

Assessment of knowledge attitude and practice of mothers regarding diarrhea and its management after twenty five years of the National Control of Diarrheal Disease Project

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Abstract: Background: Diarrhea occurs worldwide and causes 4% of all deaths. It is most commonly caused by gastrointestinal infections which kill around 2.2 million people globally each year, mostly children in developing countries. In 2008, Egypt prevalence of diarrhea in children aged under five years who receiving Oral Rehydration Solution is 28.4 %. **Aim of the study** was to assess mothers' knowledge, attitude and practice regarding diarrhea *and its management after twenty five years of the National Control Of Diarrheal Disease Project*. **Subject and Method:** cross sectional study was used. It included 600 randomly selected mothers from Al Hussien University Hospital, El Sayed Galal University Hospital, Kom Hamada Hospital and Manshiet El-Bakry Hospital. Data Collection from mothers through two tools; first tool was interview questionnaire sheet. It consisted of two parts; first part included Socio-demographic data and the second part mothers' knowledge. **Results:** The mean age of mothers \pm SD was 26.08 ± 5.401 , with no significant relation between mothers' age and their knowledge regarding diarrhea. As regards level of education, it was observed that about two fifth (40.7%) of mothers were illiterate, while only 9.3% of them were high education. 57.8 % of mothers had satisfactory knowledge of about diarrhea. While, 86.2% of them had positive attitude towards diarrheal disease. **Conclusion:** There was a significant difference between mothers' knowledge and their education level. Also, there was a significant difference between numbers of diarrheal episodes and type of feeding. **Recommendations:** It is very important to provide good sanitation and improvement of housing conditions especially in rural areas.

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1. Introduction:

Diarrhea is one of the main causes of morbidity and mortality in children younger than five years of age in developing countries. The average number of episodes of diarrhea per child per year within this age group is 3.2. Twenty one percent of childhood mortality in this age group in these countries is associated with diarrhea. It results in 2.5 million deaths per year. In sub-Saharan Africa, mortality caused by acute diarrhea varies from 1.9% of all deaths in the Gambia to 37% in Nigeria, with most of the deaths occurring during the first year of life (*Centers for Disease Control and Prevention CDC, 2009*).

Diarrhea related illnesses are generally preventable and easily treatable. Yet 1.5 million children in Africa still die every year, from it 85 children die every day from such diseases in Kenya alone. In Egypt the overall prevalence of diarrhea in children aged under five years who receiving Oral Rehydration Solution (ORS) is 28.4 % (2008) while the mortality rate is 11% (*UNICEF/WHO, 2009*).

Acute diarrhea lasts less than one week. A child has diarrhea if he has more bowel movements than usual, and if stools are less formed and more watery

than usual. Sometimes children with diarrhea have other symptoms, such as fever, loss of appetite, nausea, vomiting, stomach pains, cramps, and blood and/or mucus in the bowel movement (*Public Education Advisory Committee, 2008*).

Diarrhea can be dangerous if not treated properly because it drains water and salts from the child. If these fluids are not put back quickly, the child may become dehydrated and may need to be hospitalized. Microbes causes diarrhea is easily spread from person to person, and especially from child to child. They usually spread quickly among children who have not learned to use the toilet (*Public Education Advisory Committee, 2008*).

The specific organisms that cause diarrhea can vary among geographic regions depending on their level of sanitation, economic development, and hygiene. For example, developing countries with poor sanitation or where human waste is used as fertilizer often have outbreaks of diarrhea when intestinal bacteria or parasites contaminate crops or drinking water. In developed countries, including the United States, diarrhea outbreaks are more often linked to contaminated water supplies, person-to-person contact

in places such as child-care centers, or "food poisoning" (*Rasko et al; 2011*).

In general, infections that cause diarrhea are highly contagious. Most cases can be spread to others for as long as someone has diarrhea, and some infections can be contagious even longer. Anything that the infectious organisms come in contact with can become contaminated. This includes toys, changing tables, surfaces in bathroom, even the hands of someone preparing food. Kids can become infected by touching a contaminated surface, such as a toilet or toy, and then putting their fingers in their mouths (*Schiller, 2007*).

