

# *A study of Knowledge, Attitude and Practice of House Officers toward Diarrhea in Children under Five Years in Al-Azhar Cairo and Minia Universities*

**By**

**Mahmoud Gomaa Mohammed\*, Mahmoud Taher El—Mougi\*, Ibrahim Mohammed Abu-Farrage\*, Tahseen Sameer Mohamed\*\***

Pediatrics\* and General Health and Community medicine departments\*\*, Al-Azhar Faculty of Medicine

## **ABSTRACT**

**Background:** *Worldwide, an estimated 2.5 billion cases of acute diarrhea occur annually in children under 5 years. In these children, diarrhea is the second biggest cause of mortality (after acute respiratory illnesses) with the vast majority occurring in low resource settings such as sub-Saharan Africa. A cross-sectional study was conducted to the house officers toward diarrhea and its management in children under five years.*

**Objectives:** *The aim of this research is to improve quality of the health of children under five years through proper management of diarrhea and to assess the knowledge, attitude and practice of house officers toward diarrhea and its management in children under five years.*

**Subjects and Methods:** *All patients who underwent transcatheter device closure of large ostium secundum ASD were included in the study. We assessed LV torsion in large ostium secundum ASD patients pre and post device closure by using 4D speckle tracking echocardiography.*

**Results:** *A total of 100 HOs were interviewed. Undergraduate training in El-Minia HOs was more than that of Al-Azhar HOs regarding attendance of HOs the undergraduate pediatric round and discussion of diarrheal cases in clinical rounds, but the difference did not reach statistical significance. The main source of studying in Al-Azhar HOs was Pediatric department book, but that of El-Minia lecture notes were the main source. Most of HOs of each faculty had good knowledge about dehydration classification and signs but, they had poor knowledge about ORS composition and dose. Al-azhar HOs had good knowledge toward avoided fluids ( $P 0.003$ ) and NG tube usage indication with diarrhea ( $P < 0.001$ ) than El-Minia HOs. HOs in both sites had poor awareness toward infant mortality in Egypt Al-azhar Ho (32 %) correct, El-Minia HO (46%) correct. Representation of diarrheal diseases in final written exams in both universities was few not exceeds 3.7 % in Al-azhar but 4.5 % in El-Minia.*

**Conclusion:** *Non-significant differences between Al-azhar HOs and El-Minia HOs in the knowledge, Attitude and practice toward diarrhea in children and. Non-significant*

*differences between HOs who received training in pediatrics during HO year and who didn't yet receive in both universities. Poor knowledge toward avoided fluids with diarrhea like soft drinks especially El-Minia HOs. Poor awareness toward infant mortality especially Al-azhar HOs. Diarrheal diseases weren't represented adequately in final written exams in both faculties of medicine. Sayed Galal hospital has a rehydration unit while Al-Hussein and El-Minia Hospitals don't have.*

**Keywords:** Diarrhea, ORS, Health Knowledge, Attitudes, Practice, House officer, Children.

## **INTRODUCTION**

Worldwide, diarrhea is the second most common cause of morbidity and mortality among children under the age of five, following acute respiratory infection, and is also an important cause of malnutrition. (WHO, 2005). Diarrhea accounts for 760,000 deaths in children under five years of age worldwide per year. (WHO, 2013) Most of these deaths are due to dehydration.

Diarrhea occurs worldwide and causes 4 % of all deaths and 5% of health loss to disability. (kosek, et al., 2003). In Africa, diarrheal diseases cause about 16% of deaths among children under five years (UNICEF, 2009) Diarrhea can have serious impact on childhood growth and cognitive development (Bowen et al., 2012).

In Egypt, under five children mortality was 27 deaths per 1000 live birth at 2014 (Egypt Demographic and Health Survey, 2014). Diarrheal diseases

are a common cause of this mortality that accounts 7-10% of all deaths of children under five at 2013 (WHO, 2015).

