

Awareness regarding diarrhea, its prevention, and oral rehydration therapy among mothers of under-five children in urban slums of Bengaluru

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Abstract

Background: Diarrhea is the second most important cause of under-five mortality globally in spite of it being easily preventable and curable. This is largely due to the lack of knowledge among mothers regarding cost-effective interventions tackling diarrheal diseases.

Objective: To assess the awareness about diarrhea, its prevention, and oral rehydration therapy (ORT) among mothers of under-five children in urban slums of Bengaluru, Karnataka, India.

Materials and Methods: It was a cross-sectional study conducted among 280 mothers of under-five children in urban slums of Bengaluru. The data were collected using pretested semi-structured questionnaire administered to eligible mothers using personal interview method. Descriptive statistics and tests of significance were used in analysis of data using Epi Info software, version 7.

Result: Of 280 mothers interviewed, less than one-fourth (24.3%) knew the correct meaning of diarrhea, with three-fourths (73.8%) of them not knowing the correct cause of diarrhea. Only 44.3% mothers knew that diarrhea can be prevented. Majority (88.7%) did not know to look for signs of dehydration. Less than half of the mothers had heard of ORT. By using χ^2 -test, preparation of oral rehydration salts (ORS) was found to be associated with the education of the mother ($p = 0.04$) proving that knowledge is better among those mothers with formal education. No association was found between ORS preparation and age of the mother ($p = 0.229$), religion ($p = 0.342$), and gender of the child ($p = 0.061$).

Conclusion: Awareness regarding diarrhea, its prevention, and ORT was found to be lacking among mothers in urban slums.

KEY WORDS: Diarrhea, oral rehydration therapy, under-five mortality

Seldom do we have in our hands the means to improve the lives of so many in such a short time, at such low cost. Let us work together to realize the full potential of ORS.

James P Grant

Introduction

Diarrheal diseases remain the second most leading cause of death next to pneumonia among under-five mortality globally, contributing to one-fifth of child deaths. It kills more children than AIDS, malaria, and measles combined.^[1,2] It is also the leading cause of death during emergencies and natural disasters. It is more prevalent in developing countries largely due to lack of safe drinking water, inadequate sanitation, and poor hygiene, adding to the plight of poorer overall health and nutritional status.^[2] Of diarrheal deaths, 88% is attributable to unsafe drinking water, inadequate sanitation, and poor hygiene.

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International Centre for Diarrhoeal Disease Research, Bangladesh, considered leader in diarrheal research is credited with the discovery of oral rehydration therapy (ORT) and zinc supplementation, which is saving millions of children worldwide from diarrheal deaths. Bangladesh also became the first country to scale-up ORT as a national program. It also promoted active participation of mothers in diarrheal treatment, particularly administration of oral rehydration salts (ORS) so that they are equipped with the confidence to treat it themselves. It also focused on improvement of hygiene, safe water, and sanitation through community-led approaches.^[2] Success in these interventions gave much needed evidence for the World Health Organization (WHO) to promote these measures and a benchmark for other countries.

Millennium Development Goals (MDGs) called for a reduction in under-five mortality by two-thirds between 1990 and 2015.^[3] Strategies followed by international agencies centered toward scaling up the use of ORT, zinc supplementation, and education regarding its appropriate usage for those in need with focus on cultural/hygienic factors. ORS is one of the most important medical advances of twentieth century. Low-osmolality ORS is preferred now because it reduces stool output by 20%, vomiting by 30%, and the need for intravenous fluid administration by 33% in comparison to regular ORS. Zinc supplementation reduces the duration of diarrhea by one-fourth and 40% reduction in treatment failure and death in persistent diarrhea. Washing hands with soap is cited as one of the most cost-effective public health intervention, reducing incidence by over 40%. But only 39% children with diarrhea in developing countries receive ORT and continued feeding. Only 22% children drink more fluids of any type during diarrhea.^[2] It is thus proven that children die not due to the lack of interventions but due to services provided and those at risk of not being reached.

