

Mothers' Behavior Regarding Treatment of Diarrhea among Their Children

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ABSTRACT

Background: Reducing childhood diarrhea requires interventions to make children healthier and less likely to develop infections that lead to diarrhea. The support of communities and caregivers in consistently reinforcing healthy behaviors and practices over time in this regards.

Objectives: To depict the prevalence, characteristics and the different factors associated with diarrhea events reported at the primary health care level in children under age of five.

Subjects and Methods: A cross-sectional analytic study was conducted throughout the period October, 2016 at primary health care centers belonging to Ministry of Health (n=5) and Maternal and Child hospital in Abha city, Kingdom of Saudi Arabia. Abha city is the capital of Aseer Region in KSA. A representative random sample of mothers of children aged (1month – 5years) and had acute diarrhea who attended the primary health care centers and the emergency department (ER) at the maternal and child hospital, Abha were included. An interview validated Arabic questionnaire was utilized.

Results: One hundred seventy mothers included in the study out of targeted 202 giving a response rate of 84.2%. Their age ranged between 19 and 32 years with a mean±SD of 32.1±6.9 years. Less than half of children (41.7%) were one year or less. Almost two-thirds of mothers (67.7%) knew correctly that diarrhea means 3 times per day. About 60.6% of them had children with acute attack of diarrhea. Majority of mothers (90%) visited health facilities for management of diarrhea among their children. Most of them visited the health facilities

as the child did not improve (87.6%). The most common medication that was given was oral medication (86.9%). About one-third of them (34.1%) had follow up. Regarding causes of non-visiting health facilities among the studied mother, 47.6% of them considered diarrhea is not a serious disease whereas 32.9% of them already had experience with acute diarrhea, 14.7% were taking care of other family members and 11.2% had far health facilities from their residency.

Conclusion: Diarrhea is a common health problem among children aged between one month and five years in Abha city, Saudi Arabia. Most of mothers of children with diarrhea visited health care facilities seeking consultation.

Keywords: Diarrhea, Childhood, Caregivers, Oral Rehydration.

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INTRODUCTION

Diarrhea remains the second most common cause of childhood mortality all over the world. Globally, nearly one in five child deaths- about 1.5 million each year- is due to diarrhea. Dehydration is the main immediate cause of death from acute diarrhea. Therefore, it is crucial that caregivers replace the fluids in a timely manner and seek appropriate care when even mild dehydration symptoms of diarrhea appear in a child.¹

Diarrhea is a common symptom of gastrointestinal infections caused by a wide range of pathogens, including bacteria, viruses and protozoa. Rotavirus is the leading cause of acute diarrhea, and is responsible for about 40 per cent of all hospital admissions due to diarrhea among children under five worldwide.²

Diarrhea is more prevalent in the developing world due, in large part, to the lack of safe drinking water, sanitation and hygiene, as

well as poorer overall health and nutritional status. According to the latest available figures, an estimated 2.5 billion people lack improved sanitation facilities, and nearly one billion people do not have access to safe drinking water. These unsanitary environments allow diarrhea-causing pathogens to spread more easily.²

Treatment of acute diarrhea consists of fluid replacement which should begin at home and can be administered by the caregiver at the start of the diarrhea episode. A solution made from oral rehydration salts (ORS) is the 'gold standard' of oral rehydration therapy. When ORS are not available, other fluids will also work to prevent dehydration among children with diarrhea, although they are not as effective in treating children who have become dehydrated. Examples of rehydrating fluids include cereal-based

drinks made from a thin gruel of rice, maize, potato or other readily available low-cost grain or root crop the family has at home. Breast milk is also an excellent drink for fluid replacement and should continue to be given to infants with diarrhea simultaneously with other oral rehydration solutions. If ORS or other appropriate fluids are not available, increased amounts of almost any fluid could also help to prevent dehydration.²

Reducing childhood diarrhea requires interventions to make children healthier and less likely to develop infections that lead to diarrhea; clean environments that are less likely to transmit disease; and the support of communities and caregivers in consistently reinforcing healthy behaviors and practices over time.²