The vast majority of these deaths are preventable through improvements in water, sanitation, hygiene, nutrition, breastfeeding, and immunization (WHO, 2017). It is important to note that >90% of cases of acute diarrhea can be treated effectively with oral rehydration and other effective treatments include zinc, intravenous fluids, and antibiotics in selected cases (WHO, 2017).

Oral Rehydration Solution (ORS) is a primary intervention for the management of diarrhea (WHO, 2004). It can be easily administered at home by the mothers and caregivers as soon as a diarrhea episode begins (Adimoral et al., 2011). ORS is simple, inexpensive and the most effective way to treat dehydration and reduce diarrhea mortality. It is used around the world, but is most important in the developing countries, where it saves millions

of children from diarrhea which is still their leading cause of death (UNICEF, 2016).

Improper treatment of childhood diarrhea has been shown to be due to misperceptions and lack of knowledge in both caregivers and health workers (Digre et al., 2016). Addressing these gaps in knowledge, attitude and practice is critical to ensure that diarrhea is prevented and children are treated appropriately (Unger et al., 2014).

It is observed that many physicians don't consider rehydration and particularly ORS as the major line of treatment and most effective life saving measure. On the contrary they are misinformed that they heavily prescribe antidiarrheal and antibiotics which are largely useless and may be harmful with limited exceptions. With these observations, it is of importance to study how far the knowledge and practice of house officers reaches and explore the reasons for any deficiency through looking and analyzing the curriculum and final examinations in pediatrics.

### **AIM OF THE WORK**

The aim of this research is to improve quality of the health of children under five years through proper management of diarrhea. to

assess the knowledge, attitudes and practices of house officers toward diarrhea in children under five years. to study and analyze the previous examinations in pediatrics and the chapter of pediatrics in their study books.

## **SUBJECTS AND METHODS**

### **Research Design**

A cross-sectional study was conducted to assess the knowledge, attitude and practice of house officers toward diarrhea and its management in children under five years.

### **Research Setting and Target Population**

The target population is House officers (HOs) from faculties of medicine at Al-Azhar University in Cairo for boys and Minia University.

### **Sample Size**

The sample size is (100) house officers present at the time of the study in Al-Azhar and Minia Universities hospitals with the following inclusion criteria:

- Graduated from El-Minia or Al-Azhar (Cairo) faculties of medicine.
- Graduation year is 2017

### **Research Instrument**

The following tool was used: A structured interview questionnaire was used to collect the following data from house officers:

- Personal data.
- Socio-demographic data.
- Academic data.
- Knowledge, Attitude and Practice data related to diarrhea.

### **Data Collection**

At El-Minia University hospitals: the investigator visited these sites in the afternoon and evening as at these times there was less work load whether in the emergency room or the inpatients wards. Any house officer present at these times was interrogated to collect data according to the questionnaire. The investigator met 58 HOs fulfilling the inclusion criteria. However, 8 HOs were reluctant to participate by saying I am tired, busy, looked uninterested and gave relatively false answers or apparently inaccurate as appeared in their behaviors thus the investigator stopped. When the responding HOs who accepted willingly reached 50 out of 58 (86%) the

investigator stopped enrolling HOs.

At Al-Hussein and Saied galal University hospitals the investigator repeated the same procedure and was able to interrogate 50 out of 51 (98%) HO.

Each completed questionnaire took about 15-20 minute duration.

Finally, the undergraduate book or lecture notes and final written exams in Pediatrics of each faculty of medicine were reviewed and findings were analyzed. Also the number of beds, Staff, Equipments and work routine in Pediatric department of each hospital were reviewed and findings were recorded and analyzed.

### **Data Analysis and Management:**

The collected data were coded and analyzed using SPSS (Statistical Package of Social Sciences) version 18. Comparing the socio-demographic characteristics of the studied sample,  $\chi^2$  test was used for categorical variables and t test for continuous variables.

