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Perceived Causes and Management of Diarrhoea in Young Children by Market Women in Enugu State, Nigeria

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ABSTRACT

The aim of the study was to determine the perceptions of mothers regarding the causes and management of diarrhoea of their children aged 0-24 months. In Enugu State, Nigeria, 80 market women whose children had diarrhoea during last 6 months were interviewed fortnightly. When possible, the children were observed to determine the types of diarrhoea and treatments given. Fifty-three of the women brought their children to market, and 27 left their children at home. Seventy-one percent of the mothers perceived that diarrhoea was caused by teething. The most common types of diarrhoea occurring in these children were watery diarrhoea (59%) and the so-called teething diarrhoea (29%). Dysentery (6%) and *jedi jedi* or frothy and mucoid stools (4%) occurred less frequently. In 68% of the cases, drugs were used alone or in conjunction with salt-sugar solution (SSS) or other forms of treatment. These drugs were prescribed by medical personnel (40%), patent medicine dealers (23%), or mothers themselves (30%). About 26% and 39% of the mothers treated, respectively, watery and teething diarrhoeas with drugs only, while 23% used SSS alone. The drugs used were mainly antimicrobials (34%) and a combination of antimicrobial, antimalarial, antacid, analgesic, and some local herbal preparations (21%). The results of the study showed the evidence of unnecessary use of drugs and ignorance about their potential adverse effects. These underscore the need for appropriate primary care education among the market women in Nigeria.

Key words: Diarrhoea, Infantile; Knowledge, attitudes, practice; Drug therapy; Oral rehydration therapy

INTRODUCTION

There are several perceptions regarding the causes and management of diarrhoea among mothers in the rural *Igbo* communities in Nigeria and in other parts of Africa (1-5). For example, teething, bad breastmilk, eating of fresh vegetables, beans (*Vigna unguiculata)*, and sweetened foods are all often blamed for causing diarrhoea. These misconceptions have given rise to mismanagement of diarrhoea, i.e. feeding diarrhoea cases with solid foods, such as roasted yam and cassava foo-foo (cassava paste, steamed), with a belief that these foods would help thicken watery diarrhoeal stools (1-3). These misconceptions are prevalent among women who take care of the health of the family; it may influence the important child-survival technologies, including immunization, oral rehydration therapy (ORT), and breast-feeding (6). The levels of misconception about the aetiology and management of diarrhoeal diseases would vary with the levels of acculturation of education of ethnic groups (4) and socioeconomic status of mothers.

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For a Nigerian woman with multiplicity of responsibilities at home and in the society, correct perception is one thing, and finding time in her busy schedule to put them into practice is another. The traditional task of women, even in the absence of income-generating activities, is in conflict with proper childcare activities by them (7). Market women in eastern Nigeria are engaged in occupations that limit time available for home management, including childcare and food preparation. Apart from this, these women are poorly educated, have fairly large families, have low income, and spend as much as 6-10 hours a day in the market (8). Within this background, this study was carried out to determine the perceptions of Nigerian mothers engaged in trading activities regarding the causes and management of diarrhoea in children.

METHODS AND MATERIALS

The study was conducted in 7 markets–6 in Enugu and 1 in Nsukka, Enugu State, Nigeria. These markets were located either within the city, town centres, or major residential areas. Most markets had pharmacies and patent medicine stores within easy reach. Some were located close to a hospital or doctor's clinic.

The survey commenced with a cross-sectional comparative study of 506 market women who took their children to market (WTCM) and 157 who left their children at home (WLCH) while trading in the market. These women were interviewed, using a structured questionnaire, to collect data on their socioeconomic conditions, infant-feeding practices, incidence of diarrhoea among their children, and management of diarrhoea. Two hundred sixty-three women, who reported incidence of diarrhoea among their children in the preceding month, were interviewed on their perceptions regarding the causes and management of the disease. All 663 women, enlisted in the study, were asked about commonly-used treatment for diarrhoea, their knowledge about the preparation and use of ORT, and salt-sugar solution (SSS). Of the total sample, 216 mother-child pairs were followed up fortnightly for 6 months from September 1993 to February 1994 by trained research assistants. Eighty women whose children developed diarrhoea within the 6-month surveillance period were interviewed and, where possible, observed. These included 53 children who were taken to market and 27 children who remained at home. Mothers of these children were asked about the type of diarrhoea perceived (inquiring about the vernacular expression of the type), the type of treatment given, names of pharmaceutical(s) used and who prescribed them, and finally, whether SSS was used.

