

# Village Health Care Providers in Matlab, Bangladesh: A Study of Their Knowledge in the Management of Childhood Diarrhoea

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## ABSTRACT

This study was conducted among village health care providers in Matlab, Bangladesh in 1987. The objectives were to assess their knowledge of childhood diarrhoea and methods of management. All types of health care providers considered diarrhoea as a major childhood disease and opined that treatment should be initiated in case of four or more loose motions a day. Slightly more than half of the allopaths were aware of the scientific causes of diarrhoea; homeopaths and traditional healers in large proportions related diarrhoeal diseases with certain types of food, and 'evil eyes'. Eighty per cent of the allopaths reported use of oral rehydration solution in treating watery diarrhoea against 20% of the others. Prescription of antibiotics in treating dysentery was higher among allopaths than others. Allopaths were also less restrictive regarding continuation of breastfeeding and intake of food during diarrhoea among children.

**Key words:** Diarrhoea, Infantile; KAP; Oral rehydration therapy; Drug therapy; Disease management.

## INTRODUCTION

Infection and malnutrition are the two most important factors associated with illness and death among children in the developing world (1). Infection and malnutrition are interrelated and one is known to cause the other (2). In this scenario diarrhoea plays a crucial role (3-4). Ideally, a reduction in diarrhoeal incidence among children to improve their nutritional status and survival is desired, but given the poverty and poor sanitation in which they live this ideal may not be accomplished in the near future (5). Thus, it may be appropriate to emphasise the curative aspect of a diarrhoea control programme.

In the developing world, including Bangladesh where diarrhoea is endemic (6-10), the basic health care infrastructure is pluralistic (11-13), and obsolete views about causes and cures of diarrhoea still exist. Despite efforts by the government to establish a primary health care system in the country, the available facilities are still very limited (15, cited in 11, 16); the community is largely dependent on private health care practitioners in the country (16,17).

At present, scientific knowledge of the management of diarrhoeal diseases is available (18-20), but to what extent the management of diarrhoeal diseases in the rural environment is influenced by the currently available knowledge is largely unknown. It is believed that the utility rate of oral rehydration therapy (ORT) for diarrhoea, especially in rural areas, is far from satisfactory (9,10,21).

Since rural private health care providers have a very important role in disease management, we investigated the status of their knowledge of diarrhoea management. We believe that this study will help to develop appropriate strategies for diarrhoea management by specifically examining the currently available health practitioners in rural Bangladesh.

## MATERIALS AND METHODS

The study was conducted in Matlab *upazila* (sub-district) in Bangladesh, where the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) has been operating a Demographic Surveillance System (DSS) since 1966. Matlab is 45 kilometres south-east of Dhaka, the nation's capital.

This surveillance consists of fortnightly visits by field workers to each household to record death, pregnancy, marriage, divorce, and migration. The area is in a low-lying deltaic plain intersected by tidal rivers and numerous canals. The *upazila* headquarters is 15 kilometres from its district town Chandpur by the only paved road. The major modes of transportation within the area are on foot, or by small power boats. The majority of the Matlab population is poor; farming and fishing are the major occupations. Many are landless peasants (30%) and some own a small amount of land (less than 2 acres). Their educational level is low; 45 per cent of the males and 73 per cent of the females over the age of 15 have no formal schooling (unpublished results of 1982 ICDDR,B census).

Health care in the area is provided mainly by village-based private practitioners of different backgrounds. Qualified doctors are available only in Matlab town, in the government, or in the ICDDR,B hospital, and their services are rendered only to the villagers residing in and around Matlab. The ICDDR,B has had maternal child health and family planning (MCH-FP) services in one-half of the Matlab population since 1977. Health care in that area is delivered by fortnightly visits to houses by community health workers who provide advice on family planning, vaccinations, and nutrition education, and distribute safe birth kits and vitamin A capsules. Mothers and children are also entitled to receive free treatment for diarrhoea and other illness at the Matlab Treatment Centre, at the Central MCH clinic, or at four smaller sub-centres.

The health care practitioners in the Matlab villages can be classified into four categories: allopathic, homeopathic, *kabiraj*, and *totka* (12). Allopathic practitioners base their diagnosis and treatment on modern scientific concepts. The homeopathic practitioners follow a school of medicine, originally developed in Europe, based on concepts of health and disease whereby a cure is attempted by applying minute amounts of specific antidotes against assumed causes of illness. *Kabiraj* apply the traditional system of medicine based upon Ayurvedic concepts and use herbs, minerals, and diet restrictions. The *totka* combine Ayurvedic, Yunani, and shamanistic systems of ancient folk medicine without a unified concept of health and disease; belief in supernatural and mystical causation and cure of diseases is generally common among them. *Kabiraj* and *totka*, because they both resort to traditional means of treatment, will be considered as traditional practitioners in this paper.

