

Millennium Development Goal 4 and the knowledge of mothers on the prevention of diarrhea among children under five years

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Accepted 10 September, 2013

ABSTRACT

Diarrhea episodes among children under five years with its devastating consequences have been an issue of grave concern to stakeholders in child survival strategy programs. Stakeholders who are very key in the prevention of diarrhea among children are mothers or care givers of these children. The objectives of the study were to identify the associated causes of diarrhea among children under five and to find out the knowledge of mothers on its prevention. A non-probability sampling method was used to select 300 respondents for this study. Self-administered questionnaires were administered to respondents for the study. The data obtained from the study was analyzed using SPSS. The study revealed that the majority of respondents started introducing complementary feeds and water to their children before the age of six months. In addition, the majority of respondents reported not washing their hands before breastfeeding, and after visiting the toilet. The majority of respondents had no idea of the causes of diarrhea; even though the majority of the respondents thought it can be prevented. It is recommended that in order to curtail the problem of diarrhea among children less than five years, mothers should adhere to nutrition and hygiene promotions programmes and give priority to exclusive breastfeeding, safe disposal of fecal matter, and effective hand washing before breastfeeding and after visiting the toilet.

Keywords: Knowledge of mothers, prevention, diarrhea, children under five.

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INTRODUCTION

Diarrheal disease and its complications remains a major cause of morbidity and mortality in children, especially in developing countries (Cooke, 2010). The World Health Organization (WHO) estimates that over 2.2 million deaths due to diarrheal infections occur annually, especially among children under five years of age (WHO, 2012) and without aggressive efforts to control diarrheal disease, Millennium Development Goal 4 which is to reduce childhood mortality by 2015 will remain out of reach. More than half of these cases are in Africa and South Asia where bouts of diarrhea are more likely to result in death or other severe outcomes (WHO/UNICEF, 2004). In sub-Saharan Africa, mortality caused by acute diarrhea varies from 1.9% of all deaths in Gambia to 37% in Nigeria, with most of the deaths occurring during the first year of life (WHO/UNICEF, 2004).

In Ghana, diarrhea has been identified as the second

most common health problem treated in outpatient clinics. Statistics from the Ministry of Health indicate that, diarrhea accounts for 84,000 deaths annually in Ghana, with 25% being children under 5 years (Osumanu, 2007).

Improving access to safe drinking water and adequate sanitation, as well as promoting good hygiene, are key components in preventing diarrhea yet according to the WHO/UNICEF (2012), 2.5 billion people have no access to improved sanitation facilities, and if the current trend continues it is estimated that by 2015, 2.4 billion people will lack access to improved sanitation facilities. Within Africa, about 60% do not have hygienic toilet facilities (WHO/UNICEF, 2012).

To curb the diarrhea menace, the WHO and UNICEF (WHO/UNICEF, 2004), set out a 7-point plan that includes a treatment package to reduce childhood diarrhea deaths, as well as a prevention package to

make a lasting reduction in the diarrhea burden in the medium to long term. The 7-point plan includes; fluid replacement to prevent dehydration, zinc treatment, rotavirus and measles vaccinations, promotion of early and exclusive breastfeeding and vitamin A supplementation, promotion of hand washing with soap and enough water, improved water supply quantity and quality, including treatment and safe storage of household water and community-wide sanitation promotion.

Statement of the problem

Diarrhea and diarrheal diseases especially among children under five years of age is ranked second among the top ten diseases in Donkorkrom Presbyterian Hospital in the Afram Plains District. The role of mothers in the management of diarrhea is pivotal. Substantial research has been done on the causes of diarrhea (Rudan et al., 2007). However, in caring for their children, mothers are not aware on the associated causes and the prevention of diarrhea. This is the missing link in the literature, which is the focus of this study.

Objectives of the study

The objectives of this research were to identify the associated causes of diarrhea among children under five in Donkorkrom and to find out the knowledge of mothers on its prevention.