In the 1990s, WHO and UNICEF initiated a strategy known as the Integrated Management of Childhood Illness (IMCI) to improve the quality of care provided in health facilities for the five conditions responsible for 70% of child deaths, namely, pneumonia, diarrhea, malaria, measles, and malnutrition. Because the coverage of existing health facilities is still insufficient to manage all children suffering from these conditions, the IMCI program has been expanded to focus on improving family and community practices related to child health, nutrition, and development.³

In recent years, epidemiologists and social scientists have devoted increasing attention to studying health-seeking behavior associated with the two leading causes of child mortality, namely acute diarrheal diseases and acute respiratory infections.⁴

In the Kingdom of Saudi Arabia (KSA), diarrheal diseases are rivaled in importance only by acute respiratory infections, with high incidence and prevalence in community surveys. The control of diarrheal diseases is one of the 'Child Health and Survival Programmes' of the Ministry of Health (MOH), to which the United Nations Children's Fund (UNICEF) made a significant contribution in the mid-1980 s. The major objective of the control programme was to reduce mortality and morbidity rates due to dehydration, including the use of oral rehydration therapy. According to Al Mazrou and Farid, diarrheal diseases are one of the leading causes of infant and child mortality and morbidity in Saudi Arabia.⁵ Several studies were done worldwide whereas limited studies were done in KSA. Therefore, this study was carried out to depict

the prevalence, characteristics and the different factors associated with diarrhea events reported at the primary health care level in children under age of five.

SUBJECTS AND METHODS

A cross-sectional analytic study was conducted at primary health care centers belonging to Ministry of Health (n=5) and Maternal and Child hospital in Abha city, Kingdom of Saudi Arabia. Abha city is the capital of Aseer Region in KSA.

Mothers of children aged (1month – 5years) and had acute diarrhea who attended the primary health care centers and the emergency department (ER) at the maternal and child hospital, Abha throughout the period of the study (October, 2016) were eligible for inclusion.

Sample size was calculated using online Roasoft sample size calculator assuming that the average number of target population (mothers who attending PHCCs and ER department of the maternal and child hospital throughout a year is approximately 25000 and prevalence of acute diarrhea in children aged from 1 month to 5 years (based on a pilot study conducted by the researcher in one of the PHCCs) is 25%. At 90% confidence interval, the estimated sample size was 202 mothers.

An interview validated Arabic questionnaire consists of four main parts was utilized. It has been used previously in Jeddah⁶ and includes socio-demographic data, question to measure the prevalence of acute childhood diarrhea, questions to assess the mother care seeking behaviors toward treatment of acute diarrhea in their children and questions to determine the predictors of mother care seeking behaviors toward treatment of acute diarrhea in their children.

Ethical approval was obtained from the local ethical Committee, written permission from concerned authority in PHC centers belonging to Ministry of Health will be obtained as well as individual consent was a prerequisite for data collection.

Data were entered and analyzed by SPSS version 22. Health seeking behaviors was presented as numbers and percentage. Chi square statistical test was used to identify the association between health seeking behaviors and the predictors. P value less than 0.05 was considered statistically significant.

Table 1: Demographic character of the studied mothers (n=170).

Variables		Frequency	Percentage
Mother age	<30	65	38.2
	30 - 40	85	50.0
	>40	20	11.8
Current marital status	Married	156	91.8
	Unmarried	14	8.2
Level of Education	Illiterate	4	2.4
	School	46	27.1
	University/above	120	70.5
Mother Job	Government employee	61	35.8
	private sector	17	10.0
	house wife	67	39.4
	Business/trading	4	2.4
	Student	21	12.4
House type	Owner	91	53.5
	Rented	79	46.5
Nationality	Saudi	157	92.4
	Non-Saudi	13	7.6
Income (SR/month)	< 6000	32	18.8
	6000 - <10000	55	32.4
	> 10000	83	48.8

Table 2: Characteristics of the children with diarrhea (n=170)

Variables		N	(%)
Children age	<One year	44	25.8
	One year	27	15.9
	Two year	19	11.2
	Three year	25	14.7
	Four year	26	15.3
	Five year	29	17.1
Number of sibling	1-2	102	60.0
	3-4	42	24.7
	>4	26	15.3
Birth order	1-2	103	60.6
	3-4	45	26.5
	>4	22	12.9
Gender	Male	96	56.5
	Female	74	43.5

Table 3: Mother`s knowledge of diarrhea definition and history of children diarrhea.

