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Acute Diarrhoea: Mothers' Knowledge of ORT and Its Usage in Ibadan Metropolis, Nigeria

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ABSTRACT This paper explores indigenous Nigerian perceptions of childhood diarrhoea and its treatment pattern among health care givers in Ibadan metropolis. Furthermore, the paper also addresses the cultural interpretations of dehydration and the perceptions of oral rehydration therapy (ORT). It is suggested that in promoting the use of ORT by the Nigerian government and other collaborative international agencies, the socio-cultural context of the people should be taken into consideration in designing appropriate intervention strategies.

INTRODUCTION

Diarrhoea disease is one of the leading causes of infant and child mortality in Nigeria, where it accounts for an estimated 250,000 deaths per annum (Iyun and Oke 2000). Although, the federal government has contributed appreciable resources towards the reduction of the disease in Nigeria, these efforts have not yielded significant results. The gravity of childhood diarrhoea has been documented by Asakitikpi (2004) in Ibadan city, by far the largest city in Nigeria and the second largest on the African continent next to Cairo. Report of the United Nations' children, education, and scientific fund indicates that more than one child in every five fails to survive to the age of five in Nigeria, and that as high as 40% of these deaths are due to diarrhoea (UNICEF 2004; FMOH 1990). Although these studies confirm that diarrhoeal disease is a major health problem in Nigeria, they necessarily focus on broad demographic data and general morbidity and mortality patterns. They do not delve into the complex complementary area of traditional health beliefs and practices surrounding childhood diarrhoea although there are few exceptions to this observation (Oke et al. 1991; Jinadu et al. 1996; Oni 1996; Yoder and Hornik 1996). The overall aim of this study therefore, was to highlight the culturally relevant matters that might be of utmost importance not only to health workers who are primarily saddled with the responsibility of seeing the pain that families go through regarding the disease but also for policy makers who may need such information in designing appropriate intervention strategies to promote appropriate therapeutic options.

A few researchers have examined the nature of the episodes of diarrhoea (i.e. of mothers' perception of the illness) in their study of treatment choice. De Zoysa and colleagues (1984) in Zimbabwe combined survey and interview data to examine the relationship between mothers' perception of diarrhoea and treatment actions. They found that there was a close relationship between mothers' perception of diarrhoea and the treatment that was sought. However, in examining ORT use among Haitian mothers, Coreil and Genece (1988) found no association between ORT use and perception of specific episodes but they found significant associations between urban/rural residence and the use of ORT. Although researchers have studied and found increases in the knowledge of diarrhoea and ORT use in populations that are exposed to a campaign, increases in knowledge have not been necessarily associated with increases in the use of ORT (Green 1986; Foster et al. 1995; Akpede et al. 1995). This discrepancy is clearly reflected in the Honduras evaluation of Foote and his colleagues in 1985. Foote et al. (1985) made an evaluation before and after an intensive mass media campaign about the knowledge of childhood diarrhoea and ORT with the aim of finding significant associations between knowledge of ORT and exposure to the campaign. They found that those who know so much about diarrhoea and ORT do not necessarily use ORT. One important lesson about this result is that while campaign programmes may recommend the use of ORT for diarrhoea, it is clear that mothers are making more restrictive judgments about its use. This knowledge stimulated Yoder and Hornik (1996) to investigate what factors influence mothers to choose ORT or

alternative treatments of a particular case. Before the 1996 study, they had found that there was a strong association between the severity of diarrhoeal illness and treatment actions among mothers (Yoder and Hornik 1994). But in their subsequent work, they examined the determinants of mothers' treatment choice regarding childhood diarrhoea and found out that there was a strong association between symptoms and severity judgment of the illness (Yoder and Hornik 1996). Some researchers have studied the influence of different factors that affect the use of ORT. Coreil and Genece (1988) for example found that in Haiti, mothers' beliefs about how ORT works (whether it actually cures or replaces lost fluids) determine their treatment preferences (home-made solutions versus packaged ORT), as well as the time allowed between the inception of the illness and when treatment was initiated. It was also found out that prior help seeking at medical clinics was associated with ORT use, but family use of traditional medicines was not. Their findings indicated that literacy and benefit about ORT were important determinants of ORT use in Haiti and should be addressed in health educational programmes. Therefore, the need to improve health education about the role of oral rehydration for diarrhoea is critical to developing countries.

