

Assessment of Parents' Awareness and Practice Towards Acute Diarrhea and its Management at Home for Under 5 Years Children Attending Primary Health Care Centers in Hilla Health Sectors, 2023

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Abstract: Background:- Diarrhea is the most common pediatric disease and it is the second leading cause of death among children after pneumonia. To demonstrate the best home care for children with acute diarrhea in our community, we need to evaluate the awareness and the practice levels of the parents towards diarrhea in children and its home management. **Objectives:-**To identify the awareness and practice of the parents about acute diarrhea and its home management in under 5 years old children. **Subjects and Method:-**A cross sectional study was carried out on a convenient sample of 340 parents of under 5 years old children attended the Primary Health Centers of Hilla Health Sectors. The data was collected during the period from 1st April 2023 to 31st August 2023 using a questionnaire that was based on the review of literature of closely related articles with modifications to be compatible with the study. **Results:-**This study has found that about 23.8% of the parents who have children under five years attending primary health care centers in Hilla health sectors had poor information about acute diarrhea in children while 45.9 % had good information and 30.3 % of them their information was medium. Regarding practice, there was 29.7 % of the parents had a poor level of practice, 22.1% had a medium knowledge and 48.2% had a good practice level. Also, there was a significant association between knowledge level and practice level P value (0.0001). **Conclusions:-**Parents' educational status, being mothers, having higher monthly income, having more than one child below 5 years and having child more than one year in age were associated with better awareness and practice toward diarrhea and its management in children at home.

Keywords: WHO, ORS, UNICEF, PHCC.

1.INTRODUCTION

1.1 Definition:- Acute diarrhea is the most common pediatric disease and it is the 2nd leading cause of death among children after pneumonia. World Health Organization (WHO) defined diarrhea as the passage of three or more loose or liquid stools per day that last less than 14 days. Frequent passing of formed stools is not considered diarrhea, nor is the passing of loose pasty stools by breastfed babies [World Health Organization, 2017]. Regardless of socioeconomic status, almost every child suffers from viral diarrhea during the first 5 years of life according to the WHO that causes a great impact on the health system [Thwiny, H. T. *et al.*, 2022]. In 2019, diarrhea killed approximately 480,000 young children worldwide, accounting for 9 percent of all deaths among under five years old children [UNICEF, 2016]. The vast majority of deaths from diarrhea among under five years old children occur among those living in low and middle income countries. Globally, under 5 years old children experience an average of 3.2 episodes of diarrhea every year mainly in Asia, Africa and Latin America [Workie, H. M. *et al.*, 2018] while Iraqi children suffer from about 6 episodes of diarrhea per year [Mohammed, I. S. *et al.*, 2018]. In Iraq, after decades of conflict and political instability, the delivery of essential public health and environmental sanitation services has been

severely impeded resulting in increased morbidity and mortality from diarrhea among Iraqi children. According to WHO and the Maternal and Child Epidemiology Estimation Group (MCEE), about 3% of under 5 years old Iraqi children's death in 2019 resulted from diarrhea [UNICEF DATA, 2023]. Acute diarrhea is mainly an intestinal tract infection that may be caused by bacteria, viruses or parasites. Spreading of the infection may occur through contaminated food, drinking contaminated water or from person to person as a result of poor hygiene [World Health Organization, 2017]. There are three distinctive clinical types of diarrhea: acute bloody diarrhea (dysentery), acute watery diarrhea that lasts several hours or days and persistent diarrhea that lasts 14 days or longer [Gessesse, D. N. *et al.*, 2022]. A strong negative relationship is present between diarrhea and the physical growth and development of a child. Previous studies found that weight deficit of about (20 – 40) grams per day can occur from every day the child has diarrhea and children with recurrent diarrheal episodes in their first 24 months of life are 1.5 cm shorter than children who never had diarrhea [Momoh, F. E. *et al.*, 2022]. Dehydration is the most severe danger of acute diarrhea that is caused by water and electrolytes (sodium, chloride, potassium, and bicarbonate) loss by liquid stools, vomit, sweat, urine, and breathing.

When these losses are not replaced, Dehydration arises causing decreased skin elasticity, sunken eyes, thirst, restlessness, or irritability and finally severe dehydration. Death can follow severe dehydration if body fluids and electrolytes are not replaced [Saadallah, O. S. *et al.*, 2021]. Early proper home management of acute diarrheal illness is one of the essential primary steps to prevent risky consequences of diarrhea [Alrafiaah, A. S. *et al.*, 2022]. Diarrhea is a preventable disease by important preventive measures that focus on main elements which are summarized by the ward 'WASH' by the WHO meaning water, sanitation and hygiene. Consumption of contaminated water is a viable means of transmission of diarrhea-causing pathogens. Contamination may occur at the water source, during storage by unhygienic packaging, or during mealtimes through contact with unwashed hands [Wasihun, A. G. *et al.*, 2018]. John Snow demonstrated that the key source of the cholera epidemics in London in 1854 was contaminated water from Broad Street and, consequently, the removal of the handle led to the cessation of the epidemic [Tulchinsky, T. H. *et al.*, 2018]. New aspects are added to the WASH approach include rotavirus vaccination which was recently recommended for global introduction into routine schedules for immunization procedures, promotion of early and exclusive breastfeeding, vitamin A supplementation and promotion of handwashing with soap in terms of community-wide sanitation. The most common cause of severe dehydration in children is rotavirus infection nearly every child has at least one rotavirus infection before reaching the age of five years [Momoh, F. E. *et al.*, 2022]. Children who have acute diarrhea can be saved by simple effective interventions, such as oral rehydration solution and zinc. Approximately 70 to 90 percent of deaths caused by acute watery diarrhea can be prevented by oral rehydration solution. Zinc is estimated to decrease diarrhea mortality by 11.5 percent. Appropriate fluids, breastfeeding, continued feeding and selective use of antibiotics also have an important role [UNICEF, 2016]. In 2021, UNICEF distributed over 93 million zinc tablets and more than 30 million oral rehydration solution sachets worldwide. UNICEF also leverages its resources and expertise in health; nutrition; education; behavioral communications, water, sanitation and hygiene to support diarrhea prevention and treatment [UNICEF, 2016]. If children's parents have adequate awareness to diagnose the early clinical symptoms of dehydration, oral rehydration therapy can be used

at home, leading to less frequent visits to the office or emergency room for dehydration [Aghsaiefard, Z. *et al.*, 2022]. A previous study done in Babylon province found that about 65.4% of the mothers did not seek a doctor when their children had diarrhea and about 49.5% managed their children's diarrhea depending on information was heard from grandma, grandpa and relatives while health workers and posters in PHCs was the source information of only 15.5% of mothers in management of diarrhea in children [Al Joborae, F. S. *et al.*, 2020]. In order to demonstrate the best home care for children with acute diarrhea in our community we need to evaluate the awareness and the malpractice of the parents towards diarrhea in children and its management at home.

