Knowledge and practice of oral rehydration therapy in a village in Gazankulu after the introduction of the Morley spoon

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Summary

Oral rehydration therapy (ORT) is effective in preventing dehydration during acute gastro-enteritis, thus decreasing morbidity and mortality. There is, however, reluctance among mothers and child-minders to use ORT when faced with the crisis of acute diarrhoea. This study describes the effects of a health education campaign, using the Morley (sugar and salt) spoon, on knowledge and practice of ORT in one community in Gazankulu, and compares care group (CG) with non-care group (non-CG) members.

Two years after its introduction, the Morley spoon was still the most commonly used method of preparing oral rehydration solution (ORS). Ninety-seven per cent of CG members could produce the spoon when asked to, as opposed to 55% of non-CG members \( (P < 0.001) \). Eighty-two per cent of respondents had actually used ORT in the past. Fifty-three per cent per cent mixed the ORS incorrectly. Sixty-one per cent believed that ORT would stop diarrhoea and 29\% that it was used for rehydration. Only 26\% would give ORS after every loose stool, but 54\% would give ORT until the diarrhoea has stopped. Fifty-nine per cent of women would feed their children soft porridge, 20\% would continue breast-feeding, and 2\% would starve the child while it had diarrhoea. Women who had retained the Morley spoon showed a greater knowledge of ORT \( (P < 0.005) \) and had used ORT more often in the past \( (P < 0.001) \).

Possession of a Morley spoon was, however, not associated with a higher frequency of correct preparation of ORS, although it appears that the giving out of the spoons did increase the knowledge and practice of ORT in the village. This study also showed that community members may have been confused by the different methods of ORT taught. A strong plea is made to teach only one method of ORT, and not to lose sight of the importance of water supply and sanitation programmes to control diarrhoeal disease.

The effectiveness of oral rehydration therapy (ORT) in the prevention of dehydration in infantile gastro-enteritis has been well documented.\(^1\) While many mothers know how to mix and administer oral rehydration solution (ORS), few seem to use it when faced with the crisis of an episode of infantile diarrhoea. It therefore appears that although they have acquired the knowledge, there is an implementational problem that decreases the frequency of using ORT. Various methods of preparing ORS have been proposed.\(^2\) The methods taught in the Elim Hospital health ward are:

1. The 'litre-bottle method', in which 8 teaspoons of sugar and 1 teaspoon of salt are dissolved in a litre of water. This is the formal policy of both Elim hospital and Gazankulu.
2. The 'cup method', in which a pinch of salt and a scoop of sugar are dissolved in a standard cup of water.
3. Two years ago the Elim Care Group project supplied each household in one village in the Elim health ward of Gazankulu, Nkuzani, with a Morley (sugar and salt) spoon.

This study was done over a 2-week period in June 1988. The study sample comprised all 35 CG and 100 randomly selected non-CG members in the village of Nkuzani.

Methods

This study was done over a 2-week period in June 1988. The study population consisted of approximately 3000 people in 535 households in one village in the Elim health ward of Gazankulu. The study sample comprised all 35 CG and 100 randomly selected non-CG members in the village of Nkuzani.

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**TABLE I. ORT PRACTICES OF WOMEN IN NKUZANI, GAZANKULU**

<table>
<thead>
<tr>
<th></th>
<th>Would use ORT for diarrhoea</th>
<th>Has used ORT previously</th>
<th>Incorrect ORS</th>
<th>Still has Morley spoon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.* %</td>
<td>No.* %</td>
<td>No.* %</td>
<td>No.* %</td>
</tr>
<tr>
<td>CG</td>
<td>35/35 100</td>
<td>32/35 91</td>
<td>18/35 51</td>
<td>32/35 97</td>
</tr>
<tr>
<td>Non-CG</td>
<td>75/93 81</td>
<td>56/72 78</td>
<td>38/71 54</td>
<td>48/87 55</td>
</tr>
<tr>
<td>Total</td>
<td>110/128 86</td>
<td>88/107 82</td>
<td>56/106 53</td>
<td>80/120 67</td>
</tr>
</tbody>
</table>

Significance \( P < 0.005 \), NS\(^f\) \( P < 0.001 \)

\( ^f \) Of total respondents to that particular question.

\( ^* \) Not statistically significant \( (P > 0.05) \).
If a family was not at home on the day of the survey, a re-visit was done on the next day. In the event of the family being absent on two occasions, that household was considered a non-response. Only mothers or those taking care of children under the age of 3 years were interviewed. Only one mother or child-minder per household was interviewed.