RESEARCH METHOD

This study is part of a larger project that examined the risk factors that were associated with the high incidence of diarrhoea in Ibadan metropolis (Asakitikpi 2004). The study was conducted in the five local government areas (LGAs) that make up the administrative city of Ibadan, the largest settlement in Nigeria. A multi-stage systematic selective procedure was adopted in the whole process of respondents' selection, which relied on systematic random sampling technique to select six hundred women with at least a child below five years old. Firstly, in each of the LGAs, 24 enumeration areas (EAs) were randomly chosen from six cluster areas. Secondly, five households in those EAs were then randomly selected bringing the total number of selected households to 120 per LGAs and a total of 600 households in all, from where the respondents were selected. A triangulation methodology consisting of questionnaire, focus group discussions, and in-depth interviews was the approach adopted to generate appropriate information from the field while case follow-ups and unobtrusive

observation served as ancillary methods in documenting other relevant data. Among other information, the questionnaire collected data on respondents' demographic and socio-economic characteristics as well as mothers' understanding of ORT function and perception of its usefulness towards the survival of children suffering from diarrhoea. Other research instruments were used to gather data on the socio-cultural factors that have direct relevance to mothers' knowledge of ORT and how these factors ultimately influence the adoption of ORT as a therapeutic measure for childhood diarrhoea.

RESULTS

Mothers' Beliefs and Attitude Regarding Childhood Diarrhoea

In-depth interviews and FGDs conducted revealed a wide range of traditional beliefs of mothers regarding childhood diarrhoea. The term diarrhoea (*Igbe-gburuu*) is used to denote a type of illness that is generally viewed as a milestone in the development of children below five years. This condition is explained by the sprouting of the three major sets of teeth: the incisors, canine and premolars. Teeth are believed to cause diarrhoea by the pain that is associated with their eruption. This condition, it is believed, usually causes a child's body temperature to rise, which upsets the stomach and subsequently causes diarrhoea. Furthermore, it was postulated that the teething process generates a lot of saliva in the mouth. The increased swallowing of saliva associated with teething makes the child to become sick by frequent stool passage. These conditions, it was generally believed, result in children's discomfort that leads to fever, loss of appetite, persistent cry, listlessness and diarrhoea. Among the three sets of teeth, the most problematic were believed to be the premolars, which start to appear between 20 months and 36 months.

Mothers' Response Towards Diarrhoea

In the survey conducted, 52% of respondents believed that diarrhoea can be cured, 21% believed that it cannot be cured but would normally go by itself, while others (27%) confirmed that it can go by itself provided there is a shift in dietary pattern. Of those who believed that diarrhoea can be cured, 74% of them prefer modern medicine (*ogun oyinbo*), while only 16% felt that self-medication alone would suffice. Ten percent noted that both

modern medicine and self-medication were to be employed and a large proportion (76%) would do nothing the first two days at the onset of diarrhoea. This group would first "observe" the sick child before any form of treatment is initiated. On the other hand 14% reported that the diet of the child should be changed to more appropriate food while 8% thought that anti-diarrhoea drugs should be purchased over the counter and administered to the sick child. One percent thought that a medical doctor should be consulted and another 1% that ORT should be given immediately.

Respondents' Knowledge of ORT

Although 82% of respondents said they have heard about ORT packet, only 61% were knowledgeable about the therapy as indicated by describing the treatment correctly, recognizing the packet or reciting the home recipe. Only 36% of respondents know of a place where ORT packets could be purchased. The most frequent answer to the question about the perceived mode of action of ORT was the replacement of water loss (32%) while 6% cited the prevention of dehydration. Almost a third of respondents said that ORT stops diarrhoea. While the majority of respondents (62%) were not sure if ORT is an effective treatment for diarrhoea. Two number of respondents (38%) that have a good knowledge of the function of ORT may explain the low patronage of ORT and the high usage of anti-diarrhoea drugs for the cure of the illness which is expressed by the high number of respondents who are not sure of the treatment status of ORT. Respondents' knowledge about ORT was derived from health centres (65%), followed by the media, relatives, friends and neighbours. Only a few respondents (4%) mentioned other sources. The overall pattern appears to be that first, exposure to ORT occurs in a clinical setting, while subsequent encounters take place through personal networks and radio. This result supports the claim by the Campaign against diarrhoeal diseases (CDD) that its campaign and sensitization of mothers regarding ORT was successful.

Correlates of Respondents' Knowledge and Use of ORT

Cross-tabulation of ORT use and choice of method (packets or other local forms of salt-sugar-solution) with first source of information yielded no significant differences. Likewise, perceived

aetiology of diarrhoea (e.g. teething, crawling, and food) was not associated with ORT use. The remaining independent variables were examined in relation to the two measures of ORT knowledge and use (Table 1).

Table 1: Significant correlations* between respondents' social variables and ORT use.

<i>Independent variables</i>	<i>Knowledge of ORT N = 364</i>	<i>Previous ORT USE (N= 145)</i>
Residence	0.27	0.21
Educational level	0.22	n s
Religion	n s	n s
Mothers' age	n s	n s
Clinic Use	0.12	0.15

*Pearson r coefficient significant at 0.05; ns=not significant.