1.1.1 Oral Rehydration Solution (ORS)

In 1968, glucose-electrolyte solutions were found to treat cholera patients effectively [Ezezika, O. *et al.*, 2021]. Since the introduction of oral rehydration solution (ORS), the incidence of morbidity, mortality, and hospital admissions related to diarrhea decreased significantly. ORS is cheap, affordable, safe and acceptable but there has been little progress towards its use in the last years. Since this treatment can be successfully applied at home, the parents should be aware of how to use and prepare it at home properly [Al Joborae, F. S. *et al.*, 2020; Okafor, I. P. *et al.*, 2022]. Primarily, WHO and UNICEF promoted an ORS with specific amounts of electrolytes and a slightly hypertonic osmolality of 311mmol/kg but it did not have wide acceptance due to gastrointestinal upset and concerns about hypernatremia. In addition, this solution did not reduce stool output. Subsequently, the WHO and UNICEF recommended the formulation of an ORS with a less electrolyte content and a lower osmolality of 245mmol/kg that has been shown to assist the highest rate of fluid absorption [Leiper, J. B., 2015]. Despite the establishment that ORS is the primary reason for the substantial reduction in morbidity and mortality from diarrhea in children in developing countries, the use of ORS has lagged for many reasons. Most times the role, benefits and methods of preparation of ORS are not emphasized by health workers thus mothers do not know the right method of preparation for ORS and do not understand the need to give ORS to the child. In a previous study in Babylon province about 44.9% were not aware enough of ORS [Al Joborae, F. S. *et al.*, 2020].

1.1.2 Zinc Role in Diarrhea Treatment

WHO has suggested zinc supplementation for 10 to 14 days besides low osmolality ORS in acute diarrheal episodes. Mothers, other caregivers and health workers should provide children with 20 mg per day of zinc supplementation for 10-14 days (10 mg per day for infants under the age of six months). Zinc supplementation has been shown to reduce the duration and severity of diarrhea, and to prevent subsequent episodes, although the mechanisms by which zinc exerts its anti-diarrheal effect are not fully understood [World Health Organization, 2023]. The recommended zinc dose (20 mg each day for 10 to 14 days) is based on suppositions of enlarged zinc losses by diarrhea and the need for more zinc than the recommended dietary allowance for immune and gastrointestinal function [Dhingra, U. *et al.*, 2020]. In 2018, a cross-sectional study was done on patients aged from 6 months to 15 years who suffered from gastroenteritis for less than 14 days who had been admitted to the general ward unit and emergency department at the Children Welfare Teaching Hospital has found that serum zinc in children with gastroenteritis has revealed a significantly decreased level. The mean serum zinc was seen lower in patients with duration of diarrhea > 5 days than patients with duration of diarrhea ≤ 5 days; that was statistically a significant difference [Abdul-Azeez, F. *et al.*, 2020].

1.1.3 Breastfeeding

According to WHO and UNICEF, exclusive breastfeeding defined as initiating breastfeeding within the first hour of birth and for the first 6 months of life with no other foods or liquids are provided, including water [World Health Organization, 2021]. A cross-sectional study conducted in 2018, in Najaf, Iraq showed that the prevalence of exclusive breastfeeding was 39.1% which was within the reported estimate for low- and middle-income countries, but much lower than the World Health Organization recommendation [Huda, H. G. *et al.*, 2022]. Exclusive breastfeeding for 6 months protects against gastrointestinal infections in both developing and industrialized countries. Initiation of breastfeeding within one hour of birth protects the newborn from getting infections and lowers newborn mortality. The diarrhea mortality risk may increase in infants who are either partially breastfed or not breastfed at all [World Health Organization, 2021]. Exclusive breastfeeding regulates the colonization and composition of the infant gut microbiome optimally, with both short and long-term health consequences. It also regulates

the interaction between the immune system stimulation and the infant intestinal microbiome which is critical for the development of a healthy immune system, tolerance induction, and pathological imprinting prevention [Ames, S. R. *et al.*, 2023]. The mother provides passive immunity to their infants through breast milk which contains many immune functional proteins. Breast milk contains all types of immunoglobulins (Igs) mainly IgAs followed by IgGs. After 12 weeks from the birth, their concentrations lowered corresponding to an increase in the infant's own production [Vizzari, G. *et al.*, 2021]. The initiation of supplementary food before the end of the first six months increases the risk of contamination, especially in less developed countries where potable water and basic sanitation are lacking [Desmennu, A. T. *et al.*, 2017]. In a study was done to estimate the role of rotavirus in children presenting with acute diarrhea in Al-Diwaniyah maternity and pediatrics hospital from March 2007 to February 2008, rotavirus infection was significantly less frequent in breast-fed children (15%) than bottle-fed (56.5%) and mixed fed (28.5%) children [Attya, A. *et al.*, 2019].

1.1.4 Rotavirus

Rotavirus is the most common cause of severe diarrheal disease in infants and young children globally. It can result in watery diarrhea and vomiting causing dehydration in young children who may need hospitalization [World Health Organization, 2023]. In developing countries, the case-fatality rate (CFR) is about 2.5% of children who present to health facilities [World Health Organization, 2023]. A study done at AL-Batool Teaching Hospital, Central Baqubah between the first of March, 2019 and the end of February, 2020 showed that the overall infection rate by rotavirus among children with diarrhea was (47.33%) [Hameed, A. R., 2022]. Another study involved children aged from 6 months to 5 years who suffered from acute gastroenteritis and were hospitalized in the Gynecology and Children Hospital, Samawah, Iraq, from December 2018 until December 2019 rotaviruses were the most often detected (28.1%) in recorded cases [Thwiny, H. T. 2022]. The communicability of rotavirus is high and is transmitted through the fecal-oral route by person-to-person or by environmental fomites. The incubation period is one to three days. Typically, the patient presented with acute, watery, non-bloody diarrhea. Vomiting and fever can also occur. In temperate climates, the peak of rotavirus infection is in the cool, dry seasons [World Health

Organization, 2023]. An early vaccine for rotavirus was removed from the market due to an increased risk of intussusception. A newer vaccine is a monovalent human vaccine given in two doses from 6 to 24 weeks. A pentavalent bovine-human reassortant vaccine is also available which is given in 3 doses from 6 to 32 weeks. All of the currently available vaccines for rotavirus infection are live attenuated vaccines. The incidence of intussusception is increased 3 to 14 days after vaccine administration, particularly following the first dose of the vaccine. Additional studies showed that the administration of the vaccine in infants greater than 90 days old led to over 80% of cases of intussusception related to rota vaccination [Carvalho, M. F. *et al.*, 2018]. The first dose of rotavirus must be administered at age 6 weeks through 14 weeks and 6 days. The vaccine series should not be started for infants aged ≥ 15 weeks. Rotavirus should not be administered to children older than 8 months of age regardless of the number of doses received between 6 weeks and 8 months [Center for Disease Control]. The recent report of the 12th African Rotavirus Symposium showed that an approximately 40% rate reduction in hospital admission of under 5-year-olds children with acute gastroenteritis was observed between 2006 and 2018 following the introduction of the RV vaccine in WHO-coordinated African region comprising 33 Member States [Ahmed, M. A. *et al.*, 2021]. There was also an indirect protection of the unvaccinated age group population and an overall decline in healthcare costs [Zainab, S. S. *et al.*, 2018]. A cross-sectional study was conducted in Central Teaching Hospital of Pediatrics in Baghdad in 2016 on children under two years of age showed that the rotavirus vaccine reduced the number of cases and hospital admissions of gastroenteritis among those children as (37.5%) of the children admitted to hospital in vaccinated group because of acute gastroenteritis which was significantly lower as compared to (77.1%) of non-vaccinated children [Saba, F. A. *et al.*, 2018]. Overall, Rotavirus vaccination clearly outweighs the risks of adverse events such as intussusception [Carvalho, M. F. *et al.*, 2023]. Rotavirus vaccines completed dose immunization coverage among 1-year-olds infants in Iraq in 2022 was 38% [10].