When the ability to drink fluids fast enough to compensate for the water loss because of diarrhea is impaired, dehydration can result. Most deaths from diarrhea occur in the very young children whose health may be put at risk from a moderate amount of dehydration.

Nurses play an important role in prevention of diarrhea through Proper hand washing and safe food handling are the most important ways to prevent the spread of organisms that cause diarrhea. They also responsible for educating and supporting mothers with diarrheal disease children during management of diarrhea, also keeping children with right amount of fluids to avoid dehydration (*Farthing et al; 2012*).

The National Control of Diarrheal Diseases Project (NCDDP) was established in 1981 with financial support from the US Agency for International Development (USAID) and a technical team from John Snow Incorporated.

The program involved the entire Ministry of Health as well as other branches of government, the private sector, professional societies, and international organizations including WHO, and UNICEF. In 1984, the program became fully operational and set out to achieve the following goals:

- Reduce diarrhea mortality in children under 5 by at least 25 percent.
- Increase awareness of ORT to at least 90 percent of mothers.
- Increase understanding of ORT use to at least 75 percent of mothers.
- Decrease hospital mortality from diarrhea to at least 50 percent. (*Kosek M, Bern C, Guerrant RL. The global burden of diarrheal disease, as estimated from studies published between 1992 and 2000. Bull WHO. 2003;81(3):197-204*)

Research hypothesis

Does knowledge, attitude and practice regarding diarrheal illness, its prevention and management in mothers of children five years of age changed after 25 years of National Control Of Diarrheal Disease Project?

Aim of the study

- Determine the knowledge, attitude and practice regarding diarrheal illness.
- Management of diarrheal illness, in children under five years of age.

2. Subject and Method:

Research design

Cross sectional research design was used in this study.

Setting of the study

The study was carried out in Out Patient Clinic at Al-hossien, Said Galal University hospital, Mansiet EL-Bakry hospital and Kom Hamada hospital.

Tools of the study

Structured interview questionnaire was designed by the researcher based on relevant literature to assess mothers' knowledge and attitude towards diarrhea, it included three parts:

- Part I: concerned with socio-demographic characteristics of studied sample as mother's age, educational level, occupation, marital status, age of the fathers and fathers' occupation, residence.
- Part II: It consisted of mothers' knowledge about as definition, modes of transmission, causes of diarrhea in children, what is the most common season? Complications, definition of dehydration, signs and symptoms, ways of protection and its dangers.

A scoring system was designed for the assessment of knowledge items; a correct response was scored 1 grade and incorrect zero. The score of each item summed-up and then converted into percent score (Poor=score<50%, satisfactory=score 50-65% and good =score > 65%) (ElHoufey, 2007).

Part III: likert scale was used to assess mothers' attitude towards acute diarrhea. It included nine statements, eight positive and one negative, with a three point likert scale: agree, uncertain and disagree. These was scored (2, 1 and 0) respectively. The scoring was reversed for negative statements. A total score was calculated by summing up and converted into a percent score. The respondent's attitude was considered positive if 60% or higher and negative if less than 60% (Ibrahim et al; 2009).

Field of the work

Data was collected from half of January 2016 to half of July 2016. Each mother was interviewed individually to obtain the necessary information after introducing herself and explaining the purpose of the study. The average time taken for completing each interview was around 10-15 minutes depending on the mothers' response to questions. Throughout the interview every answer from the mother was recorded according to the designed question. Every week about 20-25 sheets were finished (two days/ week).

The obtained data were reviewed, prepared for computer entry, coded, analyzed and tabulated to evaluate the difference between the groups under study as regards the various variables. Descriptive statistics (frequencies, percentage, mean and standard deviation) were done using computer program SPSS version 16. Chi square test was used to compare qualitative variables between groups.

