zaman K, Chakraborty J, Sarder AM. Diarrhoea mortality in rural Bangladeshi children. *J Trop Pediatr* 1991;37:31-6.

5. Sarder AM, Chen LC. Distribution and characteristics of non-government health practitioners residing in a rural area of Bangladesh. *Soc Sci Med* 1981;15:543-50.

6. Claquin P. Private health care providers in rural Bangladesh. *Soc Sci Med* 1981;15:153-7.

7. Bhardwaj SM, Paul BK. Medical pluralism and infant mortality in a rural area of Bangladesh. *Soc Sci Med* 1986;23:1003-10.

8. Bhuiya A. Village health care providers in Matlab, Bangladesh: a study of their knowledge in the management of childhood diarrhoea. *J Diarrhoeal Dis Res* 1992;10:10-5.

9. Chowdhury AMR, Vaughan JP, Abed FH. Mothers learn how to save the lives of children. *World Health Forum* 1988;9:239-44.

10. Bhuiya A. Demographic trends in Matlab: 1966-1990. *In*: Programmes and abstracts: Annual Scientific Conference, 26-28 October 1991, Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1991:24.

11. Bhuiya A, Streatfield K, Meyer P. Mothers' hygienic awareness, behaviour and knowledge of major childhood diseases in Matlab, Bangladesh. *In*: Caldwell J, Findley S, Caldwell P, Santow G, Cosford W, Braid J, et al. editors. What we know about health transition: the cultural, social and behavioural determinants of health. Canberra: The Australian National University, 1990:463-77.

12. Bhuiya A, Streatfield K, Sarder AM. Mothers' education and knowledge of major childhood diseases in Matlab, Bangladesh. *In*: International Population Conference, Montreal 1993. Liege: International Union for the Scientific Study of Population, Volume 4. 1993:277-92.

13. Mosley WH, Chen LC. An analytical framework for the study of child survival in developing countries. *Pop Dev Rev* 1984;10:25-45.

14. Parker B. Acute respiratory infections in children of Bangladesh: Focus Group discussions on women's perceptions and practices. Dhaka: UNICEF, 1990.

15. Chowdhury ATSA, Ashraf MA, Aldis WL. Factors affecting health in rural Bangladesh. Massachusetts: AA Medical Editors, 1982.

16. Aziz KMA. Present trends in medical consultation prior to death in rural Bangladesh. *Bangladesh Med J* 1977;6:53-8.

17. International Centre for Diarrhoeal Disease Research, Bangladesh. Demographic Surveillance System - Matlab: registration of demographic events - 1986. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1991.

18. Alison P. Discrete-time methods for the analysis of event histories. *In*: Leinhardt S, editor. Sociological methodology. San Francisco: Jossey-Bass, 1982:61-98.

19. Kirkood B. R. Essentials of Medical Statistics. Oxford: Blackwell Scientific Publications, 1988:118-23.

20. Forthofer RN, Lehnen RG. Public program analysis: a new categorical data approach. California: Life Learning Publications, 1981.

21. SPSS Inc. *SPSS/PC+ update for V3.0 and V3.1*. Chicago: SPSS Inc. 1989.

22. Swafford M. Three parametric techniques for contingency table analysis: a nontechnical commentary, *American Sociological Review* 1980;45:664-90.

23. Bhuiya A. Factors affecting child survival in Matlab, Bangladesh. Canberra: The Australian National University, 1989. Ph D thesis.

24. Khan MU, Ahmad K. Withdrawal of food during diarrhoea: major mechanism of malnutrition following diarrhoea in Bangladeshi children. *J Trop Pediatr* 1986;32:57-61.

25. Hoyle B, Yunus M, Chen LC. Breast-feeding and food intake among children with acute diarrheal disease. *Am J Clin Nutr* 1980;33:2365-71.

26. Bhuiya A, Zimicki S, D'Souza S. Socioeconomic differentials in child nutrition and morbidity in a rural area of Bangladesh. *J Trop Pediatr* 1986;32:17-23.

27. Bhuiya A, Streatfield K. Mother's education and survival of female children in a rural area of Bangladesh. *Pop Stud* 1991;45:253-64.

28. D'Souza S, Chen LC. Sex differentials in mortality in rural Bangladesh. *Pop Dev Rev* 1980;6:257-70.

29. Chen LC, Huq E, D'Souza S. Sex bias in the family allocation of food and health care in rural Bangladesh. *Pop Dev Rev* 1981;7:55-70.

30. Hossain MM, Glass RI, Khan MR. Parental son preference in seeking medical care for children less than five years of age in a rural community in Bangladesh. *Am J Public Health* 1982;78:1349-50.