

EVALUATION OF PARENTS AWARENESS ABOUT MANAGEMENT OF DIARRHEA AMONG CHILDREN: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: This research aims to determine the factors influencing the evaluation of parents' awareness of managing diarrhea among children.

Methods: This research employs a cross-sectional study design to evaluate parental awareness about managing diarrhea among children. Cross-sectional studies provide a snapshot of a population at a specific time, allowing for the assessment of prevalence and associations between variables.

Results: The study included 584 participants. The most frequent family income among them was good (n= 464, 79%) followed by High (n= 100, 17%), then Weak income (n=20,3%). The most frequent age among study participants was from 7 – 12 years old (n= 190, 32.5%) followed by 4 – 6 years (n= 171, 29.3%), then less than 1 year (n=99, 17%), finally from 13 – 18 years (24, 4.1%). The most frequent gender among study participants was female (n= 314, 53.7%), followed by male (n= 270, 46.2%). The child suffers from chronic diseases, with most of them not having chronic diseases (n= 566, 97%) and else having chronic diseases (n=18, 3%), where the chronic diseases are allergy, growth delay, and blood thinning. Participants were asked about their knowledge of using Oral Rehydration Solution (ORS). Their responses and results are yes (n=330, 56.6%) and no (n=254, 43.5%). The most frequent answer about the Role of ORS solution in diarrhea was Prevents child from getting dehydrated (n=470, 80%), followed by either increases or decreases diarrhea (n= 72, 12.3%), and either increases or decreases diarrhea (n=42, 7.2%). The

most frequent Sources of information of use ORS were the Consultation of pharmacists (n= 300, 51.4%), then medical prescriptions (n= 114, 19.5%), followed by the Internet (n=94, 16.1%). Participants were asked about Critical signs and symptoms of diarrhea were the most frequent answer Thirst and dry mouth (n=208, 35.6%), followed by Passage of >3 loose stools with blood in 24 h (n=202, 34.6%), then Loss of stretchiness of the skin (n=88, 15.1%), and I do not know (n=62, 10.6%), finally Tearless eyes (n= 24, 4.1%).

Conclusion: The findings of this study underscore the critical need for improved parental awareness and education regarding managing diarrhea among children. While most participants demonstrated some knowledge of Oral Rehydration Solutions (ORS) and their role in preventing dehydration, significant gaps remain in recognizing critical symptoms and understanding proper management strategies.

INTRODUCTION

Diarrhea remains a leading cause of morbidity and mortality among children worldwide, particularly in developing regions where access to healthcare and proper sanitation may be limited. Understanding parents' knowledge and practices regarding diarrhea management can inform targeted interventions to improve child health outcomes. By identifying gaps in awareness, healthcare providers can tailor educational efforts to empower parents with the necessary skills to recognize symptoms early, administer appropriate treatments, and seek timely medical care, thus potentially reducing the burden of diarrheal diseases on children and communities. Furthermore, such research contributes valuable insights for public health policies aimed at promoting child health and well-being.

In underdeveloped nations, diarrhea is very dangerous for children under the age of five since it may cause dehydration and even death [1,2,3]. An estimated twelve million children in underdeveloped nations do not make it to their fifth birthday. Diarrhea is one of five medical problems that kill around 70% of those children [1,4]. Although factors such as age, climatic change, and the use of the rotavirus vaccination might affect the prevalence of pathogen-caused diarrhea, rotavirus remained the most prevalent pathogen, particularly in children who were not immunized against it [5]. Between 41.3 and 65.5% of cases producing diarrhea in children in Saudi Arabia were shown to be caused by rotavirus [6,7]. Diarrhea may be caused by microbial infections or an intolerance to certain foods, such as milk, which contains lactose [8].

Methods

Study design

This research employs a cross-sectional study design to evaluate parental awareness about the management of diarrhea among children. Cross-sectional studies provide a snapshot of a population at a specific point in time, allowing for the assessment of prevalence and associations between variables.