## **RESULTS**

The results of the present study are displayed in tables 1-9 and figures 1-3. All the house officers (HOs) interrogated were

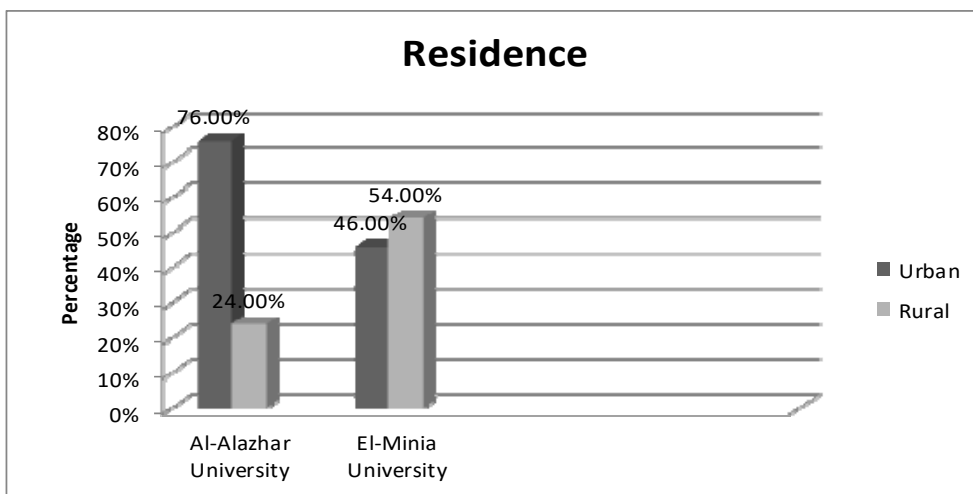
in the age of 24-25 years. All Al-Azhar HOs were males, but El-Minia HOs were 35 males and 15 females.

**Table (1): Sociodemographic and academic characteristics of HOs**

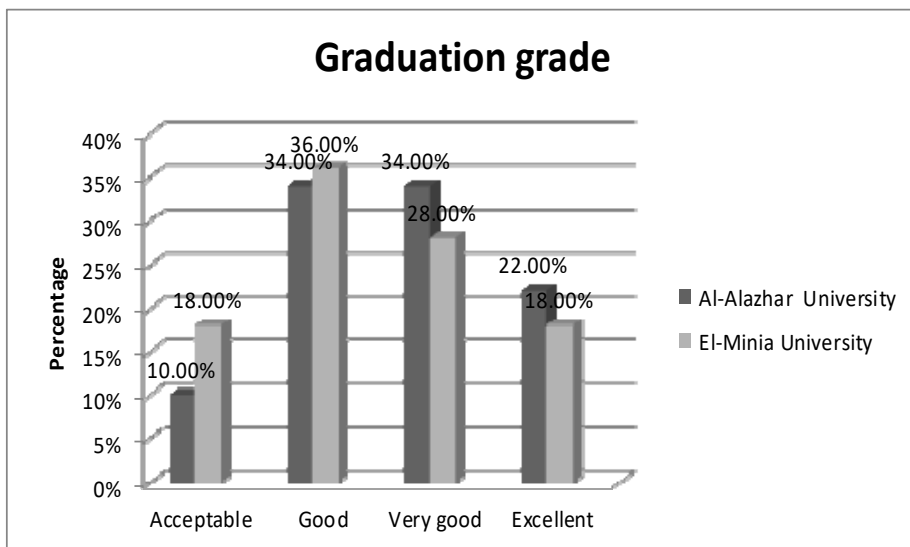
Sociodemographic characteristics	Al-azhar HO n=50	El-Minia HO n=50	P
<b>Residence</b>			
Urban	38 (76%)	23(46%)	0.004*
Rural	12 (24%)	27 (54%)	
<b>Graduation Grade</b>			
Acceptable	5 (10%)	9 (18%)	0.6
Good	17 (34%)	18 (36%)	
Very good	17 (34%)	14 (28%)	
Excellent	11 (22%)	9 (18%)	
<b>Future specialization</b>			
Pediatrics	8 (16%)	10 (20%)	0.7
Others	25 (50%)	21(42%)	
Not decided yet	17 (34%)	19 (38%)	