Variables		N	(%)
Diarrhea definition	Correct	115	67.6
	Incorrect	55	32.4
Diarrhea attacks	Yes	103	60.6
	No	67	39.4
Diarrhea frequency	1	66	38.9
	2	81	47.6
	3	16	9.4
	4	7	4.1
Past history of medical disease	Yes	25	14.7
	No	145	85.3
Vomiting		109	64.1
Pain		110	64.7
Fever		94	55.3
Bloody stool		9	5.3
Diaper rash		92	54.1
Activity restriction		122	71.8
Loss appetite		141	82.9

Table 4: Reasons and pattern of actions that were done at health facility:

Variables		N	(%)
Mother visiting health facility	Yes	153	90.0
	No	17	10.0
Type of visited health facility N (153)	Governmental PHCC	40	26.1
	Private PHCC	59	38.6
	Governmental ER	30	19.6
	Private ER	24	15.7
Time of health. Facility visiting N 153)	Day 1	31	20.3
	Day 2	80	52.3
	Day 3	28	18.3
	After Day 3	14	9.1
Reason for visiting health facilities (N= 153)	The children not. Improved	134	87.6
	Mother received advice.	37	24.2
	Mother had experience before	90	58.8
Medication were	Oral Medication	133	86.9
	Medical advices	120	78.4
	IV fluid	55	35.9
	IV fluid admission	13	8.5
Admission duration (n=13)	1-3 days	12	92.3
	≥ 3 days	1	7.7
Follow. up		58	34.1

RESULTS

One hundred seventy mothers included in the study out of targeted 202 giving a response rate of 84.2%. Their age ranged between 19 and 32 years with a mean±SD of 32.1±6.9 years. Majority of them were married (91.8%). Most of them (70.5%) were at least university graduated. More than one-third (35.8%) were governmental employees and 39.4% were house wives.

More than half of mothers (53.5%) had owner houses. Approaching half of them (48.8%) had income more than 10000 Riyals/month. Majority of them (92.4%) were Saudis. (Table 1) Table 2 shows some characters of the children with diarrhea. Less than half of children (41.7%) were one year or less. Sixty percent of them had 1-2 siblings. More than half of them (56.5%) were males.

Table 3 shows that almost two-thirds of mothers (67.7%) knew correctly that diarrhea means 3 times per day. About 60.6% of them had children with acute attack of diarrhea. Two attacks were reported among 47.6% of them. Regarding their knowledge about symptoms, they stated that loss of appetite 82.9%, activity restriction (71.8%), pain (64.7%), vomiting (64.1%) and fever (55.3%) are symptoms of acute diarrhea.

Table 4 demonstrates that majority of mothers (90%) visited health facilities for management of diarrhea among their children. Private PHCC was visited by 38.6% and more than half of them (52.3%) visited the health facilities at day 2. Most of them visited the health facilities as the child did not improve (87.6%). The most common medication that was given was oral medication (86.9%). About one-third of them (34.1%) had follow up.

Regarding causes of non-visiting health facilities among the studied mother, 47.6% of them considered diarrhea is not a serious disease whereas 32.9% of them already had experience with acute diarrhea, 14.7% were taking care of other family members and 11.2% had far health facilities from their residency. Concerning procedures followed by mother when their children suffer from diarrhea, 30% stated that they did not use breast feeding and most of them were either continue (41.7%) or increase (25.9%) the breast feeding. Regarding bottle feeding,

23.5% did not use it. Regarding ORS, 18.8% of the mothers did not use it as illustrated in Figure 1.