Since United Nations Secretary General launched "Every woman Every Child" initiative for women's and children's health in 2010, a global movement has grown that is committed to end preventable causes of death among children.^[4] To intensify efforts to achieve MDGs, the WHO/UNICEF introduced Global Action Plan for Prevention and Control of Pneumonia and Diarrhoea (GAPPD), which said that commitment to ensure 80% of world's children having access to interventions and immunization to 90% of children will ensure elimination of diarrhea by 2025. Seven-point program was launched with two elements relating to treatment and five elements toward prevention. Two elements in treatment of diarrhea were fluid replacement with low-osmolality ORS to prevent dehydration and zinc treatment to prevent severity and duration of diarrhea in addition to continued feeding, including breast-feeding and use of appropriate fluids available at home if ORS is not available. Preventive elements included Rota and measles vaccination, promotion of early and exclusive breast-feeding with vitamin A supplementation, promotion of hand washing with soap, improvement of water supply including treatment and safe storage of household water, and promotion of community-wide sanitation.^[4,5]

In India, Reproductive, Maternal, Newborn, Child and Adolescent Health program under National Health Mission comprehensively integrates interventions to improve child health and address factors contributing to infant and under-five mortality. It includes Integrated Management of Neonatal and Childhood Illnesses (IMNCI), home-based newborn care, promotion of early and exclusive breast-feeding, and universal immunization. Strategies mainly focus on improving skills of health-care workers, strengthening health-care infrastructure, and involving communities through behavior change communication.^[3]

Objective

To assess the awareness regarding diarrhea, its prevention, and ORT among mothers of under-five children in urban slums of Bengaluru, Karnataka, India.

Materials and Methods

This was a cross-sectional study conducted from January to June 2013 among 280 mothers of under-five children residing in the urban slums of Bengaluru. Mothers of under-five children residing in urban slums at the time of the survey and those willing to participate were included in the study.

Seven slums were selected in Bengaluru and population proportionate sampling was done. The data were collected by house-to-house visit using personal interview method. A pre-tested and semi-structured questionnaire was administered to eligible participants. The questionnaire contained details regarding sociodemographic data of the family, questions regarding awareness about diarrhea, preventive measures, and ORT. The data were entered in Microsoft Excel sheet and analyzed using Epi Info software, version 7.

Statistical Analysis

Descriptive statistics and χ^2 -tests were used and data were presented using tables and graphs.

Results

Among 280 mothers interviewed, more than three-fourths (212, 75.7%) were illiterates and majority of them (261, 93%) were unemployed. Of them, 70% (196) were Hindus, 27% (76) were Muslims, and 3% (8) were Christians. More than three-fourths (220, 78.5%) belonged to nuclear families. Mean age of children was 2 years 2 months. More than half of the children were male (148, 52.8%). Immunization was up to date in 93% children.

Less than one-fourth of the mothers (68, 24.3%) knew the correct meaning of diarrhea. Table 1 shows that almost three-fourth (207, 73.8%) of the mothers did not know the correct cause of diarrhea with some feeling indigestion of food (11.4%), dosha (1.7%), and teething (2.8%) as the cause. About 124 mothers (44.3%) knew that diarrheal diseases can

Table 1: Causes of diarrhea according to mothers

Cause of diarrhea	N (%)
Contaminated food or germs	73 (26.2%)
Indigestion of food	32 (11.4%)
Teething	8 (2.8%)
Dosha	5 (1.7%)
Don't know	162 (57.9%)

Table 2: Preventive measures against diarrhea according to mothers

Precautions taken ^a (n = 124)	N (%)
Proper hand washing with soap	48 (38.7%)
Give boiled and cooled drinking water	104 (83.9%)
Covering the food-containing utensils	28 (22.5%)
Proper sanitation	8 (6.4%)

^aMultiple options.

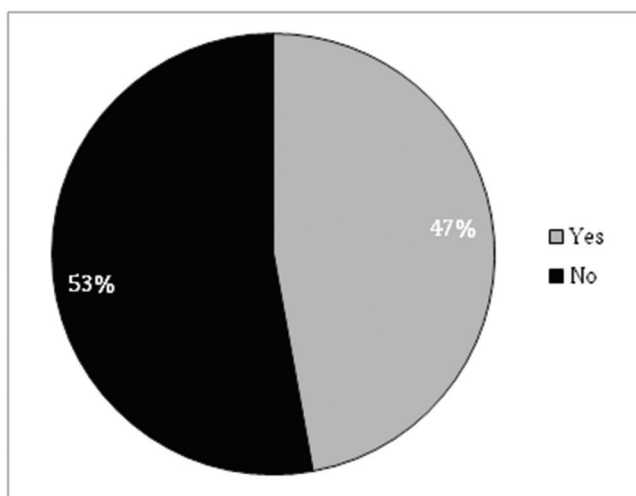


Figure 1: Mothers who had heard about ORT.