Research area

The study took place in Donkorkrom which is the capital of the Kwahu North District (Afram Plains); with a projected population of 90,137 children under five years. The district capital, Donkorkrom and a nearby community, Adeemmra are the only communities in the district with pipe borne water system. Other communities in the district have their sources of water to be either hand-dug wells or boreholes. Some of the communities especially those on the islands depends on streams and the Volta River as their source of water supply. The district has just a few sanitary facilities and most of the people resort to "open defecations" (Presbyterian Church of Ghana, 2011).

METHODOLOGY

Target population and sampling size

The target population was mothers of children under five years residing at Donkorkrom. A non-probability sampling was used to select a total of 300 mothers with children under the age of five years. Self-administered questionnaires were used to gather data

about the associated causes of diarrhea among children under five and to find out the knowledge of mothers on its prevention. Since the mothers could read and write, the questionnaires were given to the mothers to fill at their own conveniences and later submitted to the researcher. It took the respondents an average of one month to respond to the self-administered questionnaires. The data was analyzed using Statistical Package for Social Sciences (SPSS) software. Consent was obtained from the mothers before administration of the questionnaires.

FINDINGS

Feeding practices

Respondents were asked when they started breastfeeding their children and 86% said they started within 24 h of delivery, 10% maintained after 24 h of delivery and 4% were not sure of the time. Respondents were further asked, how long did they breast feed their children and 4% of respondents stated that the total duration of breastfeeding was between 0 and 5 months, 8% said between 6 and 11 months, 76% stated between 12 and 17 months and 10% stated after 18 months, while 2% could not recollect.

Introduction of complementary feeds

Respondents were asked when did they introduce complementary feeds to their children and 76% of the respondents gave their children water before they were six months of delivery and 20% stated after six months. In addition, 70% of the respondents introduced artificial feeds before six months, while 20% gave artificial feeds to their babies after six months.

Further enquiries revealed that respondents were aware of the exclusive breastfeeding but underestimated its importance in the prevention of diarrhea. Again, 56% of respondents introduced artificial feeds out of their own desire, 32% said they were encouraged by their family members, 6% stated they were advised by their friends, 4% stated by health workers and 2% did not respond to the question.

When asked which utensils were used in weaning children, 38% of the respondents said they used feeding bottles in feeding their children while 46% used cups and spoons, and 17% said they used other utensils, such as bowls and plates in feeding their babies (Figure 1).

Handling of left over foods

Respondents were asked on the practices of handling left over foods. The minority of the respondents 36% stated they did not store their children's left over feeds while the majority 54% stated they stored the left over foods. When asked where the food was stored, 70% stated that the leftover food was stored in food flasks, 22% stored the

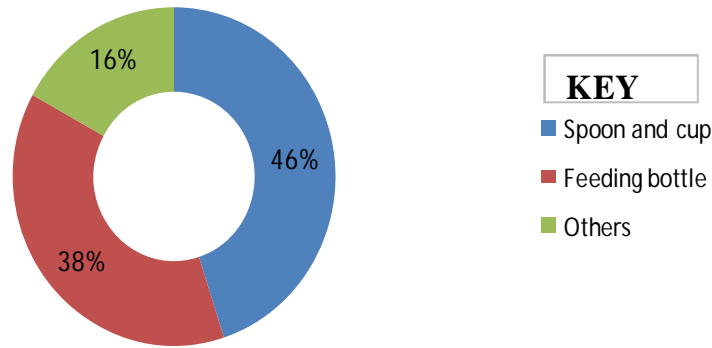


Figure 1. Utensils used for weaning.

food in a bowl with cover and placed in water and 8% stored their children's left over food in the refrigerator.

Sources and storage of drinking water

Respondents were questioned on their sources and storage of drinking water. Majority (90%) of the respondents said their source of domestic water is treated pipe water, while the minority (8%) stated from a hand dug well and 2% stated from a stream of water. Furthermore, 80% of respondents said in times of water shortage they relied on well water as their source of water, and 10% said pipe water. When asked how water was stored, 42% of respondents stated they stored their water in a metal/plastic barrel with covers, 16% said they stored their water in a refrigerator, 4% said in a bucket with covers, and 6% respondents stored the water in bottles with covers.