Less than half of mothers (42.9%) have used non-prescribed medication for treatment of diarrhea among their children; traditional medicine (18.2%), previously prescribed drugs (11.2%) and drugs directly from pharmacy (13.5%).

Most of mothers had information about diarrhea and its management (80.6%). Figure 2 shows that internet (67.6%), followed by physicians (63.5%) were the most frequent sources of information. (Figure 2)

Younger mothers (<30 years) tended to visit health facilities more than older mothers (>40 years) (93.8% versus 75%, p=0.047). All illiterate and majority of university graduated mothers (95%) compared to 76.1% of school graduated mothers visited health facilities, p=0.001.

All business women and students compared to 80.6% of house wives visited health facilities, p=0.22. Women whose family income exceeded 10000 SR/month tended to visit health facilities more frequently compared to those of lower income (<6000 SR/month) (96.4% versus 71.9%, p<0.001). Children who had lower number of siblings (1-2), first to second birth order, and being males were more likely to be taken to health facilities by their mothers compared to their counterparts.(Table 5)

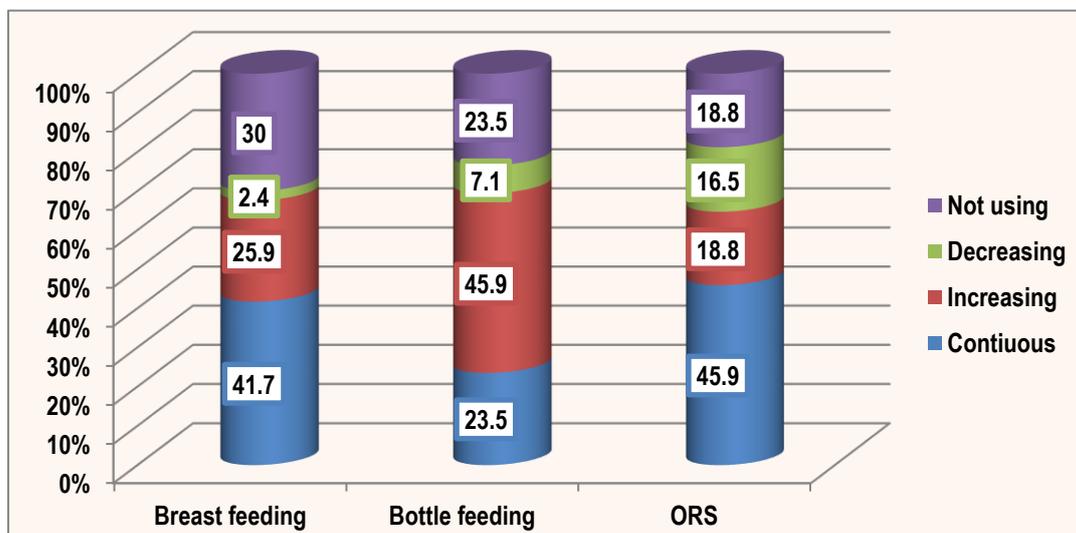


Figure 1: Procedures followed by mother when their children suffer from diarrhea

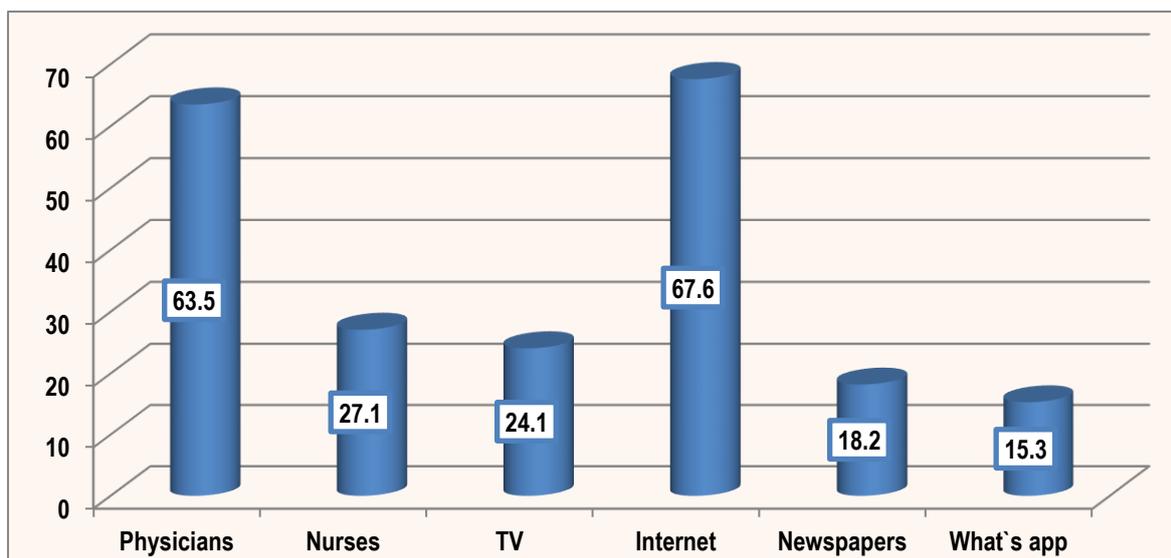


Figure 2: Source of information about diarrhea and its management