The data were coded in a personal computer and analyzed using the Epi Info statistical package, Version 6 (CDC, Atlanta, Georgia, USA). Analyses were done using frequencies and cross tabulations to determine the relationship between variables. Chi-square test was used for comparing the categorical variables.

RESULTS

The mothers in the study could identify 4 types of diarrhoea: 2 commonly-known local names as *afo eze* (teething diarrhoea) and *afo osisa* or *afo onunu* or *afo ogbugba* (watery diarrhoea), and the other 2 are dysentery (stool mixed with blood) and *jedi jedi* (Yoruba name for frothy and mucoid diarrhoea). Eighty mothers whose children developed diarrhoea within 6 months of the study could identify the 4 types of diarrhoea among their diarrhoeic children with the frequencies given in Table 1.

Table 1. Types and duration of diarrhoea occurring in children of market women in Enugu State*

Type of diarrhoea	Frequency of occurrence (%)	Duration in days Median (range)
Watery diarrhoea (*afo asisa*)	47 (58.8)	2 (1-14)
Teething diarrhoea (*afo eze*)	23 (28.8)	3 (1-7)
Dysentery (stool+blood)	5 (6.3)	4 (1-7)
Others**	5 (6.3)	4 (1-7)
Total	80 (100)	

*Data pooled for women who took their children to market (WTCM) and women who left their children at home (WLCH); **Others include 3 (3.8%) cases of *jedi jedi* (frothy and mucoid stool) and 2 (1.5%) cases of unspecified diarrhoea

More children (58.8%) suffered from watery diarrhoea, followed by 28.8% who were said to have teething diarrhoea. These two types of diarrhoea in each patient lasted for 1-14 day(s), median 2 days (watery diarrhoea) and 1-7 day(s), median 3 days (teething diarrhoea). Fewer children had dysentery (6.3%) or *jedi jedi* (3.8%), but these types of diarrhoea persisted slightly longer (1-7 day(s), median 4 days). Of the 263 mothers (199 WTCM and 64 WLCH) whose children had diarrhoea in the month proceeding the study, teething was perceived as the major cause of diarrhoea in them (69.8%-71.9%), while fewer mothers perceived the type of food (<5%) given to the children, dirty water (<3%), and other factors (14%) as causes of diarrhoea (Table 2).

Table 3 shows the perceived diarrhoea-management strategies among the 663 market women (506 WTCM and 157 WLCH). More women (35.8%) of WTCM and 33.8% of WLCH perceived administration of SSS singly, while 18.4% of WTCM and 23.6% of WLCH considered administration of pharmaceuticals alone. Only 11.9%

Table 2. Perceived causes of episodes of diarrhoea in the last month in children of market women in Enugu State*

Cause	WTCH (n=199)** No.	%	WLCH (n=64)** No.	%
Teething	139	69.8	46	71.9
Type of food	9	4.5	3	4.7
Dirty water	6	3.0	2	3.1
Other causes	26	13.1	9	14.1
Do not know	13	6.5	4	6.3
No response	6	3.0	-	-
Total	199	100	64	100

*Data from cross-sectional survey (interview); **Number from the total sample population with a child that had an episode of diarrhoea in the last month

Table 3. Perceived causes and treatment of diarrhoea by market women*

Treatment of diarrhoea†	WTCM (n=506) No.	%	WLCM (n=157) No.	%
SSS	181	35.8	53	33.8
Pharmaceuticals	93	18.4	37	23.6
SSS and doctor	60	11.9	10	6.4
Pharmaceuticals and SSS	36	7.1	20	12.7
Doctor/health centre	58	11.5	14	8.9
Others	36	7.1	4	2.5
No response	42	8.3	19	12.1

*Data from cross-sectional survey (interview); †One response accepted; SSS=salt-sugar solution

diseases; 65.6% of WTCM and 56.1% of WLCH, could prepare SSS correctly, while 23.3% and 26.1% of the respective groups would prepare it incorrectly (Table 4). Others (11-18%) could not either remember how to prepare SSS or never knew how to prepare it, or declined response. When asked about other family members who could prepare SSS, 68.2% of WTCM and 70.7% of WLCH responded that none could. Other responses on the ability of the husband, household help, older siblings, etc. are shown in Table 4.

