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Original Articles

The retention of knowledge about home-made oral rehydration solution : A survey in rural Bangladesh

AHMED MASHTAQUR REZA CHOWDHURY*

INTRODUCTION

Diarrhoea is a major cause of morbidity and mortality in Bangladesh⁴. The Bangladesh Rural Advancement Committee (BRAC), a private voluntary organisation, has undertaken a nationwide programme to educate the rural populace, particularly women, on how to prepare and administer oral rehydration solution (ORS) for diarrhoea. The objective is to make the simple technology of the pinch-and-scoop method accessible to the rural poor. A three finger pinch of lobon (common table salt) and a four-finger scoop of gur (molasses), when mixed in a half seer (467 cc) of water gives a fluid which approximates the W. H. O. recommended preparation². The method of preparation and related nutritional and other knowledge are contained in an educational package called the Ten Points to Remember : ^{2,5}.

Teams of female oral replacement workers (OROs) visit each household in the village and teach at least one woman about the ten points. Male team coordinators (TCs) are responsible for contacting the men and organising a diarrhoea control campaign in local primary and secondary schools. Monitors visit at random ten per cent of the households covered to assess the effectiveness of ORW teaching. The remuneration of ORWs is decided on the basis of the monitoring

results³. An independent group is evaluating the programme in terms of method usage and its impact on morbidity, mortality and nutrition. The programme receives the advisory services of an international committee (a)

BRAC's oral therapy extension programme (OTEP) started in July 1980. During the first three-year phase of the programme, a total of about 3.5 million households in five of the twenty districts of the country will be covered.

In March 1981, BRAC's research and evaluation division undertook a survey with the objective of measuring how accurately the ORS is prepared by women three and six months after being taught the pinch-and-scoop method. The results of the survey are presented here.

METHODOLOGY

Lists of households visited three and six months before by different teams of ORWs in one area (b) were collected from the programme office. Two-stage sampling was undertaken. The households visited by a team in each time period were grouped and for each period one group of households were selected at random. A sample of size 250 was then selected systematically from the households visited by these two team. Samples of ORS prepared by individual women interviewees were collected. The ORS

- a. The members of the technical advisory committee at that time were D.R. A. Cash (The Harvard School of Public Health), Dr. S. D'Souza (The International Centre for Diarrhoeal Disease Research, Bangladesh—ICDDR,B), Dr. W. B. Greenough III (ICDDR,B), Dr. Monowar Hossain (The Bangladesh Institute of Development Studies), Dr. A. R. Measham (The Ford Foundation, Dhaka) and Dr. M.Q.K. Talukdar (The Institute of Post-Graduate Medicine and Research, Dhaka).
- b. The programme was being implemented in three areas at the time of survey.

* Bangladesh Rural Advancement Committee

samples were later analysed for sodium at the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B)

RESULTS

The sample solutions from each study area were analysed for sodium and the results are presented in Table 1. 89.2 and 89.6 per cent of the solutions in the three and six-month groups respectively are within the 30-99 mmol/L range. BRAC recommends this range as safe and effective^a. These proportions are very close to those found in the routine monitoring [c]. An analysis of the results of monitoring 687 samples collected in the same area during July-December 1980 showed that 89.8 per cent of the samples were within this safe and effective range^a. Of the remaining samples, 2.4 and 0.8 per cent respectively in the three and six-month groups were in the safe but less effective range (sodium concentration less than 30 mmol/L). The routine monitoring found 8.9 per cent in this group.

BRAC considers the range 100-119 mmol/L to be too high and over 120 mmol/L is considered to be potentially dangerous^a. 5.2 and 6.8 per cent respectively of the three- and six-month groups made an ORS having a sodium content of 100-119 mmol/L. 2.8 per cent of samples in both groups had sodium concentration of 120 mmol/L or higher. The routine monitoring found 0.7 and 0.6 per cent respectively within the two ranges (i.e. too high or potentially dangerous). The mean sodium concentration of the three and six-month groups were 65.4 and 71.2 respectively. The monitoring found a mean of 52.9 mmol/L. Although the difference between the means of the three and six-month groups was significant ($p < 0.01$) this difference cannot be attributed to a fall-off [d] in knowledge over time as other factors such as the ability of the subjects to absorb the ten points and the ability of the two teams to impart the knowledge will not necessarily be comparable. In fact the proportion over 120 mmol/L is identical (2.8 per cent) in both groups.

TABLE 1

Distribution of sodium (Na^+) concentrations in oral solutions prepared by women surveyed three and six months after being taught the pinch-and-scoop method.

Sodium (mmol/L)	3 months after teaching sample		6 months after teaching sample	
	No.	%	No.	%
Less than 30	6	2.4	2	0.8
30-99	223	89.2	224	89.6
100-119	13	5.2	16	6.4
120+	7	2.8	7	2.8
Not available	1	0.4	1	0.4
All	250	100.0	250	100.0
Mean		65.4		71.2
Standard deviation		21.4		22.0
Highest		129.0		149.0
Lowest		15.0		21.0

- c. The routine monitoring measures the ability make the solution correctly 15 days after.
- d. The BRAC target concentrations of sodium is slightly different from that advocated by WHO (viz., 90 mmol/L). During the initial experimental period with trained village woman under staff supervision most solutions had sodium concentrations of 50-59 mmol/L (personal communication with Mr. F. H. Abed of BRAC).

DISCUSSION

The first year of the BRAC's nation-wide oral rehydration programme is now over. During the period, in about 200,000 households were taught the Ten Points to Remember which included the technique of preparing an oral solution with home ingredients using the pinch-and-scoop method. The programme will teach about 3 million more households during the next two years. A formal evaluation of the impact of the programme on mortality is currently underway. Other equally important aspects are usage of the method and the retention of the imparted knowledge over time which are also being evaluated. The results presented in this paper provide preliminary information about the retention of knowledge in one area three and six months after teaching. Though the populations studied are not the same and therefore do not measure the trend over time, the results give some indication about the retention of knowledge. Ninety percent of solutions are in the safe and effective range in both groups. These indications are encouraging and one would give high marks to the women and their teachers. The results show that the subjects retained the knowledge equally well after three and six months of teaching when compared to those checked after 15 days. It also shows that BRAC has been able to keep the quality of the programme under control as much as it did during the pilot phase²³. It will however be important to study the knowledge retention over a longer period of time. An effective reinforcement of knowledge can then be recommended. The evaluations currently underway should be able to throw more light on this.

SUMMARY

Two populations who were taught about home-made oral therapy for diarrhoea with pinch and scoop method three and six months previously were surveyed. Nearly 90 per cent of the ORS prepared by women were in the safe and effective range (i. e. with sodium concentration of 30-99 mmol/L). Less than 3 per cent had concentration of 120 mmol/L or above.

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