Table 5: Association between demographic characters of mother & child and visiting health facilities

Variables	Health facility		χ^2 (p-value)
	No N (%)	Yes. N (%)	
	N=17	N=153	
Mother age`s	<30 (n=65)	4 (6.2)	61 (93.8)
	30 – 40 (n=85)	8 (9.4)	77 (90.6)
	>40 (n=20)	5 (25.0)	15 (75.0)
Current marital status	Married (n=156)	15 (9.6)	141(90.4)
	Unmarried (n=14)	2 (14.3)	12 (85.7)
Level of education	Illiterate (n=4)	0 (0.0)	4 (100)
	School (n=46)	11 (23.9)	35 (76.1)
	University/above (n=120)	6 (5.0)	114 (95.0)
Mother Job	Governmental (n=61)	3 (4.9)	58 (95.1)
	Private (n=17)	1 (5.9)	16 (94.1)
	House wife (n=67)	13 (19.4)	54 (80.6)
	Business (n=4)	0 (0.0)	4 (100)
	Student (n=21)	0 (0.0)	21 (100)
	Owner (n=91)	10 (11.0)	81 (89.0)
House type	Rented (n=79)	7 (8.9)	72 (91.1)
	Income		
Income	< 6000 (n=32)	9 (28.1)	23 (71.9)
	6000-<10000 (n=55)	5 (9.1)	50 (90.9)
	>10000 (n=83)	3 (3.6)	80 (96.4)
Nationality	Saudi (n=157)	17 (10.8)	140 (89.2)
	Non Saudi (n=13)	0 (0.0)	13 (100)
Child age	<One year (n=44)	4 (9.1)	40 (90.9)
	One year (n=27)	3 (11.1)	24 (88.9)
	Two year (n=19)	3 (15.8)	16 (84.2)
	Three year (n=25)	2 (8.0)	23 (92.0)
	Four year (n=26)	2 (7.7)	24 (92.3)
	Five year (n=29)	3 (10.3)	26 (89.7)
Number of sibling	1-2 (n=102)	6 (5.9)	96 (94.1)
	3-4 (n=42)	2 (4.8)	40 (95.2)
	>4 (n=26)	9 (34.6)	17 (65.4)
Birth order	1-2 (n=103)	6 (5.8)	97 (94.2)
	3-4 (n=45)	5 (11.1)	40 (88.9)
	>4 (n=22)	6 (27.3)	16 (72.7)
Child gender	Male (n=96)	5 (5.2)	91 (94.8)
	Female (n=74)	12 (16.2)	62 (83.8)