1.1.5 Antibiotics

One of the main global public health threats is antibiotic misuse or overuse when their use is unnecessary or is not recommended by the treatment guidelines (35). The use of antibiotics inappropriately for diarrheal or other conditions

treatment can result in antimicrobial resistance (AMR) to pathogens, higher healthcare costs to both providers and families and more morbidity and risks of adverse reactions, including prolonged hospitalization [Awuor, A. O. *et al.*, 2024]. Viruses are a main cause of acute diarrhea both in developed and underdeveloped countries. Regardless of the cause and severity of the process, supportive rehydration therapy has a major role in the management, and its proper rapid initiation is associated with better outcomes. It should also be combined with proper nutritional support [Dereje, B. *et al.*, 2023]. WHO doesn't suggest antibiotics for most diarrheal episodes. Even in some confirmed bacterial gastroenteritis cases, antibiotics must not be used routinely but should be considered only for definite pathogens or in defined clinical settings [Bruzese, E. *et al.*, 2018] as in bloody diarrhea (shigellosis is the most common cause of bloody diarrhea), suspicion of cholera with severe dehydration and diarrhea with severe acute malnutrition [Thomson, J. E. *et al.*, 2007]. A study was done in the Pediatric Ward of Al-Sadder Teaching Hospital in Misan Province found that the majority (96.67%) of children less than 5 years old who had admitted to the hospital were treated with antibiotics and there was obvious misuse of antibiotics. On the top of the antibiotics' list was third generation cephalosporin, metronidazole was the second and aminoglycoside was the third most frequently used antibiotic according to that study [Al-Muhsen, A. *et al.*, 2016]. Another study done at Al-Zahraa Maternity and Children Hospital in Al-Najaf Al-Ashraf City for the period from March 2010 to October 2020 showed that antibiotic misuse in the treatment of acute diarrhea for children aged 2 months to five years was obvious. More than three quarters of the children received antibiotics and more than two antibiotics were prescribed in some cases. Metronidazole, cephalosporins and co-trimoxazole were the commonest used antibiotics respectively. The study found that private clinic doctors were the major source of antibiotic prescriptions [Ahmed, M. A. *et al.*, 2021].

1.2 Aim of The Study:- To identify the awareness and malpractice levels of the parents towards home management of diarrhea in under 5 years old children.

2. SUBJECTS AND METHOD

2.1. Study design: Cross sectional study.

2.2. Study Setting: The study was done by among the parents of under 5 years old children who

attended the primary health care centers of in Hilla City from 1st of April 2023 to 31st of August 2023.

2.3. Study Population and Sampling Technique:

The study was done in Primary Health Centers (PHCCs) of 1st and 2nd Hilla Health Sectors. 6 PHCCs (3 PHCCs from each health sector) were selected by simple random sampling (lottery methods). The sample was a convenient sample of 340 parents of under 5 years old children attended these PHCCs.

2.4. Inclusion Criteria: The parents of under 5 years old children attended the primary health care centers in Hilla City who agreed to participate in the interview after the explanation of the aim of the study.

2.5. Exclusion criteria:

- Parents of severely ill under 5 years old children.
- Parents who are very ill or sick.

2.6. Data collection tool: The collection of data was done by direct interviewing the parents of the children using a questionnaire that was based on the review of literature of closely related articles [Zainab, S. S. *et al.*, 2018; Al-Ghabban, I. S. *et al.*, 2021] with modifications to be compatible with the study. The questionnaire was reviewed and corrected by experts (two community medicine specialists, three family physicians and a pediatric consultant (appendix B). After the validation by the experts (appendix A), the questionnaire was included in a pilot study which was done in a sample of 34 parents of under 5 years old children who attended AL Muhandeseen Health Care Center in Hilla City to complete the final validation process and to ensure the simplicity of the questionnaire's items. Those parents who participated in the pilot study were not included in the final analysis of the study. The final validated questionnaire was divided into three sections and was composed of 35 questions. It aimed to test the parents' awareness and practice levels regarding home management of acute diarrheal illnesses in under 5 years old children in Hilla City. The first part of the questionnaire was composed of 8 questions that were related to the sociodemographic characteristics of the parents including the age of the parent, relationship to the child (mother or father), educational level of the parent, monthly income of the family, the number of under 5 years old children in the family, age of the child, sex of the child and the birth order of the index child. The second section was composed of

12 questions that assessed the awareness level of the parents regarding acute diarrheal illnesses in children. The third part included 15 questions that assessed the home management practices of the parents regarding the of diarrheal illnesses in children. For both awareness and practice answers , 3 points were given for correct answers, 2 points for participants who were unsure about the answers and 1 point for incorrect answers. For classification the awareness and practice into good , medium and poor we depend on a closely related study was done in Holly Karbala in 2016 [Jaykaran, C. *et al.*, 2013].The participant was considered to have good awareness or practice levels when properly answered 75% or more of the questions, medium when the participant answered properly 60% to 74% of questions and poor when the participant's proper answers were less than 60% of the related questions to the awareness or practice.

2.7 Sample size:

A sample of 340 parents of under 5 years old children calculated according to the Fischer's formula (43):

$$n = \frac{z^2}{d^2} * pq$$

n is the number of participants required in the study

We use a level of confidence of 95% so z is equal to 1.96

P is the percentage of estimated prevalence of poor knowledge that is calculated in a previous study in Eastern AL Hamza City as 66.8% (0.67) [44].

q is (1 - p) = (0.33)

$$N = \frac{1.96^2}{0.05^2} * 0.67 * 0.33 = 339.7 \approx 340 \text{ participants.}$$

2.8. Ethical consideration: Ethical approval and official agreement from Iraqi Board for Medical Specialization. Also, official permission was obtained from the College of Medicine, University of Al-Kufa, Babylon Health Directorate, Al-Hillah Health Sectors (1st and 2nd) and PHCCs where the interview with the parents took place (appendix B). Parents informed verbal consent was obtained.

2.9 Data analysis:

Data entry and analysis were done by using SPSS (statistical package for social sciences) version 26, a computer software. Figures and tables were used for the illustration of data. Continued variables were presented in means and standard deviations. Chi square and Exact test were used to test the association between parents' knowledge and practice with different socio-demographic

variables. P-value of ≤ 0.05 was considered statistically significant.