According to the residence more HO in El-Minia were of rural origin than Al-Azhar and

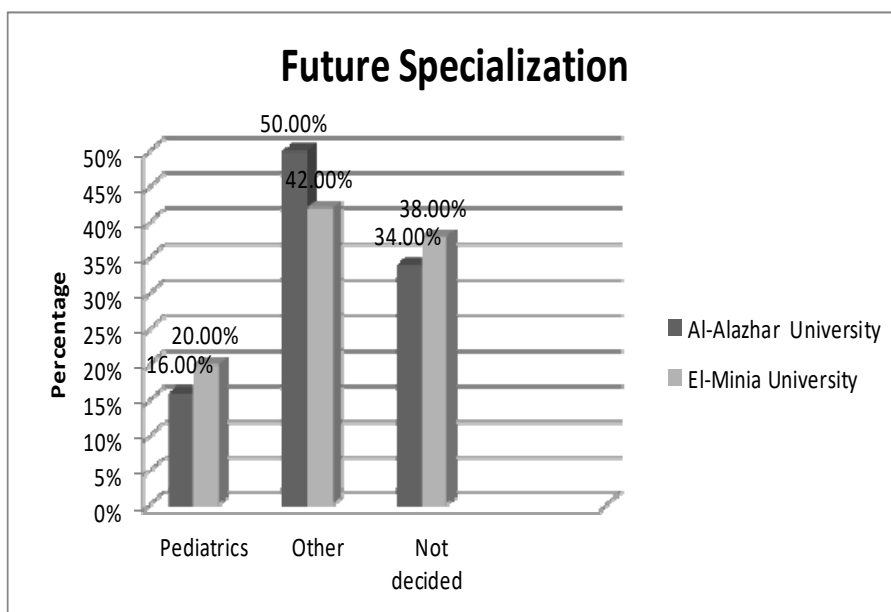
the difference was statistically highly significant (P 0.004).



**Figure (1): Residence**



**Figure (2): Graduation grade**



**Figure (3): Future Specialization**

**Table (2): Pediatric course in academic study at El-Minia HOs and Al-Azhar HOs**

Pediatric course	Al -Azhar HO N=50	El-Minia HO N=50	P
<b>Undergraduate training:</b>			
<b>■ Attendance of the course</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>	46(92%) 4(8%)	48 (96%) 2 (4%)	0.6
<b>■ Representation of diarrheal disease in pediatric lectures</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not remember</li> </ul>	46(92%) 2(4%) 2(4%)	48(96%) 0(0%) 2(4%)	0.3
<b>■ Discussion of diarrheal cases in clinical round</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not remember</li> </ul>	42(84%) 5(10%) 3(6%)	46(92%) 3(6%) 1(2%)	0.4
<b>■ Receiving IMCI course in lecture or clinical rounds</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not remember</li> </ul>	39(78%) 6(12%) 5(10%)	48(96%) 2(4%) 0(0%)	0.01
<b>■ Main source of undergraduate pediatric studying</b> <ul style="list-style-type: none"> <li>• Pediatric department book</li> <li>• Lecture notes</li> <li>• Others</li> </ul>	42 (84%) 1 (2%) 7 (14%)	0(0%) 48(96%) 2(4%)	<0.0 01*
<b>Undergraduate final Examination:</b>			
<b>■ Representation of diarrheal disease in written exam</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not remember</li> </ul>	25 (50%) 12 (24%) 13 (26%)	14(28%) 17(34%) 19(38%)	0.07
<b>■ Representation of diarrheal disease cases in clinical exam</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not remember</li> </ul>	33(66%) 12(24%) 5(10%)	25(50%) 20(40%) 5(10%)	0.2
<b>■ Representation of diarrheal disease in oral exam</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not remember</li> </ul>	43(86%) 0(0%) 7(14%)	45(90%) 2(4%) 3(6%)	0.1
<b>■ Received training in pediatrics while during house office year</b> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No yet</li> </ul>	37 (74%) 13 (26%)	36(72%) 14(28%)	0.5