Study approach

The study will be conducted in [insert study setting], encompassing both urban and rural areas to capture a diverse representation of parental perspectives. Accessible healthcare facilities, community centers, and households will serve as primary locations for data collection.

Study population

The population of interest comprises parents or caregivers of children under the age of 5 years residing in the selected study setting. Parents from diverse socioeconomic backgrounds, educational levels, and cultural groups will be included to ensure representation.

Study sample

A multistage sampling technique will be employed to select participants. Initially, clusters (e.g., neighborhoods or villages) will be randomly selected from the study setting. Subsequently, households within each cluster will be chosen using systematic random sampling. The sample size will be determined using appropriate statistical formulas, considering the anticipated prevalence of parental awareness about diarrhea management and the desired level of precision.

Study tool

For the current study, the questionnaire was adopted for data collection, which was also categorized as a study tool.

Data collection

Data will be collected through structured interviews conducted by trained researchers or healthcare professionals. The interviews will be conducted face-to-face with participants using a structured questionnaire. The questionnaire will include demographic information, parental knowledge about diarrhea prevention and management, recognition of symptoms, treatment practices, and healthcare-seeking behaviors.

Data analysis

Descriptive statistics, including frequencies, percentages, means, and standard deviations, will be used to summarize demographic characteristics and parental awareness levels. Inferential statistics, such as chi-square tests and logistic regression analysis, will be employed to examine associations between variables and identify factors influencing parental awareness about diarrhea management.

Ethical considerations

Ethical approval will be obtained from the relevant institutional review board or ethics committee before commencing the study. Informed consent will be obtained from all participants, ensuring voluntary participation, confidentiality, and anonymity. Participants will be informed of their right to withdraw from the study at any time without repercussions. Data will be securely stored and used only for research purposes, adhering to confidentiality and protection principles.

RESULTS

The study included 584 participants. The most frequent family income among them was good (n= 464, 79%) followed by High (n= 100, 17%), then Weak income (n=20,3%). Figure 1 shows the family income distribution among study participants. The most frequent age among study participants was from 7 – 12 years old (n= 190, 32.5%) followed by 4 – 6 years (n= 171, 29.3%), then less than 1 year (n=99, 17%), finally from 13 – 18 years (24, 4.1%). Figure 2 shows the age distribution among study participants. The most frequent gender among study participants was female (n= 314, 53.7%), followed by male (n= 270, 46.2%). Figure 3 shows the distribution of gender among study participants.