Hygienic practices

Instances when hand washing is done

Respondents were asked if they washed their hands before breast feeding and feeding their children, and 28% responded "yes" and 72% responded "no". When asked if the respondents practiced hand washing after visiting the toilet, 44% responded in the affirmative while 56% in the negative. Respondents were asked if they used soap, water, and friction during hand washing and 64% said they washed their hands with soap and water, and friction, 12% stated that they washed their hands with water alone, 20% stated they always used water and soap but no friction, and 4% did not recollect.

Availability of toilet facility

With regards to a toilet facility, 40% of the respondents said they had toilet facilities in their homes while 60% did

not have it in their homes. The majority of respondents (60%) who did not have toilet facilities were asked to state their means of defecation, and 63% stated they used the public toilet, 22% stated they dug the ground and covered it with earth or soil, and 15% practiced open defecation. Also, respondents were asked on the practices of disposal of their children's feces and 76% of mothers said they disposed their children's feces into public latrines, 18% said they disposed at the dumping grounds and 6% stated they disposed of it into the gutters.

Knowledge of the causes of diarrhea

Respondents were asked if they had an idea on the causes of diarrheal disease in children and 48% had no idea on the causes of diarrhea in their children, 10% thought it was as a result of poor personal and environmental hygiene, 18% of respondents believed that the cause of the diarrhea was eating contaminated food and/or water, 14% attributed the cause to improper hand washing, and 10% said the diarrhea was caused by introducing complimentary foods too early.

Respondents were asked if any illnesses were present during the time of diarrhea; 22% of the respondents reported there was measles present at the time of diarrhea, 46% reported worm/parasitic infection, 10% reported malnutrition at the time of their child having diarrhea, 46% reported no idea whether there was the presence of another condition, as at the time of their child's diarrhea.

Additionally, respondents were asked if there are any animals living in the house and 40% of the respondents had poultry in their homes, 26% had dogs, 12% had cats, 10% had goats and 8% had other animals in their homes.

How diarrhea can be prevented

Respondents were asked if diarrhea can be prevented; 62% of respondents thought diarrhea and diarrheal

diseases can be prevented, while 38% thought diarrhea cannot be prevented. The majority of respondents, 40% said diarrhea can be prevented by proper disposal of feces and immunization, 28% said diarrhea can be prevented by immunization and maintaining the personal cleanliness of the child, 20% said by proper hand washing with soap and practicing food hygiene, and 12% cited all the above instances.

DISCUSSION

While it is recommended by WHO (2012) that breastfeeding should be for the first six months and up to eighteen months, almost all the respondents breastfeed their children for 18 months. The reason for a higher number initiating breastfeeding immediately after delivery may be due to the encouragement and support of the midwives, but it becomes difficult to continue breastfeeding after the 18 months as noted in this study when friends and others advice mothers to stop on the basis that children are old enough to be taken off the breast. Also, it was noted that the interval or spacing between children were less than two years in most cases so breastfeeding a baby for at least two years is impossible when there is pregnancy; since it is generally believe among Ghanaians that when a mother is pregnant and breastfeeds, the breastfed baby will fall sick.

The majority of the mothers did not practice exclusive breastfeeding as recommended by the WHO (2012). The mothers introduced water and artificial feeds before six months and this might have contributed to the incidence of diarrhea; which is supported with the findings of Mitra and Rabbani (1995), that during the first six months of life, infants should be exclusively breastfed. Thus, for a baby to be healthy, they should receive breast milk and no other fluids, such as water, teas, juice, cereal drinks, animal milk or formula. Breastfeeding is not only inexpensive, but an effective strategy in combating illnesses especially diarrhea. According to Mondal et al. (2006), the introduction of artificial feeds before the six months increases the incidence of diarrhea due to microbial contamination of complementary feeds.

Utensils used in weaning or introducing complementary feeds are as important as exclusive breastfeeding. Most of the utensils used were not recommended by a health care provider, and they have the potential of causing diarrhea; as maintained by Motarjemi et al. (1993) that weaning foods prepared under unhygienic conditions are frequently heavily contaminated with pathogens and thus are a major factor in the cause of diarrheal diseases and associated malnutrition.