A pilot study was conducted in a village distant from Nkuzani to pretest the questionnaire. Five teams consisting of two interviewers each were trained, visited the households sampled and after obtaining informed consent administered an open-ended questionnaire. If the respondent knew about ORT, she was asked to prepare the solution in front of the interviewers and the method as well as the quantities of water, sugar and salt used were recorded. Ten per cent of the households were revisited to check for inter-observer error. The response on re-questioning the women differed from the original response owing to education on ORT having been given during the first survey. It is therefore difficult to comment on inter-observer variation.

Results

Members of all 35 CG and 93 of 100 non-CG households sampled were interviewed. The results are shown in Table I. The methods used by each group are summarised in Fig. 2. Each method was categorised as being either correct or incorrect, on the basis of whether the ORS was prepared according to official policy (see above). The use of ORT in the village of Nkuzani is summarised in Table II. Seventy-six per cent of respondents said that they would give one cup, and 14% one litre* of ORS at a time. Fifty per cent of non-CG and 57% of CG members would use a teaspoon to administer the solution while one-third in each group would use a cup and just under 10% would use a feeding bottle. Eighty-one per cent of the subjects thought that the episode of diarrhoea would continue for a week or longer if no ORT were given; 71% believed that it would stop within 3 days if ORT were given.

![Fig. 2. Methods of mixing ORS.](image-url)

The women were asked what they would feed a child during an episode of diarrhoea (Table III). Non-lactating mothers were not excluded from the study so that a greater percentage of the mothers who were breast-feeding at the time might continue to do so during an episode of infantile diarrhoea.

* This might be high, since mothers could have been confused with this question having been taught the 'litre bottle' method.
Only 55% of non-CG members could produce the Morley spoon, as opposed to 97% of CG members (P < 0.001). Both CG and non-CG members who had retained the spoon showed a greater knowledge of ORT than those who had not retained it (P < 0.005) and had used it more often in the past (P < 0.001), but there was no difference with regard to whether the solution was correctly constituted.

Discussion

The knowledge and practice of ORT in the village of Nkuzani is substantial. The fact that about half of the women used a method other than the Morley spoon reflects the influence of the health service in teaching a multitude of ORT techniques. This is largely due to the fact that many nurses working at Elim Hospital and its clinics were trained elsewhere. It was shown that the knowledge of the women who had retained the Morley spoon was significantly better than that of the women who had not. This suggests that the giving of a ‘tool’ by the health service might be beneficial in promoting the use of ORT. These women might, however, be a select group who care more about the well-being of their families.

A disturbing finding was that only 47% of the ORS was correctly constituted, irrespective of which method was used. A similar study done in Venda showed that only 27.6% of mothers mixed ORS correctly, 30.3% mixed it incorrectly and 24.2% made a ‘dangerous’ solution, with either too much salt or sodium bicarbonate. (M. J. Teichler — unpublished observations). The incorrectly made solution were not tested for appropriateness of use. There is still a lack of knowledge, or of experience, among mothers and child-minders concerning the correct administration of ORS and a lack of understanding of the reasons for giving it. Fifty per cent of the subjects believed that ORS should be given 3 times daily, and this suggests that it is seen as a ‘medicine’. This view is supported by the fact that 61% of the subjects thought that ORS would stop the diarrhoea. These findings are consistent with those of studies done elsewhere, and reflect the need for innovative health education programmes that are consistent, culturally acceptable and clearly convey the reasons for giving ORS.13-15

A large proportion of Nkuzani mothers would continue feeding their children during an attack of diarrhoea. A significant number would give soft porridge. This finding suggests that a cereal-based ORS may be more appropriate, and requires further evaluation.13-15

There was a significant difference between CG and non-CG members in the knowledge and practice of ORT. This is understandable, since the CG members constitute a group focused on health issues. It is difficult to say how much of this knowledge is transferred to the rest of the community.

Conclusion

We have not been able to demonstrate that the Morley spoon is a better method than any other, but it seems that its introduction did have a positive effect on the use of ORT. To prevent confusion about ORT in the communities, we believe that the teaching of one standardised method is essential. This view is supported by the WHO’s Diarrhoeal Disease Control Programme.2 We must also emphasise that ORT is only a stop-gap in controlling diarrhoeal disease in underdeveloped areas and should not distract attention from far more important water supply and sanitation programmes that will be much more effective in the long term.16

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REFERENCES