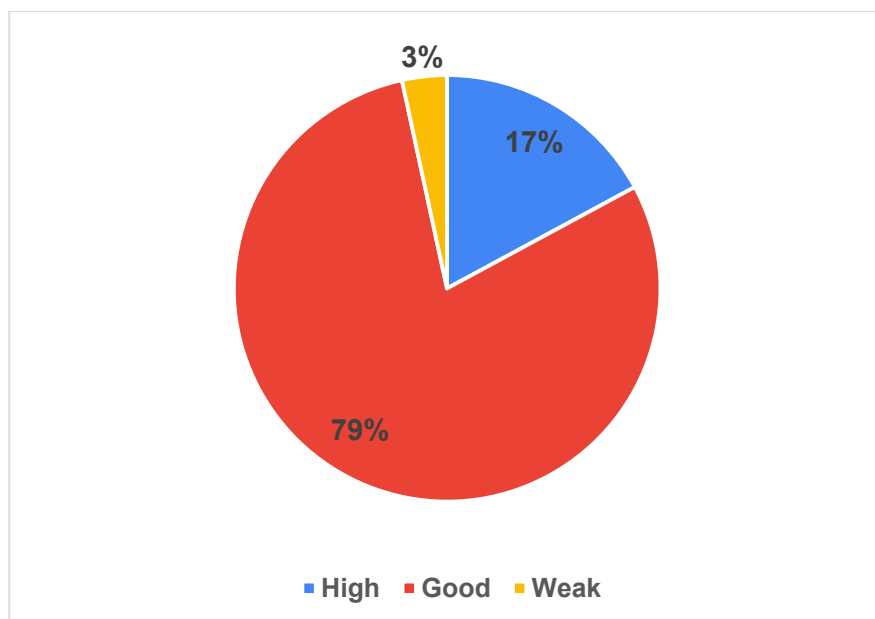


Figure 1: Family income distribution among study participants

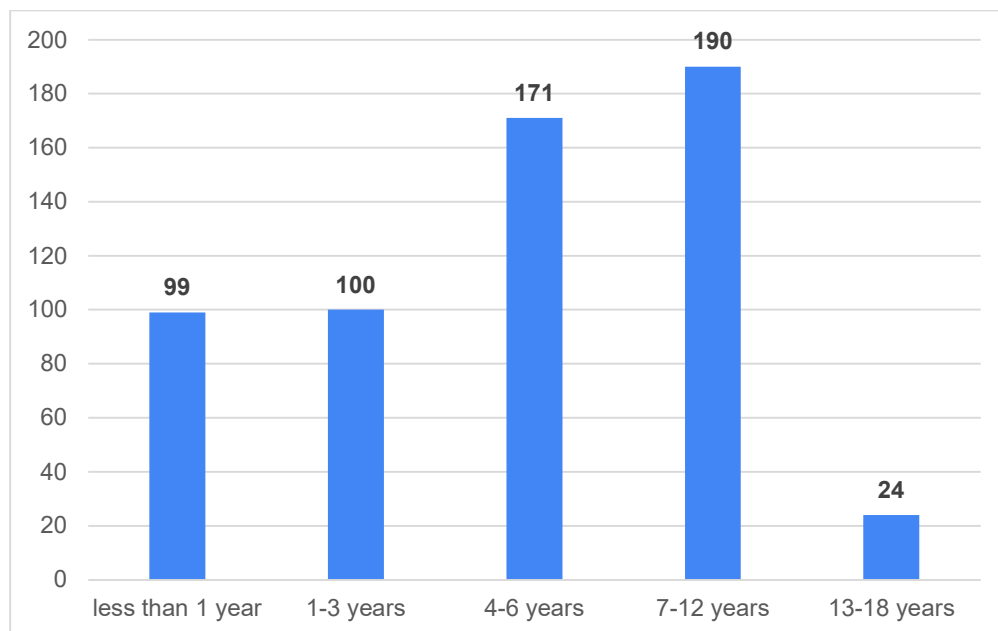


Figure 2: Age distribution among study participants

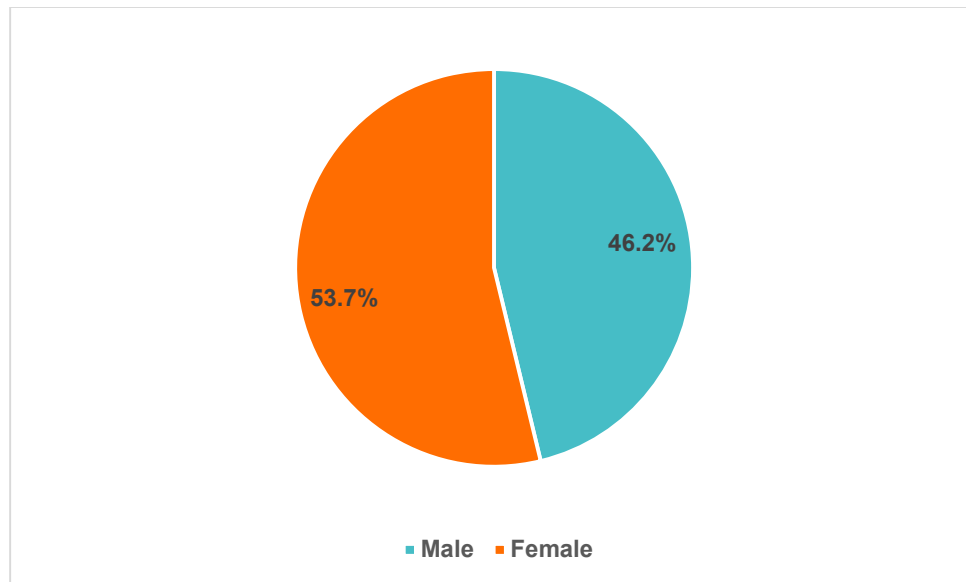


Figure 3: Gender distribution among study participants

The child suffers from chronic diseases, with most of them not having chronic diseases (n= 566, 97%) and else having chronic diseases (n=18, 3%), where the chronic diseases are allergy, growth delay, and blood thinning.