The findings indicated that the children's foods were properly stored which could prevent the occurrence of diarrhea especially among children under five years. Thus, WHO (2008) indicated that food safety is protecting

food supply from microbial, chemical and physical hazards that may occur during all stages of production, storage and consumption. However, it is important to note that if these foods are not stored appropriately and reheated correctly they provide a very good medium for diarrhea causing organisms. Storing left over in a food flask or vacuum flasks can maintain the temperature as well as prevent contamination of these left over foods by microorganisms.

The majority of respondents said their sources of drinking water for their children were pipe water and they relied on well water in times of shortage of water. It must be noted that water supply to the people of Donkorkrom is mainly pipe and well water provided by the Afram Plains Development Organization (APDO, 2004), an NGO. The source of water shows that it is not contaminated, but can be contaminated during the storage process especially when the containers used to store them are not clean. Drinking contaminated water is one of the associated causes of diarrhea in children under five years; especially in developing countries (WHO, 2012).

Effective hand washing is important in the prevention of diarrhea (Curtis and Cairncross, 2003). Effective hand washing constitutes the use of soap, water, and friction to remove microorganisms from the hands (Ellis et al., 1992). Majority of the respondents did not practice effective hand washing before feeding their children and visiting the toilet which can contribute to diarrheal disease.

The majority of respondents did not have toilet facilities in their homes. These findings support WHO/UNICEF (2012) report that majority of people in developing countries lack access to improved sanitation facilities and nearly 1 out of every 4 people practice indiscriminate or open defecation. Furthermore, children's stools tend to carry a higher pathogen load than adults', and many children play in areas in which stools are found. Safely disposing of stool is therefore critical for reducing the number of diarrhea cases (WHO /UNICEF, 2009).

Knowing the causes of diarrhea is hallmark in the prevention of it (Whaley and Wong, 1989). The majority of mothers did not have an idea on how diarrhea is prevented but believed it could be prevented. Evidently, the findings supports U et al. (1992) who associated the causes of diarrhea to hand washing without soap, early introduction of weaning food and lack of knowledge on the part of mother about causes of diarrhea. The findings therefore show that even though respondents have some idea on the prevention of diarrhea, they are not familiar with the WHO/UNICEF (2004) 7-point plan that include prevention and reduction of diarrheal diseases and deaths among children under five years. The findings support the statement by UNICEF Chief of Water, Sanitation and Hygiene, Clarissa Brocklehurst (WHO/UNICEF, 2009) that looking at the mortality rate associated with diarrhea, it is best to prevent diarrhea.

Having animals in the home can contribute to diarrhea. The majority of respondents had animals in the home and these animals can transit cryptosporidium species that causes diarrhea among Ghanaian children (Adjei et al., 2004).

Conclusion

The findings of the study have shown that the majority of respondents breastfed their children for up to 17 months. Also, majority of respondents started introducing complementary feeds and water to their children before six months of age. In addition, the majority of respondents stored the leftover food of their children in flasks. Furthermore, the majority of respondents had pipe water as their source of drinking water. Majority of respondents reported not washing their hands before breastfeeding, and after visiting the toilet. The majority of respondents have proper toilet facilities in their home. Lastly, majority of respondents had no idea of the causes of diarrhea; even though the majority of the respondents thought it can be prevented.

RECOMMENDATIONS

It is recommended that in order to curtail the problem of diarrhea among children less than five years, mothers should adhere to nutrition and hygiene promotions programmers and give priority to exclusive breastfeeding, safe disposal of fecal matter, and effective hand washing before breastfeeding and after visiting the toilet. Also, community and public health workers should educate mothers and care givers on the causes and associated causes of diarrhea and encouraged them to take the child to a health-care provider for appropriate treatment, as well as familiarize themselves with other symptoms requiring medical treatment. In addition, leading women groups in churches and within the communities should be encouraged to promote healthy and helpful habit that will lead to the prevention of diarrhea as well as other diseases. Community and public health workers should ensure that proper toilet facilities and water supply is available to all households in the district.

ACKNOWLEDGEMENTS

We are grateful to the Presbyterian University College of Ghana, for sponsoring the study. We are also indebted to the mothers and caregivers of Donkorkrom for participating in the study. We are truly grateful to Dr. Frank Arku for his great input. We thank Miss. Victoria Parkoo for her active involvement during the data collection.

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