3. Results:

Table (1): shows socio-demographic characteristics of studies sample with acute diarrheal disease children. More than two fifth (43.2%) of studied mothers aged less than 25 years. The Mean age \pm SD was 26.08 ± 5.401 . According residence, slightly more than two third (68.2%) of them live in rural area, while (31.8%) live in urban area.

Table (1): Socio-demographic characteristics of the studied sample with diarrhea

Items	No. (n= 600)	%
Mother's age:		
< 25 years	259	43.2
25 - < 30 years	191	31.8
\geq 30 years	150	25.0
Mean \pm SD (Range)	26.08 ± 5.401 (17 – 46)	
Residence:		
Urban	191	31.8
Rural	409	68.2
Mother's marital status:		
Married	594	99.0
Divorced	4	0.7
Widowed	2	0.3
Mother's educational level:		
Illiterate	244	40.7
Read & write	23	3.8
Basic education	99	16.5
Secondary	178	29.7
University	56	9.3
Mother's occupation:		
Working	41	6.8
Housewife	559	93.2
Father's age:		
< 25 years	63	10.5
25 - < 30 years	144	24.0
30 - < 35 years	179	29.8
\geq 35 years	214	35.7
Mean \pm SD (Range)	32.27 ± 6.91 (20 – 60)	
Father occupation:		
Farmer	143	23.8
Worker	124	20.7
Skilled worker	135	22.5
Free business	38	6.3
Employer	131	21.8
Retired	4	0.7
Not working	23	3.8
Died	2	0.3
Number of family members:		
2 – 3	173	28.8
4 – 5	258	43.0
> 5	169	28.2

Table (2): Mothers ' knowledge about acute diarrhea

Items	No. (n= 600)	%
Definition of diarrhea:		
Correct	478	79.7
Incorrect	122	20.3
Modes of transmission of diarrhea: *		
Flies	156	26.0
Contaminated food or drink	167	27.8
Contaminated mother or child hands	288	48.0
Causes of diarrhea in children: *		
Related to child nutrition and weaning	205	34.2
Related infection	401	66.8
Other causes:	384	64.0
Antibiotics	139	23.2
Teething	304	50.7
Exposure to air currents	211	35.2
Lack of clean water source	77	12.8
Poor Personal Hygiene	16	2.7
Evil eye	75	12.5
Which season diarrhea is common:		
Winter	112	18.7
Spring	12	2.0
Summer	400	66.7
Autumn	21	3.5
Don't know	55	9.2
Complications of diarrhea: *		
Dehydration	395	65.8
Malnutrition	35	5.8
Decrease body resistance to disease	149	24.8
Death	6	1.0
Don't know	41	6.8
Ways to protect children from diarrhea and its dangers:*		
Encourage breast feeding	446	74.3
Improve weaning practice	58	9.7
Good nutrition	84	14.0
Vaccination	77	12.8
Personal hygiene for mother and child	189	31.5
Cleanliness of food and drink	416	69.3
Pesticides	99	16.5
Fight against infectious diseases	15	2.5
Don't know	36	6.0

(*) More than one answer were selected

With regards level of education, it was observed that about two fifth (40.7%) of mothers were illiterate, while only (9.3%) of them were high education. According to occupation of mothers, it was estimated that the majority (93.2%) of participated mothers were housewives. Regarding to fathers' age, it was noticed that (35.7%) of fathers were more than 35 years. Regarding fathers' occupation, it was cleared that (23.8%) of fathers were farmers. With regard to

number of family members, the result revealed that two fifth (43 %) of studied families were from 4 to 5 members.

Table (2): Mothers' knowledge about acute diarrhea. Regarding definition of diarrhea, it was clear that more than three quarter (79.7 %) of mothers gave correct answer. In addition, (48%) of participated mothers stated that contaminated mother or child hands are the modes of transmission of diarrhea, while

(26%) of them reported flies. Regarding to causes of diarrhea in children, about two third (66.8%) of mothers stated that infection. While, (34.2%) of them said that child nutrition and weaning practice and (50.7%) stated that teething cause diarrhea.