Participants were asked about their knowledge of using Oral Rehydration Solution (ORS). Their responses and results are yes (n=330, 56.6%) and no (n=254, 43.5%). The most frequent answer about the Role of ORS solution in diarrhea was Prevents child from getting dehydrated (n=470, 80%), followed by either increases or decreases diarrhea (n= 72, 12.3%), and either increases or decreases diarrhea (n=42, 7.2%). The most frequent Sources of information of use ORS were the Consultation of pharmacists (n= 300, 51.4%), then Medical prescriptions (n= 114, 19.5%), followed by the Internet (n=94, 16.1%). Figure 4 shows the source information of use ORS among study participants.

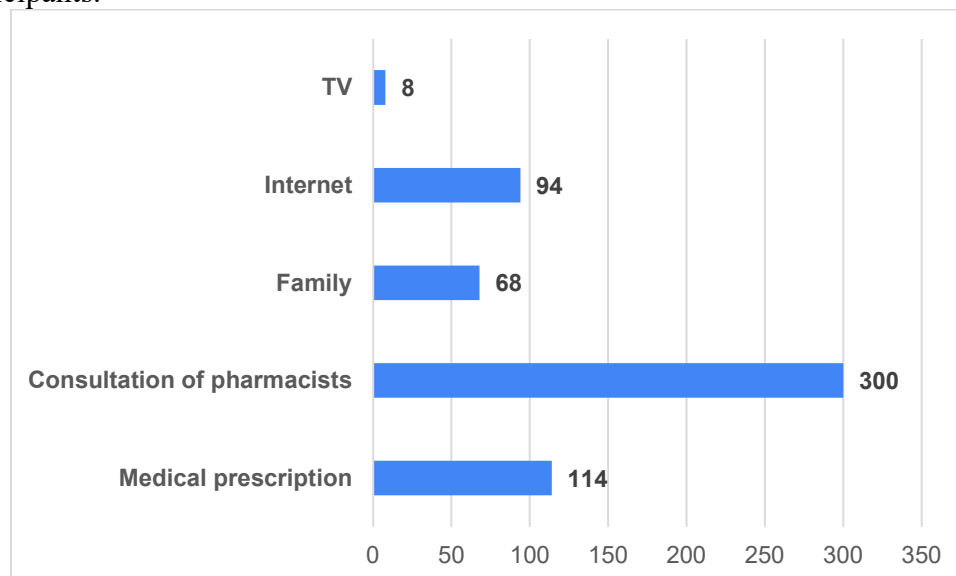


Figure 4: Sources information of use ORS distribution among study participants

Participants were asked about Mothers' attitudes about childhood diarrhea. The answers were shown in Table 1.

Table 1: Mothers' attitude about childhood diarrhea.					
Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Diarrhea attacks mostly bottle-feed children	98 (16.8%)	142 (24.3%)	220 (37.7%)	86 (14.7%)	38 (6.5%)
Diarrhea is a disease of the poor children	48 (8.2%)	98 (16.8%)	156 (26.7%)	178 (30.5%)	104 (17.8%)
Diarrhea is a problem in the community	138 (23.6%)	204 (34.9%)	174 (29.8%)	60 (10.3%)	8 (1.4%)
Teething causes diarrhea	212 (36.3%)	252 (43.2%)	80 (13.7%)	34 (5.8%)	6 (1%)
Diarrhea is a curable disease	338 (57.9%)	220 (37.7%)	18 (3.1%)	4 (0.7%)	4 (0.7%)
Liquid food aggravates diarrhea	62 (10.6%)	114 (19.5%)	166 (28.4%)	182 (31.2%)	60 (10.3%)
Oral rehydration salts solution cures diarrhea	86 (14.7%)	234 (40.1%)	214 (36.6%)	34 (5.8%)	16 (2.7%)
Human feces are a source of diarrhea	42 (7.2%)	120 (20.5%)	252 (43.2%)	106 (18.2%)	64 (11%)
Handwashing prevents diarrhea	224 (38.4%)	234 (40.1%)	90 (15.4%)	28 (4.8%)	8 (1.4%)