be prevented. Table 2 shows the means by which mothers felt that diarrhea can be prevented. Majority felt that giving boiled and cooled drinking water (83.9%) prevents its occurrence. Some of them also felt that proper hand washing with soap (38.7%), covering food-containing utensils (22.5%), and proper sanitation (6.4%) also prevent incidence of diarrhea. In all, 248 (88.7%) mothers did not know how to look for signs of dehydration.

Figure 1 shows that only 132 mothers (47.2%) had heard of ORS. Of those who had heard of ORS,

- more than three-fourth (100, 76%) knew that ORS is used in diarrhea.
- information regarding ORS was received from doctors (92, 69.6%) and nurses (32, 24.3%).

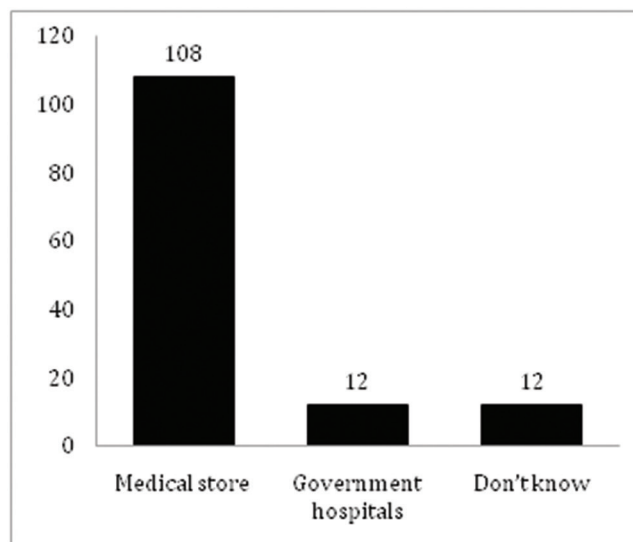


Figure 2: Knowledge regarding place of availability of ORS sachets among mothers.

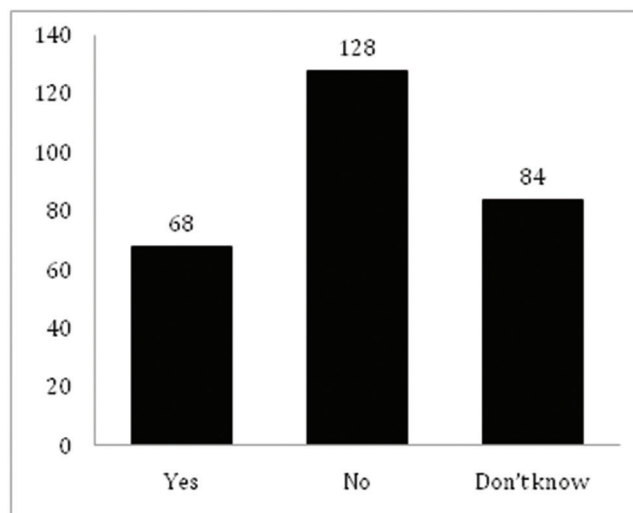


Figure 3: Knowledge regarding continued feeding during diarrhea among mothers.

- only 12 mothers (9%) knew that ORS packets are available in all government hospitals and that too free of cost [Figure 2]. Majority of them (81.8%) went to medical stores to buy it.
- 60 mothers (45.4%) did not know when to start ORT and 52 (39.4%) waited for doctor's advice to start ORT.
- only 87 mothers (66%) knew how to prepare ORS solution.

Figure 3 shows that only 68 mothers (24.3%) were aware that regular food intake should be continued during diarrheal episodes. None of the mothers had heard of rotavirus vaccine.

By using χ^2 -test, preparation of ORS was found to be associated with education of the mother ($p = 0.04$), proving that better knowledge is among those mothers with formal education. No association was found between ORS preparation and age of the mother ($p = 0.229$), religion ($p = 0.342$), and gender of the child ($p = 0.061$).