According to the common season of diarrhea, it was noticed that (66.7%) of mothers said summer season. As regarding to complications of diarrhea, it was found that (65.8%, 5.8%, 24.8 and 1%) of mothers stated that dehydration, malnutrition, decrease body resistance to disease and death respectively. Also this table shows ways to protect children from diarrhea and its dangers. About three quarter (74.3%) of mothers reported encourage breast feeding, while only (2.5%) of them stated that fighting against infectious diseases.

Table (3): Mothers' attitude towards acute diarrheal disease. It was noticed that more than one third (37.8%) of mothers disagreed on diarrhea is infectious disease, while most of them (92.3%) agreed that the attention to hygiene reduces diarrhea episode and its severity.

Also, the table shows that the majority (82%) of participated mothers agreed on frequent breast feeding reduces diarrheal complications. Unfortunately, it was clear that (6.7%) of mothers disagreed on continued breast feeding reduces diarrhea complications, while less than fifth (10%) of them uncertain about increasing fluids during a diarrhea episode reduces the incidence of dehydration. Finally, it was observed that

more than three fifth (69.3%) of mothers agreed that the first step to treat diarrhea is giving medication.

Table (4): refers the relation between number of diarrheal episodes and type of feeding responses to acute diarrheal disease. The table shows that there is a significant difference between numbers of diarrheal episodes and type of feeding ($P=0.01$). More than two fifth (46%) of breast feeding children hadn't diarrheal episodes, while about two third (65.6%) of artificial feeding children had once episode of diarrhea. While 12.7% of children with both types of feeding had twice or more episodes.

Table (5): Relation between mothers' knowledge and socio-demographic characteristics. It revealed that there is a significant statistical difference between mothers' knowledge and their educational level. It was found that less than fifth (13.1%) of studied mothers aged < 25 years had good knowledge, while 23.6% of mothers aged 25 - < 30 years had poor knowledge and more than one quarter (29.3%) of mothers aged \geq 30 years had poor knowledge. With regards to the level of education, it was observed that only 9.4% of illiterate mothers had good knowledge, while 14.3% of highly educated mothers had poor knowledge.

Figure (1): Illustrates Positive versus negative attitude of studied sample towards acute diarrheal disease. The majority (86.2%) of mothers had positive attitude towards acute diarrhea.

Figure (2): Shows that there is a positive correlation between mothers' knowledge and attitude towards diarrheal disease.

Table (3): Mothers ' attitude towards acute diarrheal disease

Attitude items	Agree		Uncertain		Disagree	
	(n=600)					
	No.	%	No.	%	No.	%
1-Diarrhea is infectious disease	174	29.0	199	33.2	227	37.8
2-Water source plays an important role in diarrheal disease occurrence	508	84.7	70	11.7	22	3.7
3-The attention to hygiene reduces diarrhea episode and it's severity	554	92.3	30	5.0	16	2.7
4-Frequent breast feeding reduces diarrheal complications	492	82.0	56	9.3	52	8.7
5-Continued breast feeding reduces diarrhea complications	503	83.8	57	9.5	40	6.7
6-Early introducing foods to children increase the incidence of diarrhea	389	64.8	125	20.8	86	14.3
7-Giving the baby ORS compensates the loss of salts and minerals	426	71.0	169	28.2	5	0.8
8-Increasing fluids during a diarrhea episode reduces the incidence of dehydration	389	64.8	60	10.0	151	25.2
9-The first step to treat diarrhea is giving medication	416	69.3	46	7.7	138	23.0

Table (4): Relation between number of diarrheal episodes and type of feeding in response to acute diarrheal disease (n=600)

No. of diarrheal episodes	Type of feeding							
	Breast feeding		Artificial feeding		Both		Total	
	No.	%	No.	%	No.	%	No.	%
None	219	46.0	18	29.5	33	52.4	270	45.0
Once	216	45.4	40	65.6	22	34.9	278	46.3
Twice or more	41	8.6	3	4.9	8	12.7	52	8.7
Total	476	100.0	61	100.0	63	100.0	600	100.0
P-value	0.011*							