3.RESULTS

This study was done on 340 parents of under 5 years old children including 257 (75.4%) mothers and 83 (24.3%) fathers. The majority of the participants aged 236 (69.2) were between 20 to 40 years. Regarding the educational level, 126 (37%)

of them have higher education. 142 (41.6%) of the participants their monthly income was sufficient. Regarding children, 215 (63.0%) were more than one year in age and 179 (52.6%) of them were female. 220 (64.5%) of the children birth order was 2nd and more. 198 (58.2%) had only one child under 5 years old as table (3.1) shows.

Table (3.1): Distribution of parents according to the socio demographic data

Demographic data		Frequency	Percent
Age of the parent(years)	Less than 20	43	12.6
	20 to 40	236	69.2
	More than 40	61	17.9
Relationship to the child	Mother	257	75.4
	Father	83	24.3
Educational level	Read and write	33	9.7
	Primary school	64	18.8
	Secondary school	117	34.3
	University and more	126	37.0
Monthly income	Insufficient	117	34.3
	Sufficient	142	41.6
	Can save	81	23.8
Age of the child	Less than 1 year	125	36.7
	1 year to 5 years	215	63.0
Gender of the child	Male	161	47.4
	Female	179	52.6
Number of children under five year at home	One child	198	58.2
	More than one	142	41.8
Birth order of the index child	1st child	120	35.2
	2nd child and more	220	64.5

This study find that more than half of the parents (52.9%) falsely believe that teething process is a cause of acute diarrhea in children which is the

most question answered incorrectly by the parents as table (3.2) shows.

Table (3.2): Percentage of incorrect and correct answers to each question in the awareness part of the questionnaire among parents

Awareness Questions	Incorrect Answers	Correct Answers
Diarrhea is a contagious Disease	173 (50.9%)	167 (49.1%)
Frequent passing of watery stool 3 times or more considered diarrhea	84 (24.7%)	256 (75.3%)
Frequent passing of formed stool not considered diarrhea	99 (29.1%)	239 (70.9%)
Teething process is a cause of diarrhea in children	179 (52.9%)	161 (47.1%)
Bottle feed infants are more likely to have diarrhea than breast feed infants	85 (25%)	255 (75%)
Duration of exclusive breast feeding is 6 months (no other foods or liquids are provided including water)	152 (44.7%)	188 (55.3%)
Vitamin A supplementation can reduce diarrheal attacks	132 (38.8%)	208 (61.2%)

Rota virus and measles vaccination have a role in prevention or reduction severe diarrheal attacks	172 (50.6%)	168 (49.4%)
Sunken eyes is sign of a dehydrated child	60 (17.6%)	280 (82.4%)
Skin inelasticity is a sign of a dehydrated child	69 (20.3%)	271 (79.7%)
improper management of diarrhea at home can increase morbidity and mortality	511 (5%)	289 (85%)
ORS can prevent dehydration	80 (23.5%)	260 (76.5%)

Table (3.3) shows that 168 (49.41%) of the parents falsely believe that antibiotics use is always required in treatment of acute diarrhea in children

which the most question answered incorrectly by the parents.

Table (3.3): Percentage of incorrect and correct answers to each question in the practice part of the questionnaire among parents

Practice Questions	Incorrect Answers	Correct Answers
ORS solution can be used after 24 hour of preparation	105 (30.9%)	235 (69.1%)
Oral rehydration solution can be prepared at home	156 (45.9%)	184 (54.1%)
I use cooled, boiled water to mix ORS	105 (30.9%)	235 (69.1%)
Water sold by vendor can be used to mix ORS	149 (43.8%)	191 (56.2%)
My first response when my child has diarrhea is to start administering OR	123 (36.2%)	217 (63.8%)
Antibiotics use is always required in treatment of diarrhea	168 (49.41%)	172 (50.59%)
Zinc is a part of treatment should be given for a duration of 10 to 14 days	108 (31.8%)	232 (68.2%)
ORS should be given after each loose bowel motion	24.7% (84)	75.3% (256)
give soft drink , sweetened tea ,sweetened Fruit drink to your child	29.4% (100)	70.6% (240)
To prepare ORS mix one sachet with boiled water according to the instructions	90 (26.5%)	250 (73.5%)
ORS can be given by Feeding bottle	151 (44.7%)	189 (55.3%)
ORS is given by Cup and spoon	123 (36.2%)	217 (63.8%)
Stop giving ORS when the child develop vomiting	158 (46.5%)	182 (53.5%)
Not dilute milk when the child has diarrhea	102 (30%)	238 (70%)

The figure (3.1) shows the awareness level of the parents regarding acute diarrhea in under 5 years old children as 81 (23.82%) of the participants

have poor awareness level , 103 (30.29%) have medium awareness level and 156 (45.88%) of them have good awareness level.

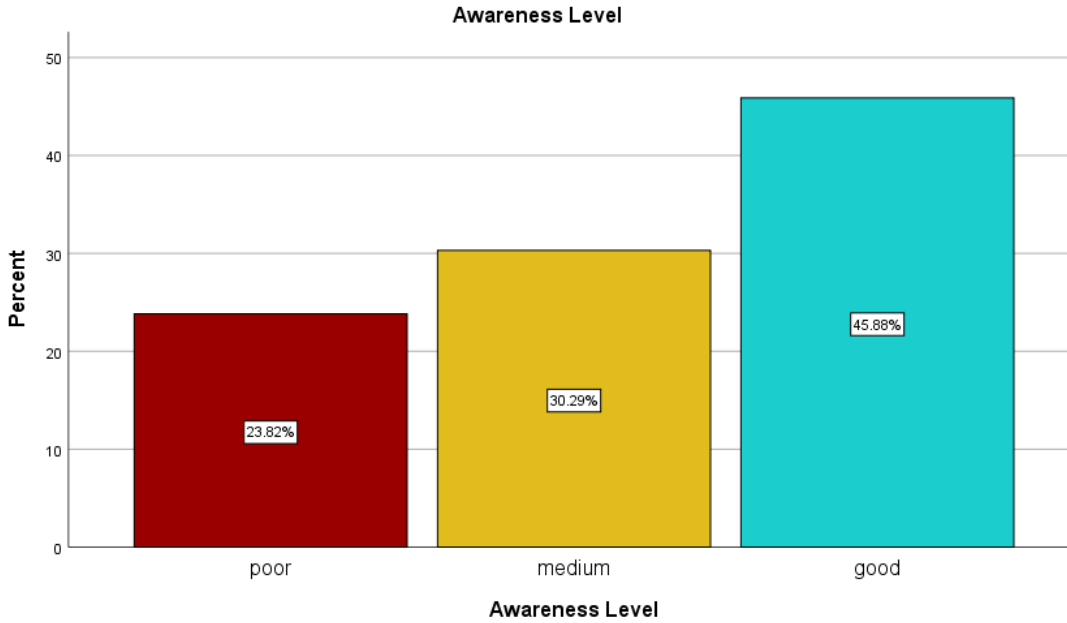


Figure (3.1): Awareness levels among parents regarding acute diarrhea and its management in children.

The figure (3.2) shows the practice level of the parents regarding acute diarrhea in under 5 years old children as 101 (29.71%) of the parents have

poor practice level, 75 (22.06%) have medium practice level and 164 (48.2%) of them have good awareness level.