In total, about 55% of the women used SSS singly or in combination. The most common reason given for not administering SSS was that diarrhoea was considered not serious (43%). This was followed by the belief that drugs were more effective (30%) in the treatment of diarrhoea. Only 11% of the women did not use SSS because its preparation was considered time-consuming. Other less-frequently expressed reasons included "doctor did not prescribe it" (6%) and "child does not like it" (3%). Four mothers did not give any reason for not using SSS.

Of the 80 mothers whose children developed diarrhoea within 6 months of the study period, different remedies were applied according to the perceived types of diarrhoea (Table 5). 28.8% of those women administered pharmaceuticals only, 33.8% used pharmaceuticals and SSS, and 5.0% used pharmaceuticals in conjunction with uncooked corn

Table 4. Awareness and knowledge of preparation of salt-sugar solution by market women and their family members

Mother's responses about	WTCM (n=506) No.	%	WLCH (n=157) No.	%
SSS awareness	489	96.6	148	94.3
SSS preparation				
Correct	32	65.6	88	56.1
Incorrect	118	23.3	41	26.1
Cannot remember/prepare	46	9.1	21	13.4
No response	10	2.0	7	4.5
Other family members who can prepare SSS				
Husband	76	15.0	11	7.0
Household help	15	3.0	9	5.7
Old children	35	6.9	9	5.7
Mother's sister	11	2.2	5	3.2
None	345	68.2	111	70.7
Others	7	0.3	4	70.7
No response	17	3.4	8	5.1

of WTCM and 6.4% of WLCH would consult a physician while applying SSS, and 11.5% of WTCM and 8.9% of WLCH would take diarrhoeal child to a physician or to a health centre.

More than 90% of both WTCM and WLCH were aware of SSS as a treatment strategy in diarrhoeal

starch gruel (*pap*). SSS was given singly by 17.5% of the mothers, and SSS and other things by 3.8%. Herbal remedies were sought by 3.8%, while 7.5% applied no treatment whatsoever. In 40% of the cases, drugs were prescribed by the medical personnel. The patent medicine dealers prescribed in 23% of the cases, while 30% of the mothers prescribed themselves.

Table 5. Treatment patterns for various types of diarrhoea by market women in Enugu State, Nigeria*

Treatment	Watery (n=47)		Teething (n=23)		Dysentery (n=5)		Others (n=5)		Total (n=80)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Pharmaceuticals	12	25.5	9	39.1	2	40.0	-	-	23	28.8
Pharmaceuticals + SSS	16	34.1	8	34.7	1	20.0	2	40.0	27	33.8
Pharmaceuticals + raw pap	1	2.1	2	8.7	1	20.0	-	-	4	5.0
SSS only	11	23.4	2	8.7	-	-	1	20.0	14	17.5
SSS and others	1	2.1	1	4.3	-	-	1	20.0	3	3.8
Herbal preparation	3	3.8	-	-	1	20.0	1	20.0	3	3.8
No treatment	5	10.5	1	4.3	-	-	-	-	3	7.5
Total	47	58.8	23	28.8	5	6.3	5	6.3	80	100

*Data pooled for WTCM and WLCH

The types of drugs administered included antimicrobials (33.9%), mixtures of antimicrobials and others (21.4%), teething powder (7.1%), antacid/multivitamins (5.4%), antidiarrhoeal drugs (3.6%), antispasmodics (3.6%), and some unknown substances (25.0%).

DISCUSSION

The study highlighted the local belief that teething causes diarrhoea, a misconception that is not only prevalent in Nigeria but also in other parts of the world (1-5,9,10). This is related to ethnic groupings, rural or urban status (11), educational level (3), and socioeconomic status. This belief has serious implications with respect to attitude of mothers to, and management of, diarrhoea cases. Thus, diarrhoea is regarded as a normal phenomenon that must accompany a major milestone–teething–in the child's development and "there is nothing anybody can do about it." Secondly, the market women, with such a perception on the aetiology of diarrhoea, fail to recognize or acknowledge that the poor personal and environmental hygiene practices can contribute to the incidence of diarrhoea among their children. This situation needs to be remedied by providing mothers appropriate health education.