(*)There is significant difference

Table (5): Relation between mothers' knowledge and socio-demographic characteristics according to their response to acute diarrheal disease

socio-demographic data	Level of knowledge						P-value
	Poor (n= 168)		Satisfactory (n= 347)		Good (n= 85)		
	No.	%	No.	%	No.	%	
Age:							0.531
< 25 years	79	30.5	146	56.4	34	13.1	
25 - < 30 years	45	23.6	118	61.8	28	14.7	
≥ 30 years	44	29.3	83	55.3	23	15.3	
Educational level:							0.006*
Illiterate	81	33.2	140	57.4	23	9.4	
Read & write	5	21.7	14	60.9	4	17.4	
Basic education	31	31.3	56	56.6	12	12.1	
Secondary	43	24.2	105	59.0	30	16.9	
University	8	14.3	32	57.1	16	28.6	
Occupation:							0.212
Working	13	31.7	19	46.3	9	22.0	
Housewife	155	27.7	328	58.7	76	13.6	
Residence:							0.722
Urban	57	29.8	106	55.5	28	14.7	
Rural	111	27.1	241	58.9	57	13.9	

(*) There is a significant difference

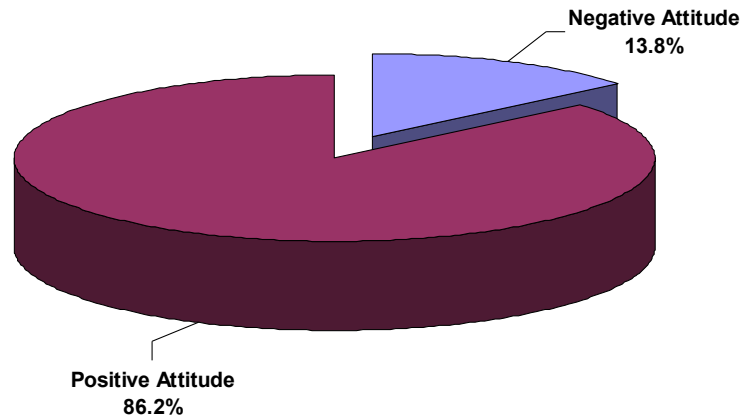


Figure (1) Positive versus negative attitude of studied sample towards acute diarrheal disease

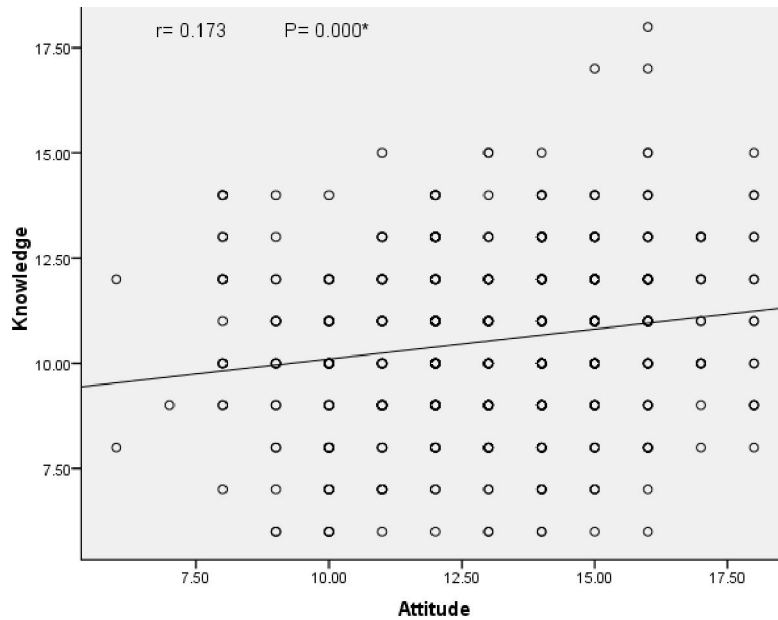


Figure (2): Correlation between mothers' knowledge and attitude towards acute diarrhea

4. Discussion:

Each child under 5 years of age experiences an average of three annual episodes of acute diarrhea. Globally in this age group, acute diarrhea is the second leading cause of death (after pneumonia), and both the incidence and the risk of mortality from diarrheal diseases are greatest among children in this age group, particularly during infancy. This decline especially in developing countries is largely due to the use of early and appropriate oral rehydration therapy with oral rehydration solution (ORS) being its main component as well as improved nutrition and water sanitation measures (*Al-Atrushi, et al, 2012*).