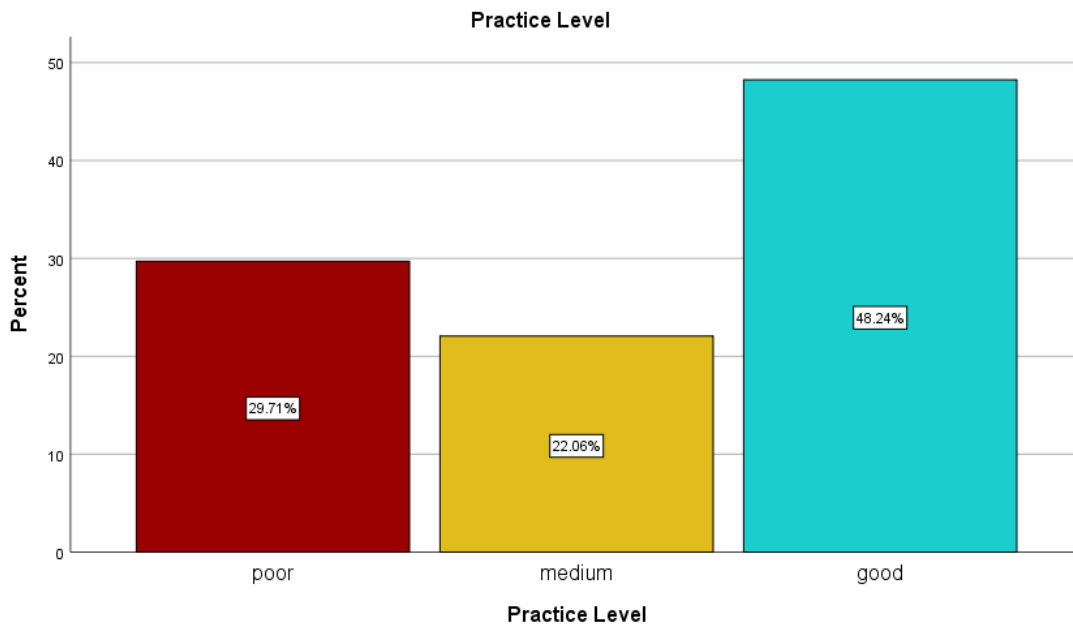


Figure (3.2): Practice levels among parents regarding acute diarrhea and its management in children.

Both the means of the awareness scores and practice scores of the parents are within medium level as parents that their score 27 points and more are considered to have high awareness level, parents with score 21 and below are considered to

have poor awareness level. Regarding practice, parents whose score 33 and higher are considered to have good practice level and parents whose score 26 and less are considered to have poor practice level.

Table (3.4): The mean and standard deviation of the awareness and practice scores of the parents

Scores	Minimum value	Maximum value	Mean ± SD
Knowledge score (Total score 36)	12	36	25.90±6.26
Practice score (Total score 45)	15	45	31.81±8.49

There is a strong significant association between the awareness level and the practice level of the parents regarding acute diarrhea in under 5 years

old children and its management (p value 0.0001) as table (3.5) shows.

Table (3.5): The association between the awareness level and the practice level of the parents regarding acute diarrhea in under 5 years old children and its management.

		Practice Level			Total	P-value
		Poor	Medium	Good		
Awareness Level	Poor	64 (79%)	12 (14%)	5 (7%)	81	0.0001
	Medium	29 (28%)	31 (30%)	43 (42%)	103	
	Good	8 (5%)	32 (20%)	116(75%)	156	
Total		101	75	164	340	

The results find a significant statistical association between the higher awareness level with the older parents, being mother of the child, higher educational levels, better economic status, child age more than one year, parents have more than

one child under 5 years old and as the order of the index child increases (p value less than 0.05). There is no significant statistical association between the awareness level and the sex of the child (p value more than 0.05) as table (3.6) shows.

Table (3.6): The association between the awareness level and the sociodemographic variables of the parents

Sociodemographic variables	Awareness level			Total	P-value	
	Poor	Medium	Good			
Age of the parent	Less than 20	23 (53.48)	9(20.9)	11(25.62)	43	0.0001
	20 to 40	51(21.61)	117(49.57)	68(28.82)	236	
	More than 40	7(11.47)	30(49.18)	24(39.34)	61	
Relationship to the child	Mother	47(18.28)	81(31.51)	129(50.19)	257	0.0001
	Father	34(40.96)	22(26.50)	27(32.54)	83	
Educational level	Read and write	19 (57.57)	11(33.33)	3(9.09)	33	0.002
	Primary school	36 (56.52)	15(23.43)	13(20.05)	64	
	Secondary school	19(16.23)	48(41.02)	50(42.45)	117	
	University and more	7(55.55)	29(23.01)	90(21.44)	126	
Monthly income	Sufficient	39(33.34)	32(27.35)	46(39.31)	117	0.011
	Insufficient	25 (17.60)	40 (28.16)	77(54.44)	142	
	Can save	17(20.98)	31 (38.27)	33(40.75)	81	
Age of the child	Below one year	37(29.60)	41 (32.80)	47(37.60)	125	0.047
	1 year to 5 years	44(20.46)	62(28.83)	109(50.69)	215	
Sex of the child	Male	42 (26.08)	51 (31.67)	68(42.23)	161	0.420
	Female	39(21.78)	52 (29.05)	88(49.17)	179	
Number of children under five year at home	One child	56(28.28)	51 (25.75)	91(45.97)	198	0.028
	More than one	25 (17.60)	52(36.61)	65 (45.79)	142	
Birth order of the index child	1st child	52(34.43)	26 (21.67)	42 (43.90)	120	0.0001
	2nd child and more	29 (13.18)	77 (35.00)	114 (51.81)	220	

The results show a significant statistical association between the higher practice level and older parent, being mother of the child, higher

educational level, child age more than one year, parents have more than one child under 5 years old and as the order of the index child increases (p

value less than 0.05). There is no significant statistical association between the practice level

and the sex of the child (p value more than 0.05) as table (3.7) shows.

Table (3.7):The association between the practice level and the sociodemographic variables of the parents

Sociodemographic variables	Practice level			Total	P-value	
	Poor	Medium	Good			
Age of the parent	Less than 20	28(65.11)	13(30.23)	2(4.66)	43	0.031
	20 to 40	61(25.84)	46(19.49)	129(54.67)	236	
	More than 40	12(19.67)	16(26.22)	33(54.09)	61	
Relationship to the child	Mother	56(21.78)	54(21.01)	147(57.21)	257	0.0001
	Father	45(54.21)	21(25.30)	17 (20.49)	83	
Educational level	Read and write	21(63.63)	7 (21.21)	5 (15.16)	33	0.033
	Primary school	41(64.06)	8 (12.50)	15 (23.44)	64	
	Secondary school	33(28.20)	32 (27.35)	52 (44.45)	117	
	University and more	6 (4.76)	28 (22.22)	92 (73.02)	126	
Monthly income	Insufficient	45(38.46)	23 (19.65)	49 (41.88)	117	0.017
	Sufficient	28(19.71)	36 (25.35)	78 (54.92)	142	
	Can save	28(34.56)	16 (19.75)	37 (45.67)	81	
Age of the child	Below one year	47(37.60)	35 (28.00)	43 (34.40)	125	0.01
	1 year to 5 years	54(25.11)	40 (18.60)	121 (56.29)	215	
Sex of the child	Male	49(30.43)	33(20.49)	79 (50.92)	161	0.082
	Female	52(29.05)	42 (23.46)	85 (47.48)	179	
Number of children under five year at home	One child	75(37.87)	41 (20.70)	82 (41.43)	198	0.0001
	More than one	26(18.30)	34 (23.94)	82 (57.76)	142	
Birth order of the index child	1st child	61(50.83)	28 (23.33)	31 (25.84)	120	0.0001
	2nd child and more	40(18.18)	47 (21.36)	133(60.46)	220	