This survey was conducted in the whole area of Matlab among village health care providers in January 1987. The major purpose of the survey was to gather information about the way they treat children for diarrhoeal diseases. Because of limited resources and time, a census of the health care providers was not done. Moreover, in the absence of a list of the health care providers, respondents could

not be selected by random sampling; instead, a quota sampling procedure was adopted (22). Each of the 16 health assistants of DSS was asked to interview at least four health care providers from their usual duty villages, and if possible to select one from each of the four major types of providers.

A questionnaire was developed in *Bangla* and it was administered by the DSS health assistants in January 1987. Specific questions regarding watery diarrhoea, amoebic dysentery (*amashay*, stool with mucus), and bacillary dysentery (*rakta amashay*, stool with blood) were included in the questionnaire. Although some of the health care providers worried that their business would be affected if they were found ignorant at the interview, the long-term, close familiarity with the DSS workers helped to overcome this problem.

## RESULTS

**Background characteristics.** Of the total of 63 providers interviewed, 38 were allopaths, 14 homeopaths, and 11 traditional practitioners; only four were women. None of the health care providers had formal training; they learned the trade from others of similar profession by working as apprentices. Of the allopaths and homeopaths, 10 and 7 were respectively registered with the licensing authority. Preliminary analysis revealed that the registration status does not make any difference in terms of knowledge and management of childhood diarrhoea; consequently, providers with and without registration were grouped together.

Of the 38 allopaths, ten were between 20 and 29 years of age, 18 were 30 to 39 years, and the remaining were over 40. Of the homeopaths, four were 20-29 years; four, 30-39; and six, 40 and over. All traditional healers were 40 years of age or older. The median durations of practice for the allopaths, homeopaths, and traditional healers were 11, 8, and 20 years respectively.

The variation in general education among the three types of health care providers was striking: the education level was the highest among the allopaths followed by homeopaths and traditional healers. Five of the traditional healers had never been to school, three had up to primary, two had up to secondary, and only one had higher than secondary level of education. Among the homeopaths, two had never been to school, two had been to primary, another two had been to secondary, and eight had been to higher than secondary school. All the allopaths on the other hand, had been to school: one had primary, 14 had secondary, and 23 had higher than secondary level of schooling.

Seventy-nine percent of the allopaths and 86% of the homeopaths had at least a small building for their business, but the existence of such premises was reported for only 36% of the traditional healers. Most of the establishments of the allopaths and homeopaths, around 70 per cent, were located in the

local markets, whereas half of the traditional healers ran their businesses from their homes.

It was claimed by 74% of the allopaths that their clients came to see them and the rest said that they always made house-calls. On the other hand, all of the traditional healers and homeopaths received patients at their business premises or at home and did not make house-calls.

**Causes of diarrhoeal diseases.** Diarrhoeal diseases, pneumonia, and fever were opined as major childhood diseases by the health care providers. Sixty-eight per cent of the allopaths, 55% of the traditional healers, and 43% of the homeopaths considered diarrhoeal diseases to be the most important of the major childhood diseases. Pneumonia was considered to be second most important by the allopaths (18%), and the third most important by the traditional healers (9%) and homeopaths (21%). Fever was placed in second position by the traditional healers (27%) and homeopaths (29%).

Proportionately more allopaths than others held beliefs close to scientific knowledge about the causes of diarrhoea. Fifty-five per cent of the allopaths identified ingestion of contaminated water and contaminated or rotten food as the probable cause of diarrhoea among children. Twenty-four per cent related diarrhoeal diseases to uncleanness, 5% to contact with a patient, and another 5% to eating food containing too much chili, either by the children or by the breastfeeding mothers; 7% mentioned evil-eyes and the rest mentioned other causes. None of the traditional healers cited ingestion of contaminated food and water as a probable cause of diarrhoea; instead, they mentioned eating rotten food (36%), contact with diarrhoeal patient (18%), uncleanness (18%), evil eyes or spirit (18%), and eating hot and spicy food (9%) by the mothers or children. Thirty-six per cent of the homeopaths believed that ingesting contaminated food or water is a cause of diarrhoea among children. The other causes mentioned by them were contact with patients (21%), uncleanness (21%), and spicy or hot food (14%), evil eyes or spirit (8%).