As the two most common types of diarrhoea–watery and teething diarrhoeas–occurring among the children of the market women seem to present similar symptoms, these may as well be resulted from the same condition. Nevertheless, the management strategies, adopted by these mothers, indicated a difference between the types of diarrhoea. The higher use of pharmaceuticals in teething diarrhoea could be due to the accompanying fever experienced by the children. Infection can also produce fever in a child with diarrhoea. Apparently, the mothers who left their children at home reported higher use of pharmaceuticals either singly or in combination with other treatment strategies (36%) than by the mothers who took their children to the market (25%). One may be led to assume that, since very few family members could prepare SSS, the mothers who left their children at home presumably would meet their diarrhoeic children in worse condition at the end of the day's trading activity, and in panic, would opt for what they may consider quick-acting remedy–the drug. This difference between WLCH and WTCH was not, however, evident among the women whose children had diarrhoea within the 6-month surveillance period. This is not surprising due to the problem of recall bias and under- or over-reporting of behaviour that could occur during interviews. In their study of hygiene behaviours in Burkina Faso, Curtis *et al*. (12) found that data collected through direct observations had greater validity than those obtained through questionnaire interviews which tended to overestimate the frequency of good practices. It is, therefore, possible to conclude that, generally, a high proportion of these women still relied on pharmaceuticals, instead of using SSS, for the management of diarrhoea.

Factors contributing to the high use rates of drugs included: lack of knowledge, irrational prescription of drugs even among physicians, non-enforcement of drug regulations, and deceptive encouragement from patent medicine dealers on account of higher profit margin of antidiarrhoeal drugs over oral rehydration sachets (13-16). That medical personnel and patient medicine dealers encourage use of drugs was evident in this study. The mothers reported that the doctors or nurses prescribed drugs in 39% of the cases, while the patent medicine dealers prescribed in 23% of the cases. The multiplicity of patent medicine stores in and around the markets and residential areas makes them handy for mothers whose children develop diarrhoea to obtain and administer drugs as a first line of action before preparing SSS. These factors, notwithstanding the mother's belief in the superior efficacy of drugs, remain the major constraint to breaking the habit. It is important to note that 25% of these mothers did not know the names of the drugs given or prescribed. Some described the drugs according to their colours, e.g. "*red and yellow capsules*." Of special concern is the "mixed drugs" that contain a wide range of pharmaceuticals of no benefit

to the children, and may have adverse effects. The indiscriminate use of antimicrobials with no proven efficacy in the treatment of acute diarrhoea raises serious problems. Widespread abuse of antimicrobials results in increased levels of antibiotic resistance among *Shigella* spp. and other bacteria compromising the effective therapy of diarrhoeal diseases requiring antibiotics (17). This practice could also lead to unpleasant actions of drugs, especially when these are prescribed by unqualified medical personnel.

Although awareness of SSS was as high as 95%, only 35% of the mothers stated that they would use the formulation alone in treating diarrhoea. And even a lower proportion of mothers whose children had diarrhoea during the study period used SSS–23% for treating watery diarrhoea and 9% for teething diarrhoea. Mothers would readily excuse their non-use of SSS on the pretence that diarrhoea was not serious, which may reflect their attitude formed from poor perception of the cause of the disease, or that drugs were more effective. It was interesting to find that as many as 78% of the mothers knew correctly that SSS gives strength to the child. No wonder the use of a combination of pharmaceuticals and SSS was high; while the drug stopped the diarrhoea, SSS gave strength. Although SSS does not actually stop diarrhoea, WHO recommends antimicrobial agents for only a small proportion of cases, including *Shigella*-associated dysentery, cholera, and laboratory-confirmed cases of amoebic dysentery and giardiasis (18). The fact that most of these mothers believe SSS strengthens the child gives hope that with intensification of health education, many more would be persuaded or encouraged to use SSS, and limit the use of drugs.

In conclusion, this study has shown the danger to which children of market women are exposed as a result of poor management of diarrhoea. It has also highlighted the poor prescribing habits of physicians and other health workers as well as the role of patent medicine dealers in the use of drugs for diarrhoea. It strengthens the need for appropriate intervention in the marketplaces. Based on the above, the study recommends the following: (1) Governments, health professionals, and non-government organizations (NGOs) should provide appropriate health education to include topic on management of diarrhoea for market women, using the appropriate local taxonomy/ terminology for different types of diarrhoea; (2) Health personnel and patent medicine dealers should be properly trained to help change their prescribing habits by organizing conferences, seminars, and workshops for those in the field; (3) The existing laws and regulations should be enforced for guiding the establishment of medicine stores, particularly in the markets; and (4) Health units should be established in the marketplace, so that the Control of Diarrhoeal Diseases programme can target market women and their children.

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