Participants were asked about Critical signs and symptoms of diarrhea were the most frequent answer Thirst and dry mouth (n=208, 35.6%), followed by Passage of >3 loose stools with blood in 24 h (n=202, 34.6%), then Loss of stretchiness of the skin (n=88, 15.1%), and I do not know (n=62,

10.6%), finally Tearless eyes (n= 24, 4.1%). Figure 5 shows the Critical signs and symptoms of diarrhea distribution among study participants.

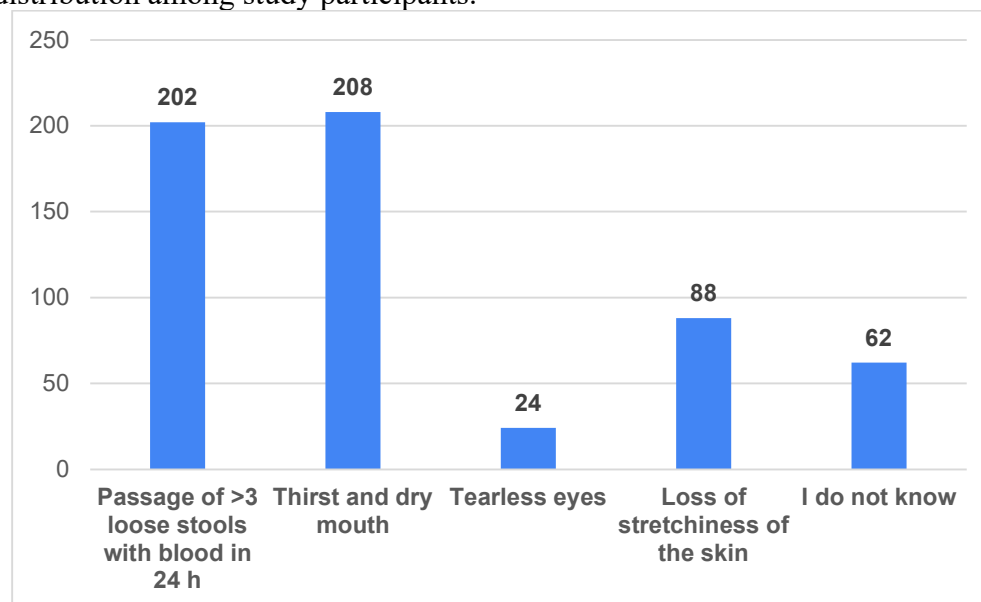


Figure 5: Critical signs and symptoms of diarrhea distribution among study participants

DISCUSSION

Among children less than five years old, diarrhea ranks high as a leading cause of mortality [14]. The condition is characterized by passing three or more loose or watery stools in a 24-hour period [15]. Children from underdeveloped nations have a disproportionate share of the burden of diarrheal diseases, which are estimated to cause 1.3 million fatalities each year [16,17]. Children under the age of 15 account for over 6% of all hospital admissions due to acute gastroenteritis, the leading cause of acute diarrheal disease in children [18]. The vast majority of cases of diarrhea are caused by viruses, the most prevalent of which being rotavirus [19].

There has been a significant decline in diarrhea-related morbidity, mortality, and hospital admissions since the introduction of oral rehydration solution (ORS) [20,21]. One of the most important things you can do to avoid dehydration and other diarrheal complications is to learn how to manage your diarrhea at home if you're sick with it [22,23]. In order to reduce difficulties associated to diarrhea, it is crucial that parents have the necessary information and practice to treat their children's diseases [24]. Regarding maternal behaviors and understanding of diarrheal infections in children, several studies that were undertaken internationally to study these concerns revealed dismal findings [25,26].