Discussion

In our study, infection was considered as a cause of diarrhea by 26.2% mothers, which is similar to the finding in the study conducted by Uchendu et al.^[6] Teething was considered major cause of diarrhea by 52.6% mothers in the study conducted by Uchendu et al.^[6] but only 2.8% mothers felt so in our study. In a study carried out by Ahmed et al.,^[7] 40% mothers could identify signs and symptoms of dehydration but only 11.3% could identify these in our study. In our study, 34.3% mothers continued feeding during diarrheal episodes, which is better in comparison to 15% mothers in the study conducted by Omoro et al.^[8] In this study, 45.7% mothers stopped feeding their children during diarrhea, which is similar to the findings in a study carried out by Ahmed et al.^[7]

In our study, 47.2% mothers had heard of ORS. In a similar study conducted by Pahwa et al.,^[9] 71.1% mothers, that by Kadam et al.,^[10] 89% mothers, and that by Ahmed et al.,^[7] 3% mothers had heard of ORS. In our study, 31% mothers interviewed knew the correct method of preparation of ORS in comparison to 9.1% in a study carried out by Pahwa et al.,^[9] 25% in a study by Ahmed et al.,^[7] and 57.8% in a study by Ahmed et al.^[11] Association was found between ORT knowledge and maternal education status in our study but no such association was found in the study conducted by Uchendu et al.^[6]

Conclusion

Awareness regarding diarrhea, its prevention, and ORT was found to be lacking among mothers in urban slums. The gravity of this lack of awareness stems from the fact that mothers are the immediate care takers in the event of diarrheal disease in the child and there is an increased risk of the same taking into consideration the poor socioeconomic and living conditions in these slums. There is an urgent need to educate the mothers regarding the importance of preventive and treatment measures in diarrheal diseases.

References

1. World Health Organization. *Diarrhoeal Disease*, 2013. Available at <http://www.who.int/mediacentre/factsheets/fs330/en/> (last accessed on January 26, 2015).
2. World Health Organization. *Diarrhoea : Why Children Are Still Dying and What Can Be Done*, 2009. Available at http://whqlibdoc.who.int/publications/2009/9789241598415_eng.pdf?ua=1 (last accessed on January 13, 2015).
3. Ministry of Health and Family Welfare. *Child Health Programme*, 2013. Available at <http://www.mohfw.nic.in/WriteReadData/l892s/CHAPTER 5.pdf> (last accessed on January 13, 2015).
4. Chan M, Lake A. Integrated action for the prevention and control of pneumonia and diarrhoea. *Lancet* 2013;381(9876):1436–7.
5. World Health Organization. *Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025 The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)*, 2013. Available at http://apps.who.int/iris/bitstream/10665/79200/1/9789241505239_eng.pdf (last accessed on January 30, 2015).
6. Uchendu UO, Emodi IJ, Ikefuna AN. Pre-hospital management of diarrhoea among caregivers presenting at a tertiary health institution: implications for practice and health education. *Afr Health Sci* 2011;11(1):41–7.
7. Ahmed IS, Eltom AR, Karrar ZA, Gibril AR. Knowledge, attitudes and practices of mothers regarding diarrhoea among children in a Sudanese rural community. *East Afr Med J* 1994;71(11):716–9.
8. Omoro R, O'Reilly CE, Williamson J, Moke F, Were V, Farag TH, et al. Health care-seeking behavior during childhood diarrheal illness: results of health care utilization and attitudes surveys of caretakers in western Kenya, 2007-2010. *Am J Trop Med Hyg* 2013;89(1 Suppl):29–40.
9. Pahwa S, Kumar GT, Toteja GS. Performance of a community-based health and nutrition-education intervention in the management of diarrhoea in a slum of Delhi, India. *J Health Popul Nutr* 2010;28(6):553–9.
10. Kadam DM, Hadaye R, Pandit D. Knowledge and practices regarding oral rehydration therapy among mothers in rural area of Vasind, India. *Nepal Med Coll J* 2013;15(2):110–2.
11. Ahmed R, Malik IA, Iqbal M, Nawaz M, Azim S, Bukhtiar N, et al. The use of ORS in management of childhood diarrhoea by mothers in the suburbs of Rawalpindi-Islamabad *J Pak Med Assoc* 1990;40:178–82.

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