4.DISCUSSION

Parents’ awareness and practice regarding signs, symptoms, management and prevention of diseases are vital in reducing children morbidity and mortality. So, assessing their awareness and practice levels toward acute diarrhea in children would help in designing an effective health educational strategy. This study has found that about 23.82% of the parents of under 5 years old children attended the primary health care centers in Hilla Health Sectors had a poor awareness level about acute diarrhea in under 5 years old children and 29.71% of the parents had a poor level of practice. In comparison to a previous study in the Alhusainya district of Holly Karbala in 2016, the majority of the mothers of children under 5 years of age (77.6%) had low awareness levels about acute diarrhea in children which was much higher than the current study found and more than half (56.6%) had poor practice which was higher to what the present study showed. This difference might be because most of the participants in the current study were educated and the association of

the education of the parents with the awareness and the practice level were statistically significant (P value 0.002 and 0.033 respectively). The awareness level of the present study was higher than of a previous study that conducted in Eastern AL Hamza City which found (66.8%) of mothers had a low level of awareness about home management of diarrhea which might be because the majority of the participants in that study had low educational level as (30.0%) of them could not read and write [Wahab, M. J. *et al.*, 2022]. A cross sectional study was done to assess the mothers' awareness and practice about diarrhea in children in Duhok City in 2017 showed that 68% of the participants had a poor awareness level which is much higher than that of the current study found. Regarding the practice of diarrhea management in the same study, (64%) of the participants had poor practice. The awareness level of the current study is approximately similar to the awareness level in previous study carried out in 2016 in Gambella Region in Ethiopia which found that (38.0%) of child caregivers had a low level of awareness

about diarrhea in under five years old children [Poudel, P, 2023] while the majority of mothers (61.4%) in the Bara district of central Nepal in 2020 had poor level of awareness [Poudel, P, 2023]. This study showed a strong significant association between the awareness level and the practice level of the participants (P value 0.0001) that might be due to the parents' practice being based on and altered by their awareness. This finding agreed with previous study in Holly Karbalaa [Jaykaran, C. *et al.*, 2013] and disagree to a study in Duhok City in 2017 that found a negative correlation between knowledge level and practice level [9]. The current study showed a significant statistical association of both awareness and practice levels with older parents (P value 0.0001, 0.031) the educational level of the parents (P value 0.02, 0.033), parents of children with 2nd or higher birth index (P value 0.0001 for both), parents of children older than one year in age (P value 0.047, 0.01) and higher family income (P value 0.011, 0.017). These findings are similar to previous study was done on under-5-year-old children's caregivers in Munshaat Sultan village in Egypt from November 2016 to the end of December 2018 where the awareness and practice scores were significantly lower in young mothers and those with lower education. Similarity to the present study, there was a statistically significant difference between the quality of diarrheal management practice and the parents' education, the number of children in the family, economic status, and older child age [Barakat, A. M. A. *et al.*, 2020]. Unlike the present study, a study in Duhok City in 2017 showed no correlation between wrong concepts about acute diarrhea and its home management with the age and the level of education of the parents or their prior experience obtained from previous children [9]. Also, in contrast to the present study, previous study investigated the awareness and practices regarding diarrhea among the participants of Rawalpindi and Islamabad, Pakistan in 2020 showed that no significant association was found between the monthly income and number of children in the family with the awareness level of the participants [Abbasi, A. *et al.*, 2021]. The association of the higher levels of awareness and practice levels with older age of the parents might be a result of the more experienced older parents in dealing with the children. Also, the more educated parents can read the posters, choose more trusted sites on social media to seek information, ask and communicate. Beside that, there is a positive association between knowledge and care seeking

behavior. The significant association of the higher awareness and practice levels of the parents with more under 5 years children in the family could be due to that with each child develop diarrhea, the parents seek consultation so they would have more experience. Also parents of children with 2nd or higher birth index might deal previously with their older children and acquired more experience in diarrhea and its home management. Children older than one year most likely developed similar conditions previously and the parent dealt with or might take the child previously for consultation. The significant association between the family income and the awareness and practice levels can be explained as those with better income can seek medical consultation more than families with insufficient income. Also a significant association is found between the higher awareness and practice levels with being a mother (P value 0.0001 for both). This could be because the mothers often bear the larger responsibility in caring and dealing with their children, taking decisions regarding the type and amount of food that is given to their children, type of infant feeding whether breast or bottle feeding and the period of exclusive breastfeeding. Also, mothers usually can recognize any physical or behavioral changes in their children and they have larger role in the home management of their children. There was no significant association of both the awareness and the practice levels with the sex of the child (P value 0.420, 0.082 respectively). This finding agree with a previous study in Pakistan in 2020 [Abbasi, A. *et al.*, 2021]. This could be due to the presentation and the management is the same for both. The most frequent question in the awareness part that was answered incorrectly by the participants was whether the teething process is a cause of diarrhea in children as 52.9 % of the participants incorrectly answered agree. A study in Basra in 2019 identified a significant number of doctors, dentists, and pharmacists still attribute many symptoms and signs including diarrhea to teething despite the lack of supporting evidence and about (68.5%) of the mothers report acute diarrhea in infants is caused by teething. Mothers of firstborn children were found to have a higher tendency to attribute diarrhea to teething than those who had previous experience with children (which is similar to the finding of this study [Yousif, M. K, 2020]). A study was done in Mansoura District on mothers who had their children with one or more erupted teeth showed that 51% of them considered teething to be a cause of acute diarrhea [El-Gilany, A. H. *et al.*, 2017]. In

a previous study conducted in a tertiary hospital in Riyadh, Saudi Arabia, most of the mothers (69.6%) believed that teething is the leading cause of acute diarrheal illness in children [10]. Another previous study carried out in south east of Iran between February 2017 and February 2018 showed that 62% attribute acute diarrhea in infants to teething [Miri-Aliabad, G. *et al.*, 2021]. Regarding practice, the most incorrectly answered question was about the use of antibiotics when the child develops diarrhea as about 49.41% of the parents considered antibiotics use is always required in treatment of acute diarrhea in children. A cross-sectional study was performed on a convenient sample of mothers in Baghdad, Iraq from November 2017 to April 2018 showed 12.5% of them would reuse the antibacterial agents already available at home for treatment of acute diarrhea in children [5]. While a cross-sectional study conducted in a tertiary hospital in Riyadh, Saudi Arabia showed that 7% of the participants considered antibiotics a main treatment of acute diarrhea in under 5 years old children which was much lower than the present study showed [10]. A cross-sectional study was conducted on under 5 years old children's caregivers in Munshaat Sultan village, Egypt, showed that antibiotics were given for about two-thirds of children by their parents when they develop diarrhea without consultation as these parents considered antibiotics is the cornerstone of acute diarrhea treatment [Barakat, A. M. A. *et al.*, 2020].