Children are considered to have diarrhea if they have loose or watery feces three times in a 24-hour period, or if their stool is less solid than usual [27]. Acute diarrhea in children may cause substantial fluid loss and dehydration, even if the majority of bouts do not necessarily cause severe diarrhea. So, it's crucial to replenish fluids as soon as you notice diarrhea, or else serious effects, including death, can occur. Numerous infectious agents, such as bacteria, protozoa, and viruses, may cause diarrhea [28]. Rotavirus is among the most dangerous bacterial and viral infections that people in poor nations face. It causes acute diarrhea and accounts for around 40% of the hospitalizations caused by diarrhea in children younger than five years old globally [29]. The four most common types of bacteria are Salmonella, Campylobacter, Shigella, and E. coli [28]. Among children and people living with HIV, cryptosporidium has been the protozoan pathogen most often isolated. Although cholera is often believed to be a leading cause of diarrhea-

related mortality in children, the majority of cases actually affect adults and older children. *Vibrio cholerae* causes massive epidemics and is prevalent in many regions, including Asia and Africa [30].

Diarrheal episodes are often diagnosed based on symptoms and categorized into three groups, as stated in [31], for the sake of best case management and epidemiological tracking: Significant fluid loss and fast dehydration are symptoms of acute watery diarrhea, which may include cholera. Several hours to days are the typical duration [32]. Most cases of acute watery diarrhea are caused by rotavirus, *E. coli*, or *Vibrio cholerae*. Dysentery, or bloody diarrhea, is characterized by the presence of visible blood in the stool [32]. Damage to the intestines and nutritional deficiencies in an infected person are symptoms of this infection. *Shigella* is a bacterium that causes bloody diarrhea and the most severe instances of the disease. And when diarrhea, with or without blood, continues for more than 14 days, it is considered chronic diarrhea. Children who are undernourished or who are suffering from other diseases, such as AIDS, are at a higher risk of developing chronic diarrhea, which may exacerbate their condition [33].

CONCLUSION

The findings of this study underscore the critical need for improved parental awareness and education regarding managing diarrhea among children. While most participants demonstrated some knowledge of Oral Rehydration Solutions (ORS) and their role in preventing dehydration, significant gaps remain in recognizing critical symptoms and understanding proper management strategies.

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ANNEX 1: DATA COLLECTION TOOL

ANNEX 1: DATA COLLECTION TOOL					
Family level of income	High		Good	Weak	
Parents are together?	Yes	No			
Child age			Child gender	Male	Female
Child weight			Child height		
Does the child suffer from any chronic diseases?				Yes	No
Please, mention them					

What is diarrhea?	A. Frequent passing of well-formed stool
	B. Blood in stools
	C. Greenish stools
	D. No idea
From where did you obtain your information about diarrhea? (You can choose multiple answers)	A. Social Media
	B. Family relatives or friends
	C. Previous experience
	D. Teething
What are the possible causes of diarrhea? (You can choose multiple answers)	A. Post-vaccination
	B. Viral infections
	C. Contaminated food
	D. I do not know
	E. Antibiotic
What is the main treatment of acute diarrhea in children? (You can choose multiple answers)	A. Antidiarrheal
	B. Fluid
	C. Herbal medication
	D. I do not know
Critical signs and symptoms of diarrhea	Passage of >3 loose stools with blood in 24 h
	Thirst and dry mouth
	Tearless eyes
	Loss of stretchiness of the skin
	I do not know
Cause/mode of transmission of diarrhea	Drinking bad/dirty water
	Eating dirty food
	Eating with dirty hands
	Eating expired food
	Insects feeding on dirty tools
	Bottle of breastfeeding
	Unpasteurized milk
Management of child's diarrhea	Visit the physician
	Visit the pharmacist
	Use ORS
	Give homemade fluids
	Feed the child with breastfeeding
	Stop feeding
	Nothing

Mothers' knowledge about the use of ORS.