It is shown through this table that undergraduate training in El-Minia HOs were more than that of Al-Azhar HOs regarding attendance of HOs the undergraduate pediatric round and discussion of diarrheal cases in clinical rounds , but the difference did not reach statistical significance. Diarrheal diseases represented in final examinations

more at Al-azhar than El-Minia HOs. The main source of studying in Al-Azhar HOs was Pediatric department book, but that of El-Minia lecture notes were the main source. There was no available undergraduate pediatric department book at El-Minia faculty of medicine.

**Table (3): General knowledge about diarrheal disease among studied HOs**

	<b>Al -Alazhar HO n=50</b>	<b>El-Minia HO n=50</b>	<b>P</b>
<b>Definition of diarrhea</b>			
• Correct*	48 (96%)	49 (98%)	0.5
• Incorrect	2 (4%)	1 (2%)	
<b>The most common cause of death</b>			
• Dehydration	42 (84%)	47 (94%)	0.2
• Electrolyte disturbance	7 (14%)	2 (4%)	
• Sepsis	1 (2%)	1 (2%)	
<b>Classification of dehydration</b>			
• Correct**	47 (94%)	42 (84%)	0.2
• Incorrect	3 (6%)	8 (16%)	
<b>Signs of dehydration</b>			
• Correct***	45 (90%)	45 (90%)	0.6
• Incorrect	5 (10%)	5 (10%)	
<b>Know the meaning of ORS</b>			
• Yes****	46 (92%)	43 (86%)	0.5
• No	4 (8%)	7 (14%)	
<b>Composition of ORS</b>			
• Correct*****	23 (46%)	24 (48%)	0.5
• Incorrect	27 (54%)	26 (52%)	

Most of HOs of each faculty had good knowledge about definition of diarrhea and classification of

dehydration but, they had poor knowledge about ORS composition.



**Table (4): Knowledge about treatment of diarrheal disease among the HOs**

Knowledge about treatment	Al-Alazhar HO n=50	El-Minia HO n=50	P
<b>When to give ORS</b>			
<ul style="list-style-type: none"> <li>To all diarrhea (correct)</li> <li>With presence of dehydration</li> </ul>	35 (70%) 15 (30%)	39 (78%) 11 (22%)	0.4
<b>Amount of water for one sachet of ORS</b>			
<ul style="list-style-type: none"> <li>Correct (200 ml)</li> <li>Incorrect</li> </ul>	39 (78%) 11 (22%)	40 (80%) 10 (20%)	0.5
<b>Dose of ORS</b>			
<ul style="list-style-type: none"> <li>Correct**</li> <li>Incorrect</li> </ul>	10 (20%) 40 (80%)	12 (24%) 38 (76%)	0.8
<b>When to give antibiotic</b>			
<ul style="list-style-type: none"> <li>Any diarrhea</li> <li>Chronic diarrhea</li> <li>Bloody diarrhea(the correct answer)</li> <li>Fever</li> <li>Bad general condition</li> </ul>	2 (4%) 3 (6%) 26 (52%) 12 (24%) 7 (14%)	1 (2%) 5 (10%) 17 (34%) 19 (38%) 8 (16%)	0.3
<b>Another medication used</b>			
<ul style="list-style-type: none"> <li>Correct (zinc)</li> <li>Incorrect</li> </ul>	33 (66%) 17 (34%)	27 (54%) 23 (46%)	0.3
<b>Preferable fluid at home</b>			
<ul style="list-style-type: none"> <li>Correct****</li> <li>Incorrect</li> </ul>	35 (70%) 15 (30%)	35 (70%) 15 (30%)	0.5
<b>Fluids to be avoided</b>			
<ul style="list-style-type: none"> <li>Correct (soft drinks and high sugar fluids)</li> <li>Incorrect</li> </ul>	25 (50%) 25 (50%)	10 (20%) 40 (80%)	0.003*
<b>Semisolids preferred after age of 6 months</b>			
<ul style="list-style-type: none"> <li>Correct*****</li> <li>Incorrect</li> </ul>	45 (91.8%) 4 (8.2%)	41 (82%) 9 (18%)	0.2
<b>When to use nasogastric tube</b>			
<ul style="list-style-type: none"> <li>Correct*****</li> <li>Incorrect</li> </ul>	45 (90%) 5 (10%)	25 (50%) 25 (50%)	<0.001*
<b>Indication of IV therapy</b>			
<ul style="list-style-type: none"> <li>Correct (severe dehydration)</li> <li>Incorrect</li> </ul>	41 (82%) 9 (18%)	47 (94%) 3 (6%)	0.1
<b>The effective solution in IV</b>			
<ul style="list-style-type: none"> <li>Ringer lactate (correct)</li> <li>Glucose</li> <li>Saline</li> </ul>	34 (68%) 2 (4%) 14 (28%)	33 (66%) 1 (2%) 16 (32%)	0.6
<b>Dealing with vomiting with diarrhea</b>			
<ul style="list-style-type: none"> <li>Correct*****</li> <li>Incorrect</li> </ul>	8 (16%) 42 (84%)	9 (18%) 41 (82%)	0.5