Five independent variables and two dependent variables were analyzed and respondents' variables included place of residence, highest educational level attainment, age of respondents, religion and respondents' use of health centres. The most significant predictor of ORT knowledge and use is residence. Respondents, who lived in highly developed places such as Old and New Bodija, Ikolaba, Iyaganku, and similar areas (characterized by fenced compounds, availability of borehole water and water cisterns, good drainage among other things) knew more about ORT and had more frequently selected the packaged mix than respondents who reside in poorly developed areas such as Agbowo, Bere, Oje and Akpete (characterized by compounds that grade into one another without any fence, with poor drainage, lack of pipe-borne water, and high population density among others). Explanation of this relationship may not be far-fetched. People who live in the highly developed areas are highly educated, and are of high social and economic status than those in the latter areas. It is not to say however, that different categories of people cannot be found in these areas but that the majority forms the cohort for each residential area. Tesfaye et al. (1996) and Hudelson (1993) have reported similar results in Ethiopia and in Managua respectively. The study also showed that the ability to read and write by respondents correlate with knowledge of ORT but not with its use. Contrary to health planners' assumption that ORT usage will increase with incremental knowledge in dehydration and ORT (Clift 1991); this study shows that there is no correlation between knowledge of ORT and its use.

Religion and age of respondents were not associated with any of the dependent measures. However, clinic use correlated with knowledge of ORT. This measure of contact with health services correlated with choice of packaged mix. This result supports the conclusion that the CDD project of distributing oral packets through various health centres was successful in the study area; but knowledge of ORT does not predict its usage. This result is at variance with the common assumption by health campaign officers that an enlightenment campaign programme would necessarily bring about a corresponding use of packaged mix. The result from the study indicates that although some mothers may be aware of ORT, their use of the solution is still restrictive. To understand why mothers made restrictive judgment regarding ORT, respondents were asked about their perception of ORT and why the solution was not used when their children had diarrhoea. Among mothers whose children experienced diarrhoea, but did not use ORT, 42% said that the preparation was too time consuming, and some of these felt that the diarrhoea was "mild". Twenty-one percent said that the child did not like the taste of ORT, and 25% said ORT did not help. Fifty percent of previous users of ORT reported that it was "helpful"; forty-five percent reported that it was "not helpful" and 5% were "not sure" of its efficacy. Of those who considered ORT "helpful" the reasons listed were "replacement of water loss", "stops or helps diarrhoea", "prevents thirst" and "prevents weakness" were the main reasons given, often as multiple responses. Of mothers who believed ORT was not useful 90% said it did not stop or alleviate diarrhoea bouts.

The quantitative results corroborated the case studies monitored as mothers frequently complained of the failure of ORT to stop or alleviate diarrhoea. Some even complained that rather than reduce diarrhoea ORT seemed to aggravate it. To test the assumption if the determinant of ORT use was whether its rehydration function is understood, mothers who used ORT were classified into 2 groups based on their knowledge of the rehydration function of ORT. Thirty-two percent were classified positively and 68% negatively with respect to an understanding of ORT function. Table 2 shows a bivariate analysis of mothers' understanding of ORT by their perception of its usefulness. The results show that 86% of mothers who understood the rehydration function of ORT also thought it

was helpful during diarrhoea while among mothers who did not understand the functions of ORT, 26% thought it was useful while 74% did not. These data support the assumption that user satisfaction is clearly related to knowledge of ORT function.

Table 2: Respondents' understanding of ORT function and perception of usefulness

Understanding of ORT function	Perception of usefulness of ORT		
	Useful	Not useful	Total
Yes	86	-	86
No	10	49	59
Total	96	49	145

$\chi^2 = 12.5$; $P = <0.05$.

It has been reported that in Haiti mothers who hold a "hydration theory model" of ORT are more likely to choose the officially recommended method of ORT preparation using packaged salts, over the home recipe, compared to mothers who hold a "curative theory model" (Coreil and Genece 1988). However, those who understand dehydration and fluid replacement tend to be "late users", waiting for a few days after the episode. On the other hand, among the north Indians, Bentley (1988) found the direct opposite as mothers who do not understand ORT function are more likely to delay its use compared to "hydration model" holders. In this study, it was found that irrespective of mothers' understanding of ORT, they will "observe" the baby for a few days (average, 2 days) before initiating any treatment. The implication of this on the sick child is obvious.