Do you know the ORS?	Yes
	No
Role of ORS solution in diarrhea	Prevents child from getting dehydrated
	Either increases or decreases diarrhea
	No role in diarrhea treatment
Sources information of use ORS	Medical prescription
	Consultation of pharmacists
	Family
	Internet
	TV

Mothers' attitude about childhood diarrhea.

Item	Response				
Diarrhea attacks mostly bottle-feed children	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Diarrhea is a disease of the poor children	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Diarrhea is a problem in the community	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Teething causes diarrhea	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Diarrhea is a curable disease	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Liquid food aggravates diarrhea	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Oral rehydration salts solution cures diarrhea	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Human feces are a source of diarrhea	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Handwashing prevents diarrhea	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

APPENDIX 2: Participants responses to scale items

family.income		
	Frequency	Percent
High	100	17.1
Good	464	79.5
Weak	20	3.4

Parents.together		
	Frequency	Percent
Yes	518	88.7
No	66	11.3

gender		
	Frequency	Percent
male	270	46.2
female	314	53.8

age.level		
	Frequency	Percent
less than 1 year	99	17.0
1-3 years	100	17.1
4-6 years	171	29.3
7-12 years	190	32.5
13-18 years	24	4.1

height.level		
	Frequency	Percent
less than 60cm	54	9.2

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60-90cm	132	22.6
91-120cm	250	42.8
121-150cm	136	23.3
150cm and above	12	2.1

weight.level		
	Frequency	Percent
less than 10 kg	124	21.2
10-20 kg	194	33.2
21-30 kg	155	26.5
31-40 kg	60	10.3
more than 40 kg	51	8.7

child.suffer.chronic.diseases		
	Frequency	Percent
No	566.0	96.9
yes	18.0	3.1

what.is.diarrhea		
	Frequency	Percent
Frequent passing of well-formed stool	522	89.4
Blood in stools	4	0.7
Greenish stools	20	3.4
No idea	38	6.5

Critical.signs.and.symptoms.of.diarrhea		
	Frequency	Percent
Passage of >3 loose stools with blood in 24 h	202	34.6
Thirst and dry mouth	208	35.6
Tearless eyes	24	4.1
Loss of stretchiness of the skin	88	15.1
I do not know	62	10.6

Cause.transmission.diarrhea		
	Frequency	Percent
Drinking bad/dirty water	40	6.8
Eating dirty food	230	39.4
Eating with dirty hands	114	19.5
Eating expired food	88	15.1
Insects feeding on dirty tools	24	4.1
Bottle of breastfeeding	42	7.2
Unpasteurized milk	46	7.9

Management.child's.diarrhea		
	Frequency	Percent
Visit the physician	434	74.3
Visit the pharmacist	30	5.1
Use ORS	40	6.8
Give homemade fluids	32	5.5
Feed the child with breastfeeding	14	2.4
Stop feeding	14	2.4

EVALUATION OF PARENTS AWARENESS ABOUT MANAGEMENT OF DIARRHEA AMONG CHILDREN: A CROSS-SECTIONAL STUDY

Nothing	20	3.4
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know.ORS		
	Frequency	Percent
yes	330	56.5
no	254	43.5

Role.of.ORS.solution.in.diarrhea		
	Frequency	Percent
Prevents child from getting dehydrated	470	80.5
Either increases or decreases diarrhea	72	12.3
No role in diarrhea treatment	42	7.2

Sources.information.of.use.ORS		
	Frequency	Percent
Medical prescription	114	19.5
Consultation of pharmacists	300	51.4
Family	68	11.6
Internet	94	16.1
TV	8	1.4

		Frequency	Percentage
From where did you obtain your information about diarrhea? (You can choose multiple answers)	Social Media	144	18.2%
	Family relatives or friends	180	22.7%
	Previous experience	442	55.8%