Regarding age groups of mothers, result of present study revealed that more than quarter of the participated mothers aged 30 years or more and the mean of mothers' age were (26.08 ± 5.401). Similar finding were reported by *Monazea, 2003*, who conducted a prospective field study of health services utilization pattern of children with diarrhea in Assiut city and reported the same age which range 30 years or more with the mean of mothers' age were 27.02 ± 6 .

At the same this results were supported by *Ansari, et al, 2011* who carried out a study in Nepal to survey mothers' knowledge about childhood diarrhea and its management and reported the same result.

According to mothers' education, it was estimated that only 9.3% of participated mothers were highly educated, similar finding were reported by *Monazea, 2003*, who stated that mothers with high education were about 9.3%. On other hand these results disagreed with *Sultana, 2010*, who carried out a study to assess knowledge and attitude of mothers

regarding oral rehydration salt and found that the majority of mothers were highly educated.

The results of present study revealed that there was significant relation between mothers' knowledge and their education. This result disagreed with *Ghasemi, et al, 2013*, who found that the education of the mothers didn't reveal significant statistical difference to their knowledge about diarrhea. Also, this finding was contradicted with *Ansari, et al, 2011*, who found that there was no statistical significant difference between mothers' knowledge and their education.

Regarding mothers' occupation, it was estimated that 93.2% of mothers were housewife. This result is in the same line with results of *Monazea, 2003 and Sultana, 2010*, who found that the majority of participated mothers were housewives. The result of present study cleared that there was no statistical significant difference between mothers' knowledge and their occupation. This result is in contrast with *Ghasemi, et al, 2013*, who found that the knowledge of the mothers had statistical significant difference with their occupation.

According to residence, the present study showed that diarrhea more prevalent among rural (68.2%) than urban (31.8%). It may be explained by low socio-economic status, poor hygienic practices among the child family members and mothers' low educational level. These factors are common in rural area. This finding was in the same line with *Banerjee, et al, 2004*, who conducted a study on diarrhea management among under fives in Indian and found that prevalence of diarrhea was 68.3% in rural areas in contrast to that reported in urban areas which was 31.7%.

Concerning mothers' knowledge about acute diarrhea mode of transmission, the present study revealed that 48% of participated mothers stated that contaminated mother or child hands, while 26% of them reported flies. These results agreed with *Ameer, et al, 2008* who reported that 30.1% handling food without washing hands, 29.3% direct contact with infected flies and 22.8% failing to wash hands after handling feces.

According to mothers' attitude towards acute diarrhea, the present study revealed that the majority (86.2%) of participated mothers had positive attitude, while less than fifth (13.8%) of mothers had negative attitude. It may be explained by that most of participated mothers were from rural areas where extended family most found and mothers took experience from family or it may be related to spread of mass media which concerning for diarrhea and its management. These results agreed with *Ansari, et al, 2012*, who reported that most of the mothers' attitudes were positive.

Conclusion and Recommendations:

Study showed that mothers had satisfactory knowledge about diarrhea, while they had positive attitude about it. There was a significant difference between mothers' knowledge and their education level. Moreover, there was positive correlation between mothers' knowledge and their attitude towards diarrhea. So the study recommended that nutritional educational program about diarrhea should be implemented for mothers in different community health services. Good sanitation and improvement of housing conditions especially water resources in rural areas. Posters should be posted in outpatient clinic to enhance the practice used in management of diarrheal disease. Films and audio-visual materials about the practical procedures could be useful in teaching mothers required skills as Oral rehydration solution preparation and how to give to their children.

Finally, good training of junior doctor about management of diarrhea and its complications is very important and essential.

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