For amoebic and bloody dysentery a large majority of the health care providers, irrespective of type, mentioned ingestion of germs by children as a possible cause. Eighty-four per cent of the allopaths, 71% of the homeopaths, and 64% of the traditional healers said this with regard to amoebic dysentery. The rest were of the opinion that amoebic dysentery is caused by hot or spicy food taken either by the children, or their mothers in the case of breastfed children. For bloody dysentery, the proportion of allopaths who believed that it is caused by ingestion of germs was similar to that for amoebic dysentery. Among the homeopaths and traditional healers, the proportions with similar beliefs were 93% and 82% respectively.

The statistical significance of the difference

between the proportions of allopaths and other health care providers (homeopath and traditional healers combined) who believed diarrhoea to be caused by contaminated food and water, and amoebic and bloody dysentery by ingesting germs, was tested and found insignificant (Table I). Nevertheless, in all cases proportionately more allopaths than the others held scientifically relevant beliefs.

Table I. Opinion About Causes of Diarrhoeal Diseases by Type of Health Care Providers in Matlab, Bangladesh 1987.

Opinion	Type of health care provider			Remarks*
	Allopaths (N=38) %	Others (N=25) %	All (N=63) %	
<b>Diarrhoea</b>				
Contaminated food, water	55.3	36.0	47.6	$\chi^2 = 2.24$ p=0.13
Others	45.7	64.0	52.4	p <sub>F</sub> = .11
<b>Amoebic dysentery</b>				
Ingestion of germs	84.2	68.0	77.8	$\chi^2 = 2.29$ p=0.13
Others	15.8	32.0	22.2	p <sub>F</sub> = .11
<b>Bloody dysentery</b>				
Ingestion of germs	84.2	88.0	85.7	$\chi^2 = .18$ p=0.67
Others	15.8	12.0	14.3	p <sub>F</sub> = .48

\* regarding statistical significance of the difference in the proportions between allopaths and other health care providers, p<sub>F</sub> = Fisher's exact probability.

**Management of diarrhoeal diseases.** The health care providers were specifically asked about the minimum number of loose motions by a child after which treatment should be initiated, about their method of treating diarrhoea and dysentery, and about the advice they usually give in relation to feeding the children during and after recovery from diarrhoeal illness.

The providers considered, on average, that four loose motions per day is a minimum frequency at which a treatment for diarrhoea should be initiated. Proportionately, 59% of the allopaths and 60% of the others opined so. No variation by provider-type was observed in this regard.

Nearly 60% of the health care providers were reported to use oral rehydration solution (ORS) in treating watery diarrhoea. Eighty-two per cent of the allopathic providers said that they treat a diarrhoeal child patient with ORS. However, some allopaths (45%) mentioned ORS. Eighteen per cent of the allopathic health care providers did not mention it at all, rather they used other allopathic drugs. On the other hand, 21% of the homeopaths and 18% of the traditional healers said that they

used ORS to treat diarrhoea among children. The difference in use rate of ORS between allopaths and other health care providers was statistically significant (Table II).

Table II. Treatment of Diarrhoeal Diseases Among Children by Type of Health Care Provider

Treatment	Type of health care provider			Remarks*
	Allopaths (N=38) %	Others (N=25) %	All (N=63) %	
<b>Diarrhoea</b>				
With ORT	81.6	20.0	57.1	$\chi^2 = 23.35$ $p = 0.000$ $p_F = .000$
Without ORT	18.4	80.0	42.9	
<b>Amoebic dysentery</b>				
With antibiotics	36.8	8.0	25.4	$\chi^2 = 6.62$ $p = 0.01$ $p_F = .01$
Without anti-biotics	63.2	92.0	74.6	
<b>Bloody dysentery</b>				
With antibiotics	60.5	12.0	41.3	$\chi^2 = 14.65$ $p = 0.000$ $p_F = .000$
Without anti-biotics	39.5	88.0	58.7	

\* regarding statistical significance of the difference in the proportions between allopaths and other health care providers,  $p_F$  = Fisher's exact probability.

Apart from prescribing ORS, homeopaths prescribed oral homeopathic medicines for the treatment of diarrhoeal diseases among children. The traditional health care providers, on the other hand, resorted to the feeding of juice extracted from herbs and sanctified water, exorcisms, and other traditional means.

For the treatment of amoebic dysentery, none of the homeopaths and traditional healers advocated ORS. Among the allopaths, only 11% usually advised ORS in combination with other medicines including antibiotics. The use of antibiotics alone in treating amoebic dysentery in children was recommended by 26% of the allopaths, and another 10% recommended a combination of antibiotics with allopathic medicines other than ORS. The rest used allopathic medicines other than antibiotics (Table II).