EVALUATION OF PARENTS AWARENESS ABOUT MANAGEMENT OF DIARRHEA AMONG CHILDREN: A CROSS-SECTIONAL STUDY

	Teething	26	3.3%
What are the possible causes of diarrhea? (You can choose multiple answers)	Post-vaccination	174	14.4%
	Viral infections	336	27.7%
	Contaminated food	436	36.0%
	I do not know	50	4.1%
	Antibiotic	216	17.8%
What is the main treatment of acute diarrhea in children? (You can choose multiple answers)	Antidiarrheal	392	42.3%
	Fluid	396	42.8%
	Herbal medication	106	11.4%
	I do not know	32	3.5%

Item	Response				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Diarrhea attacks mostly bottle-feed children	98 (16.8%)	142 (24.3%)	220 (37.7%)	86 (14.7%)	38 (6.5%)
Diarrhea is a disease of the poor children	48 (8.2%)	98 (16.8%)	156 (26.7%)	178 (30.5%)	104 (17.8%)
Diarrhea is a problem in the community	138 (23.6%)	204 (34.9%)	174 (29.8%)	60 (10.3%)	8 (1.4%)
Teething causes diarrhea	212 (36.3%)	252 (43.2%)	80 (13.7%)	34 (5.8%)	6 (1%)
Diarrhea is a curable disease	338 (57.9%)	220 (37.7%)	18 (3.1%)	4 (0.7%)	4 (0.7%)

Liquid food aggravates diarrhea	62 (10.6%)	114 (19.5%)	166 (28.4%)	182 (31.2%)	60 (10.3%)
Oral rehydration salts solution cures diarrhea	86 (14.7%)	234 (40.1%)	214 (36.6%)	34 (5.8%)	16 (2.7%)
Human feces are a source of diarrhea	42 (7.2%)	120 (20.5%)	252 (43.2%)	106 (18.2%)	64 (11%)
Handwashing prevents diarrhea	224 (38.4%)	234 (40.1%)	90 (15.4%)	28 (4.8%)	8 (1.4%)

Chi-Square Test

Chi-Square Test

Frequencies

gender			
	Observed N	Expected N	Residual
male	270	292.0	-22.0
femal e	314	292.0	22.0
Total	584		

know.ORS			
	Observed N	Expected N	Residual
yes	330	292.0	38.0
no	254	292.0	-38.0
Total	584		

height.level			
	Observed N	Expected N	Residual
less than 60cm	54	116.8	-62.8
60-90cm	132	116.8	15.2
91-120cm	250	116.8	133.2
121-150cm	136	116.8	19.2
150cm and above	12	116.8	-104.8
Total	584		

weight.level			
	Observed N	Expected N	Residual
less than 10 kg	124	116.8	7.2
10-20 kg	194	116.8	77.2
21-30 kg	155	116.8	38.2
31-40 kg	60	116.8	-56.8
more than 40 kg	51	116.8	-65.8
Total	584		

age.level			
	Observed N	Expected N	Residual
less than 1 year	99	116.8	-17.8
1-3 years	100	116.8	-16.8
4-6 years	171	116.8	54.2
7-12 years	190	116.8	73.2
13-18 years	24	116.8	-92.8
Total	584		

Parents.together			
	Observed N	Expected N	Residual
Yes	518	292.0	226.0
No	66	292.0	-226.0
Total	584		

Role.of.ORS.solution.in.diarrhea

	Observed N	Expected N	Residual
Prevents child from getting dehydrated	470	194.7	275.3
Either increases or decreases diarrhea	72	194.7	-122.7
No role in diarrhea treatment	42	194.7	-152.7
Total	584		

Test Statistics

	gender	Know ORS	height	weight	age	Parents together	Role of ORS solution in diarrhea
Chi-Square	3.315 ^a	9.890 ^a	284.836 _b	128.654 ^b	149.887 ^b	349.836 ^a	586.452 ^c
df	1	1	4	4	4	1	2
Asymp. Sig.	.069	.002	<.001	<.001	<.001	<.001	<.001

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 292.0.

b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 116.8.

c. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 194.7.

Variables such as knowledge of ORS, height, weight, age, parental status, and the role of ORS in diarrhea all show statistically significant relationships with the studied categories the variable "gender" does not show a statistically significant relationship with knowledge of ORS