DISCUSSION

This study successfully identifies some of the factors that may be helpful to understand mothers' motivation to use or not to use ORT for the treatment of childhood diarrhoea. Indeed, 62% of the total variance in intention not to use ORT has been explained and the results suggest that the decision not to use ORT is influenced by three major variables: perception of its usefulness, barriers regarding its preparation and zone of residence. The importance of mothers' attitude, which is expressed in terms of their perceived advantages and disadvantage regarding the use of ORT, means that mothers who are aware of the positive consequences of using ORT are more

inclined to use it, than those who perceive the consequence to be negative. In addition, the study reveals that even mothers who know that ORT replaces water loss, stops diarrhoea or prevent weakness and quench thirst also use other forms of treatment in addition. One identified reason for the non-use of ORT in the management of diarrhoea by mothers is their belief that the presence of sugar in the solution may aggravate diarrhoea episodes. The influence of negative beliefs (perceived disadvantage) regarding the use of ORT has also been reported by other researchers as the main obstacle to its use. As is revealed in this study, Jinadu et al. (1996) and Morley (1979) had also found that mothers in other parts of Nigeria believe that the consumption of sugar may worsen diarrhoea episodes. In their explanation for these observations, Coreil and Genece (1988) and Bentley (1988) have suggested that a poor understanding of the effects of ORT may be responsible for this treatment behaviour. Consequently, according to Eisemon et al. (1987), awareness of the importance of using ORT does not imply that ORT benefits are understood.

The contribution of perceived barriers to the prediction of intention to use ORT means that the presence or absence of specific factors has positive or negative consequences upon intention. One of the barriers identified in this study is the unavailability of ORT sachets in most local pharmacy shops. This scarcity can be traced to the massive withdrawal of financial assistance and the importation of ORT sachets by international agencies (primarily the USAID and UNICEF), which started in the wake of the annulment of the June 12, 1993 elections and culminating to the execution of Ken Saro-Wiwa in 1994. This development subsequently led to the suspension of Nigeria from the Commonwealth for five years besides other international sanctions. The negative influence of perceived barriers such as the unavailability of ORT and inaccessibility to health centres providing ORT, have also been identified by other scholars as main factors preventing the adoption of ORT. Iyun and Oke's (2000) findings in Nigeria and those of Coreil and Genece (1988) in Haiti are good examples of the influence that accessibility has on the utilization of health centres and ORT. Some other scholars have also advanced different factors that may influence mothers' motivation not to use ORT. A number of these scholars have indicated the influence of access to alternative

types of care and treatment in the area (Hardon 1987) and mothers' satisfaction (or dissatisfaction) after the first use of ORT on its adoption (Bentley 1988). Nonetheless, in spite of all previous hypotheses, it is very important to recognize that one of the main factors influencing motivations to use ORT may be defined by the socio-cultural context surrounding the population under study (Weiss 1988; Kendall et al. 1984).

Mushtaque and Chowdhury (1986) have suggested that there are different types of beliefs regarding diarrhoea in different cultures. In the population under study, the prevailing causal influences are teething and crawling. It can therefore be speculated that ORT would be used only when diarrhoea is perceived as a consequence of medical factors if other variables are held constant. In contrast, when mothers do not perceive the cause of diarrhoea as being medical, personal attitudes toward the use of ORT and perceived barriers to its use will not be useful for understanding the behaviour adopted by mothers under their circumstances. Hence when a mother believes that the diarrhoea of her child has a non-medical cause this may act as a barrier to the use of ORT. The non-use of ORT by most mothers means that they adopt alternative methods of managing diarrhoea. The most prevailing of this is the use of anti-diarrhoea drugs. The non-patronage of traditional healers in the management of diarrhoea reflects mothers' trust in their own competence in handling diarrhoea illness at home.

CONCLUSION

Behavioural aspects of diarrhoea illness and management in the literature focus on ways to make ORT available where it will do the most good for the sick child. To prevent severe dehydration the campaign against diarrhoea disease in Nigeria emphasizes the importance of training mothers to administer ORT at the inception of the disease. This study has shown that oral rehydration therapy sachet is not a popular management choice for mothers. Although, mothers may be aware of ORT, they still make restrictive judgment of its use in the management of diarrhoea in homes due to the belief that it does not stop diarrhoea and in some instances it is believed to actually aggravate diarrhoea bout. Finally, the study also found out that mothers are unaware of the rehydration function of ORT in relation to diarrhoea

management. Consequently, there is the need for government to pay more attention to the education of mothers and other care givers on the biomedical cause of childhood diarrhoea and the rehydration function of ORT. Because most mothers hold the erroneous view that ORT cures diarrhoea, first time users are usually discouraged from using the therapy subsequently because of the observation that it did not stop diarrhoea episodes. The major reasons therefore, why mothers are making restrictive use of ORT include the scarcity of the sachets, the belief by caregivers that sugar aggravates diarrhoea and thirdly because they are not aware of its rehydration function. Following from this conclusion, dehydration and eventual death of children with diarrhoea can be prevented by properly educating mothers on the importance of ORT towards the survival of children.

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