For the treatment of bacillary dysentery among children, 61% of the allopathic health care providers usually used antibiotics and the remainder used other allopathic medicines. Use of antibiotics was also mentioned by one homeopath and two traditional healers, and the rest of the homeopaths and traditional healers used medicines based on their own disciplines (Table II).

With regard to the inconveniences of ORS, 37% of the allopaths, 50% of the homeopaths, and 46% of the traditional healers mentioned no problem, with them. The remainder cited problems of which difficulty in feeding ORS to young children was the

most common. The proportions with such an opinion were 29%, 36%, and 36% among the allopaths, homeopaths, and traditional healers respectively.

Twenty-four per cent of the health care providers were reported to advise reduction and 20% for discontinuation of breastfeeding during diarrhoea, and 10% did the same in the case of dysentery of either type. Eight per cent of the allopaths said that they advised total discontinuation of breastfeeding during an episode of diarrhoea. Similar advice was given by 36% of the homeopaths and 46% of the traditional healers. A reduction in breastfeeding was advised by 29% of the allopaths, 14% of the homeopaths, and 18% of traditional healers. On the other hand, 63% of the allopaths, 50% of the homeopaths, and 36% of the traditional healers said that they usually do not advise anything about breastfeeding; the only exception was one allopath who usually gives specific advice to continue breastfeeding during diarrhoea. Allopaths were less restrictive regarding continuation of breastfeeding than the others; the difference between proportions of allopaths and other health care providers who advised total discontinuation of breastfeeding was statistically significant (Table III).

Table III. Advice About Breastfeeding During Diarrhoeal Illnesses Among Children by Type of Health Care Provider

Opinion	Type of health care provider			Remarks*
	Allopaths (N=38) %	Others (N=25) %	All (N=63) %	
<b>During diarrhoea</b>				
None	63.2	44.0	55.6	$\chi^2 = 2.24, p = .13, p_F = .11$ $\chi^2 = 1.39, p = .24, p_F = .19$ $\chi^2 = 9.49, p = .00, p_F = .00$
Reduce	28.9	16.0	23.8	
Stop	7.9	40.0	20.6	
<b>During amoebic dysentery</b>				
Continue	84.2	84.0	84.1	$\chi^2 = .00, p = .98, p_F = .62$ $\chi^2 = .88, p = .35, p_F = .33$ $\chi^2 = .94, p = .33, p_F = .30$
Reduce	10.5	4.0	7.9	
Stop	5.3	12.0	8.0	
<b>During bloody dysentery</b>				
Continue	78.9	84.0	81.0	$\chi^2 = 0.25, p = .62, p_F = .43$ $\chi^2 = 2.81, p = .09, p_F = .12$ $\chi^2 = 0.94, p = .33, p_F = .39$
Reduce	10.5	00.0	6.3	
Stop	10.5	16.0	12.7	

\* regarding difference in proportions between allopaths and other health care providers with this opinion,  $p_F$  = Fisher's exact probability.

A similar situation with regard to breastfeeding during amoebic and bloody dysentery was also observed. Proportionately more homeopaths and traditional healers advised total discontinuation of breastfeeding than the allopaths, but the difference was not statistically significant (Table III). The situation was also quite the same in the case of food

other than breast milk during diarrhoea (Table IV).

Restriction on foods other than breast milk was recommended by all types of providers in case of both amoebic and bloody dysentery. However, in all cases more allopaths, in proportion, advised continuation of normal feeding during an episode of dysentery (Table III and IV).

Table IV. Advice About Feeding Other than Breast Milk during Diarrhoeal Illnesses among Children by Type of Health Care Provider

Opinion	Type of health care provider			Remarks*
	Allopaths (N=38) %	Others (N=25) %	All (N=63) %	
<b>During diarrhoea</b>				
None	60.5	40.0	52.4	$\chi^2 = 2.55, p = .19, p_F = .09$
Reduce	31.6	48.0	38.1	$\chi^2 = 1.72, p = .14, p_F = .14$
Stop	7.9	12.0	9.5	$\chi^2 = 0.02, p = .88, p_F = .45$
<b>During amoebic dysentery</b>				
Continue	63.2	40.0	54.0	$\chi^2 = 2.74, p = .10, p_F = .06$
Reduce	28.9	26.3	36.5	$\chi^2 = 2.79, p = .09, p_F = .10$
Stop	7.9	16.0	9.5	$\chi^2 = 0.00, p = .95, p_F = .45$
<b>During bloody dysentery</b>				
Continue	36.8	15.8	31.7	$\chi^2 = 1.15, p = .28, p_F = .21$
Reduce	13.2	4.0	15.9	$\chi^2 = 0.53, p = .47, p_F = .34$
Stop	2.6	4.0	3.2	$\chi^2 = 0.09, p = .76, p_F = .64$
No inf.	47.4	52.0	49.2	test not done

\* regarding difference in proportions between allopaths and other health care providers with this opinion,  $p_F$  = Fisher's exact probability.