5. LIMITATIONS OF THE STUDY

1. Face to face interviews may result in recall bias.
2. The child may have another caregiver other than the parents in the family who may play a significant role in management practice not involved in this study.

6. CONCLUSIONS

1. Most of parents of under 5 years old children in Hilla city have good awareness and practice levels toward acute diarrhea in children and its home management.
2. Parents' educational status, age of the parents, being mothers, monthly income, having more than one child below 5 years old, child age more than one year and the order of the index child 2nd or more were associated with better knowledge and practice toward diarrhea in under 5 years old children and its home management.
3. Also, there was a significant association between the knowledge level of the participants and their practice level.

4. The most common misconception among the participants in this study was teething is a cause of acute diarrhea in children.

5. Most of the participants falsely agreed that antibiotics should always be given for the management of under 5 years old children with acute diarrhea.

7. RECOMMENDATIONS

1. Educational programs of parents about the proper use and preparation of ORS at home which is simple but highly effective step in prevention of dehydration, promoting appropriate feeding during diarrheal episodes and how to recognize signs of dehydration.
2. Educate the medical and paramedical staffs as well as the community about the proper indications of antibiotics in diarrheal illness in children.
3. Encourage and promote exclusive breast feeding and increase the awareness about its unreplaceable benefits.
4. Increase the awareness of the parents about the importance of the vaccination in preventing serious diseases in children including rota and measles vaccines and the importance to be taken in the appropriate time.
5. Female education and empowerment should be prioritized.

8. REFERENCES

1. World Health Organization. "Diarrhoea fact sheet.m2 May 2017." (2023). <https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease>
2. Thwiny, H. T., Alsalih, N. J., Saeed, Z. F., Al-Yasari, A. M. R., Al-Saadawe, M. A. A. & Alsaadawi, M. A. E. "Prevalence and seasonal pattern of enteric viruses among hospitalized children with acute gastroenteritis in Samawah, Iraq." *Journal of Medicine and Life*, 15.1 (2022 Jan): 52–57.
3. UNICEF. "Childhood diseases." *Unicef.org* (2016). <https://www.unicef.org/health/childhood-diseases>
4. Workie, H. M., Sharifabdilahi, A. S. & Addis, E. M. "Mothers' knowledge, attitude and practice towards the prevention and home-based management of diarrheal disease among under-five children in Diredawa, Eastern Ethiopia, 2016: a cross-sectional study." *BMC Pediatrics*, 18.1 (2018).
5. Mohammed, I. S., Sabry, T. A., Sabry, T. D. & Mohammed, H. B. "Knowledge and Malpractices in Pediatrics Diarrhea

- Management by Iraqi Mothers." *Asian Journal of Pharmaceutical and Clinical Research*, 11.8 (2018): 503–503.
6. UNICEF DATA. "Diarrhoea." [Internet]. [2023]. <https://data.unicef.org/topic/child-health/Diarrhoeal-disease>
 7. Gessesse, D. N. & Tarekegn, A. A. "Prevalence and associated factors of diarrhea among under-five children in the Jawi District, Awi Zone Ethiopia, 2019: community-based comparative cross-sectional study." *Frontiers in Pediatrics*, 10 (2022).
 8. Momoh, F. E., Olufela, O. E., Adejimi, A. A., Roberts, A. A., Oluwole, E. O. and Ayankogbe, O. O., *et al.* "Mothers' knowledge, attitude and home management of diarrhoea among children under five years old in Lagos, Nigeria." *African Journal of Primary Health Care & Family Medicine*, 14.1 (2022).
 9. Saadallah, O. S. & Saido, G. A. "Knowledge and practices of mothers about diarrhea in children under three years old in Heevi Pediatric Teaching Hospital in Duhok City." *Polytechnic Journal*, 11.1 (2021): 52–57.
 10. Alrafiaah, A. S., Albraikan, A., AlJaafari, A., AlAbbad, A., Alfehaid, H., Alqueflie, S., *et al.* "Assessment of maternal knowledge and practices regarding acute diarrheal illnesses in children in Saudi Arabia: A Tertiary Care Center Survey." *Cureus* (2022).
 11. Wasihun, A. G., Dejene, T. A., Teferi, M., Marugán, J., Negash, L., Yemane, D., *et al.* "Risk factors for diarrhoea and malnutrition among children under the age of 5 years in the Tigray Region of Northern Ethiopia." *PLOS ONE*, 13.11 (2018): e0207743.
 12. Tulchinsky, T. H. "John Snow, Cholera, the Broad Street Pump; Waterborne diseases then and now." *Case Studies in Public Health* [Internet]. (2018): 77–99. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7150208/>
 13. Aghsaeifard, Z., Heidari, G. & Alizadeh, R. "Understanding the use of oral rehydration therapy: A narrative review from clinical practice to main recommendations." *Health Science Reports*, 5.5 (2022 Sep).
 14. Al Joborae, F. S., Sijal, A. J. F., Fadhil, A. J. F., Jubbawi, S. F. & Abbas, R. I. "Knowledge of the mothers toward sanitation and hygiene in relation to childhood gastroenteritis in Babylon province." *Indian Journal of Forensic Medicine & Toxicology*, 14.4 (2020).
 15. Ezezika, O., Rangunathan, A., El-Bakri, Y. & Barrett, K. "Barriers and Facilitators to implementation of oral rehydration therapy in low- and middle-income countries: A systematic review." *PLOS ONE*, 16.4 (2021): e0249638.
 16. Okafor, I. P., Akinyemi, O. T., Wika-Kobani, B. N., Olubodun, T. & Eze, U. T. "Childhood diarrhoea: A cross-sectional survey on maternal knowledge, hygienic practices and use of oral zinc for home management in a Nigerian community." *The Pan African Medical Journal* [Internet], 42(2022): 123 Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9430891/>
 17. Leiper, J. B. "Fate of ingested fluids: Factors affecting gastric emptying and intestinal absorption of beverages in humans." *Nutr. Rev.*, 73. 2(2015): 57–72
 18. World Health Organization. "Zinc supplementation in the management of diarrhoea." [Internet]. [2023]. Available from: <https://www.who.int/tools/elena/interventions/zinc-diarrhoea>
 19. Dhingra, U., Kisenge, R., Sudfeld, C. R., Dhingra, P., Somji, S. and Dutta, A., *et al.* "Lower-dose zinc for childhood diarrhea — A randomized, multicenter trial." *New England Journal of Medicine*, 383.13 (2020): 1231–1241.
 20. Abdul-Azeez, F., Abdulwahhab, S. & Ibraheem, M. "The Impact of Serum Zinc Levels on Children with Acute Gastroenteritis." *Iraqi Postgraduate Medical Journal*, 20.4 (2020): 406-410
 21. World Health Organization. "Infant and young child feeding." [Internet]. *Who.int. World Health Organization: WHO* (2021). Available from: <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>
 22. Huda, H. G., Shakir, H., Abdulkareem, M. A., Salam, M. J. & Thikra, A. A. "Prevalence and determinants of exclusive breastfeeding." *PubMed*, 72.10 (2022): 1927–1931.
 23. Ames, S. R., Lotoski, L. C. & Azad, M. B. "Comparing early life nutritional sources and human milk feeding practices: personalized and dynamic nutrition supports infant gut microbiome development and immune system maturation." *Gut Microbes* [Internet], 15.1 (2023): 2190305. Available from <https://pubmed.ncbi.nlm.nih.gov/37055920/>