* Fischer Exact test

DISCUSSION

In the present study, the incidence rate of diarrhea among children from one month up to 5 years was 60.6% in the last three months; most of them had at least two episodes in these 3 months. These figures illustrated that diarrhea in children is still a significant problem of public health importance in Saudi Arabia. This figure is higher than those reported in other Saudi Arabian studies carried out in Jeddah, Taif and Riyadh to examine the prevalence of diarrhea in referral hospitals and showed that the prevalence in some cases amounted to 25%, with up to 6 episodes/child/year.^{5,6} A lower incidence of diarrhea episodes rate was reported in the PHC center in the under 5 age group in the year 2002 in Abha (9.9%).⁷ The discrepancy between these figures and those of our study might be due to underreporting to the PHC center of the mild cases, those treated at home or privately, as well as some severe cases that went directly to the higher levels of care as the aforementioned studies relied on medical records of children with diarrheal disorders visited PHC facilities.

Internationally, there are varying views about diarrhea and its management among the mothers of different nations. Diversity in views among the mothers can be a major obstacle toward adopting modern biomedical approaches.¹

Cultural beliefs and practices often lead to self-care, home remedies and consultation with traditional healers.⁹ Advice of the

elder women in the house is also very instrumental and cannot be ignored.¹⁰ In the present study the commonest reason mentioned by mothers for non-visiting health care center was their belief that diarrhea is not a serious disease and they were experienced with it. In addition half of mothers have used non-prescribed medication for treatment of diarrhea among their children; traditional medicine was used by 18.2%, previously prescribed drugs (11.2%) and drugs directly from pharmacy (13.5%). These factors result in delay in treatment seeking and are more common amongst women, not only for their own health but especially for children's illnesses.¹¹⁻¹³ In agreement with that, the vast majority of mothers in the current survey cited that the reason of their visit to the primary health care center was deterioration of their child's health status.

In accordance with others,¹⁴⁻¹⁷ the present study showed that some socio-demographic factors such mother's age, educational level, job status, family income, family size, birth order of the child and gender were associated with health seeking behaviour. Contrary to what has been reported in the present study, in other two Saudi studies, illiterate mothers had the lowest significant physician consultation rate regarding their child illness.^{18,19} However, in many developing countries, including Saudi Arabia, cultural practices and beliefs have been prevalent regardless of socio-economic status of the family and level of education.¹⁹⁻²¹

Regarding women's autonomy, in our culture, men play a paramount role in determining the health needs of women and their children. Since men are decision makers and control of all the resources, they decide when and where woman should seek health care.²² This low status of women prevents them from recognizing their concerns about health needs for her as well as their children. Women are usually not allowed to visit a health facility or health care provider alone or to make the decision to spend money on health care. Thus women generally cannot access health care even in emergency situations. In the present study, working mothers sought health care for acute diarrhea among their children more than non-working mothers. However, this finding is in contrast to what has been reported in Riyadh by Al-Nahedh as non-working mothers were more likely to bring their children for physician consultation.¹⁸

According to UNICEF/WHO recommendations for management of acute diarrhea in young children, breast milk should continue to be given to infants with diarrhea simultaneously with other oral rehydration solutions for fluid replacement.² In the current study, only 41.7% of mothers continued breastfeeding during diarrheal illness.

The study has some limitations that must be identified. First of all, it included mothers who attended the primary health care centers and the emergency department (ER) at the maternal and child hospital, Abha. Thus, the sample is not representative of the entire population and the results may not apply to other parts of the country. Nevertheless, we included mothers from different PHCCs in different regions of Abha, so the results could be generally representative of the local population. Secondly, it is possible that the clinically defined cases of diarrhea were misclassified because the information on number of diarrheal attacks and consistency and other associated symptoms depended on mothers' recall, and it was not possible to confirm the accuracy of these reports. Finally, the cross-sectional study design and three months recall histories tend to over-represent longer duration episodes because caregivers are more likely to remember illnesses that are ongoing than ones that have resolved.²³

Conclusively, diarrhea is a common health problem among children aged between one month and five years in Abha city, Saudi Arabia. Most of mothers of children with diarrhea visited health care facilities seeking consultation.

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