The advice to give food in more than normal amounts to the children after the disappearance of diarrhoeal symptoms was given by a large proportion of the health care providers irrespective of their affiliation. Of allopaths, 95% usually advised giving more food (mostly normal food and sometimes special food) to the child after recovery, as did 83% of the homeopaths and 92% of the traditional healers.

## DISCUSSION

There is an acute shortage of medical doctors in Bangladesh, only one per 5,200 population (23). Most of the health facilities are concentrated in the urban areas, and the rural inhabitants are largely dependent on private health care providers of various types (11,12,24). The rural health care providers have had a major role in the scenario of the health of the rural population in Bangladesh. Thus the present investigation on the knowledge of diarrhoeal disease and its management by these providers is of importance in our endeavour to control diarrhoea. It should be noted that this study was done in a small area of rural Bangladesh where the ICDDR,B staff has been working on diarrhoea since 1963. Because of the presence of ICDDR,B the health care

providers in this area may be better-informed about diarrhoeal diseases; consequently the results obtained from this study may be upwardly biased in comparison to the situation in other rural areas of the country.

The fact that the health care providers in the villages consider diarrhoea as a major childhood disease, and that treatment should be started when four or more loose motions occur in a day, clearly indicates that they recognise the problem. However, its solution is dependent on how effectively they can prevent and treat the disease.

With regard to the prevention of diarrhoea, it would be helpful if community members know about causes and transmission of infections. Health care providers could play an important role by giving this information to their clients. It is surprising that slightly more than half of the allopathic practitioners were aware of the scientific facts about the causes of diarrhoeal diseases. Homeopaths and the traditional healers still relate diarrhoeal diseases with certain types of food and abstract concepts like 'evil eyes'; in such circumstances it is quite likely that they are ineffective in advising community members about ways to avoid diarrhoea. In addition, their poor knowledge about diarrhoeal diseases may also be responsible for inappropriate advice about feeding and prescription of therapy as observed in the present study.

The finding that allopathic health care providers are more inclined than the traditional healers towards modern knowledge and practices in relation to diarrhoea indicated that if an allopathic health care provider is consulted for the treatment of children with diarrhoea it is highly likely that he or she will prescribe modern methods of diarrhoea management, including ORS which is a very effective treatment (18,20). The danger associated with consulting these practitioners lies in the prescription of antibiotics which are indicated in the case of dysentery and certain other diarrhoeas with clear bacterial etiologies, but whose indiscriminate use can be harmful (20). The other appropriate advice given was to increase dietary intake during convalescence which is essential for catch-up growth (20). Advice to reduce breastfeeding and intake of normal foods during diarrhoea is not desirable and when added to the anorexia developed during the illness can adversely affect child health.

Thus it can be concluded that differentials in methods of allopaths for treating childhood diseases, especially of a diarrhoeal nature, may result in differential health outcomes: nutritional adversity among those who were treated by allopaths would be less than among those not treated by them.

Until very recently there was a lack of knowledge about the appropriate management of diarrhoea. During the last decade the world has witnessed an outstanding development in the treatment of dehydration due to diarrhoea with ORS. It is cheap and can be made at home. As a result it has a great potential in the treatment of diarrhoea if administered in time and adequately. The task remains to make it popular in the community.

Prescription of an ORS by the health care providers will help develop in community members favourable attitudes toward ORS, which will eventually result in its satisfactory use—level as a home remedy for diarrhoea.

Despite determined efforts by ICDDR,B and other health-related organisations in the country, the level of ORS usage by the health care providers in treating diarrhoea was not satisfactory, even though proportionately more allopaths than the others advised ORS. Lack of appropriate knowledge about diarrhoeal disease and the mechanism through which ORS helps a diarrhoea patient can be important factors responsible for its low prescription rate by the health care providers in the study area. The other possibility can be the comparative profit obtained by selling medicines other than ORS. No direct question about this was asked; however, this may not be the case, as they can also derive profit by selling ORS. Another reason may be the difficulty in feeding ORS to children, which hinders its acceptance by the clients and often discourages health care providers from prescribing it.

To conclude, the private health care providers in Bangladeshi villages are very much a part of the society and culture; improving health in this community can be hastened through utilisation of the existing health care providers. Modern technologies like ORS will more easily have a fast and sustained impact on child health if accepted and advocated by the health care providers in the villages. Until the health care providers are motivated towards modern medical methods, the success of these methods may be limited and delayed.

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