24. Vizzari, G., Morniroli, D., Ceroni, F., Verduci, E., Consales, A. & Colombo, L. *et al.* "Human milk, more than simple nourishment." *Children*, 8.10 (2021): 863.
25. Desmennu, A. T., Oluwasanu, M. M., John-Akinola, Y. O., Oladunni, O. & Adebowale, S. A. "Maternal education and diarrhoea among children aged 0-24 months in Nigeria." *Afr. J. Reprod. Health*, 21.3 (2017): 27–36.
26. Attya, A. & Al-Saidy, S. "Role of rotavirus as the cause of acute pediatric diarrhea in Al-Diwaniyah, Iraq." *Al-Qadisiyah Journal of Veterinary Medicine Sciences QJVMS [Internet]*, 18.1 (2019). Available from: <https://www.iasj.net/iasj/download/e6dd48f6efd502c6>
27. World Health Organization. "Vaccine preventable diseases surveillance standards." [Internet]. www.who.int. [cited 2023 Feb 5]. Available from: <https://www.who.int/publications/m/item/vaccine-preventable-diseases-surveillance-standards>
28. World Health Organization. "Rotavirus: vaccine preventable diseases surveillance standards." [Internet]. [2023]. Available from: <https://www.who.int/publications/m/item/vaccine-preventable-diseases-surveillance-standards-rotavirus>.
29. Hameed, A. R. "Prevalence of rotavirus among Iraqi children with diarrhea in Diyala province." *Iraq Medical Journal*, 4.4 (2020).
30. Carvalho, M. F. & Gill, D. "Rotavirus vaccine efficacy: current status and areas for improvement." *Human Vaccines & Immunotherapeutics [Internet]*, 15.6 (2018): 1237–1250. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6663136/>
31. Center for Disease Control. "Recommended and minimum ages and intervals between doses of routinely recommended vaccines." [Internet]. Available from: <https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/a/age-interval-table.pdf> .
32. Ahmed, M. A., Mazin, M. M., Asmaa, N. L. & Jumaah, A. "Antimicrobial abuse in treatment of acute diarrhea." *Curr Pediatr Res*, 25.11 (2021): 1089-1094.
33. Zainab, S. S., Kazi, H. E. & Bello, A. M. "Mothers' knowledge practices in home management of childhood diarrhea in Kano state: a cross-sectional study." (2018).
34. Saba, F. A. & Raed, S. Y. "Efficacy of rotavirus vaccination in prevention of hospital admission of gastroenteritis among children under two years of age." *Iraqi Postgraduate Medical Journal*, 17.3 (2018): 225-231.
35. Aslam, B., Wang, W., Arshad, M. I., Khurshid, M., Muzammil, S., Rasool, M. H., *et al.* "Antibiotic resistance: a rundown of a global crisis." *Infection and Drug Resistance [Internet]*, 11 (2018): 1645–1658. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6188119/>
36. Awuor, A. O., Ogwel, B., Powell, H., Verani, J. R., Sow, S. O., Hossain, M. J., *et al.* "Antibiotic-prescribing practices for management of childhood diarrhea in 3 Sub-Saharan African countries." 2023 76.1 (2024): 40. https://academic.oup.com/cid/article/76/Supplement_1/S32/7130307
37. Dereje, B., Yibabie, S., Keno, Z. & Megersa, A. "Antibiotic utilization pattern in treatment of acute diarrheal diseases: the case of Hiwot Fana Specialized University Hospital, Harar, Ethiopia." *Journal of Pharmaceutical Policy and Practice*, 16.1 (2023).
38. Bruzzese, E., Giannattasio, A. & Guarino, A. "Antibiotic treatment of acute gastroenteritis in children." *F1000Research*, 7(193 (2018): 193.
39. Thomson, J. E. & Chavan, A. A. "Handbook IMCI: Integrated management of childhood illness." *Archives of Disease in Childhood*, 92.2 (2007): 187–197.
40. Al-Muhsen, A. & Abd, E. "Misuse of antibiotics in pediatric gastroenteritis of Al-Sadder Teaching Hospital in Misan province, Iraq." *International Journal of Advanced Research*, 4.12 (2016): 2084–2088.
41. Al-Ghabban, I. S., Al-Ghabban, S. W., Abd-Oun, I. S. & Ubaid, A. H. "Maternal knowledge, attitude, and practice regarding diarrhoea and waterborne diseases in rural districts of Karbala, Iraq." *PubMed*, 71. 9-12 (2021): S59–S64.
42. Jaykaran, C. & Biswas, T. "How to calculate sample size for different study designs in medical research?" *Indian Journal of Psychological Medicine*, 35.2 (2013): 121.
43. Wahab, M. J. & Faris, S. H. "Mothers' attitude about treatment and prevention of diarrhea in children under five years at the Eastern AL Hamza City." *Pakistan Journal of Medical and Health Sciences*, 16.4 (2022): 881–883.

44. Mekonnen, G. K., Mengistie, B., Sahilu, G., Mulat, W. & Kloos, H. "Caregivers' knowledge and attitudes about childhood diarrhea among refugee and host communities in Gambella Region, Ethiopia." *Journal of Health, Population and Nutrition*, 37.1 (2018).
45. Poudel, P. "Awareness regarding prevention and management of diarrheal disease among mothers of under five children in Central Nepal." *Population Medicine*, 5 (2023): A1050.
46. Barakat, A. M. A., Farahat, T., Shaheen, H. & Alkalash, S. "Diarrheal management approach among caregivers of under-5-year-old children in an Egyptian rural area." *Menoufia Medical Journal*, 33.1 (2020): 5.
47. Abbasi, A., Shahzad, K., Shabbir, R. M. K., Afzal, M. S., Zahid, H., Zahid, T., *et al.* "Demographic attributes of knowledge, attitude, practices, and one health perspective regarding diarrhea in Pakistan." *Frontiers in Public Health*, 9 (2021).
48. Yousif, M. K. "Mothers' false beliefs and myths associated with teething." *Qatar Medical Journal*, 2020.2 (2020).
49. El-Gilany, A. H. & Abusaad, F. E. S. "Mothers' teething beliefs and treatment practices in Mansoura, Egypt." *The Saudi Dental Journal*, 29.4 (2017): 144–148.
50. Miri-Aliabad, G., Khajeh, A. & Teimouri, A. "Infants teething problems and mothers' beliefs in South East of Iran." *Journal of Comprehensive Pediatrics*, 12.1 (2021).

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