Al-azhar HOs give antibiotics with diarrhea in cases of bloody diarrhea but, El-Minia HOs give with fever. The HOs of both

faculties have very poor knowledge about ORS dose, high sugar fluids and in dealing with diarrhea associated with vomitin.

**Table (5): Believes and attitudes among the studied HOs**

Believes and attitudes	Al -Alazhar HO n=50	El-Minia HO n=50	P
<b>The most serious medical mistake noticed in handling diarrheal disease</b>			
• Correct*	34 (68%)	36 (72%)	0.8
• Incorrect	16 (32%)	14 (28%)	
<b>The most important advice to mothers to manage diarrhea and prevent dehydration</b>			
• Correct**	48 (96%)	47 (94%)	0.5
• Incorrect	2 (4%)	3 (6%)	
<b>The most two common causes of infant death in Egypt</b>			
• Correct***	16 (32%)	23 (46%)	0.2
• Incorrect	34 (68%)	27 (54%)	

Each faculty HOs had good attitude in advising the mothers to give ORS but, they had poor

awareness about infant mortality in Egypt.

### Final exams

The final written examinations in last 15 years were collected and analyzed in both Al-azhar and El-minia Pediatric departments. The

formats of the written examinations in both sites were comparable as shown in table (6).

**Table (6): Types and numbers of Pediatric questions per end term exam**

	Al-azhar	El-Minia
<b>Short question</b>	7-21	13-16
<b>MCQ</b>	20-30	15-25
<b>Problem solving</b>	2-5	3-5

Comparison between both Al-azhar and El-Minia Pediatric departments regarding questions of

diarrheal diseases (acute and chronic) to total numbers of questions as shown in table (7).

**Table (7): Analysis of diarrheal questions in final exams (last 15 years)**

Type of question	Al-azhar			El-Minia		
	Total (n)	Diarrhea questions (n)	Percentage	Total (n)	Diarrhea questions (n)	Percentage
<b>Short Qs</b>	190	7	3.7%	157	7	4.5%
<b>MCQ</b>	310	6	1.9%	224	8	3.6%
<b>Problem solving</b>	55	4	7.3%	61	5	8.2%

Representation of diarrheal diseases in final written exams was low in both Al-azhar (3.7%) and El-Minia (4.5%) faculties of medicine.

**Table (8): Knowledge about treatment of diarrheal disease among HOs receiving training in pediatrics and did not receive in Al-azhar University**

Knowledge about treatment	Received training n=37	Not received training n=13	P
<b>When to give ORS</b>			
• To all diarrhea	26 (70.3%)	9 (69.2%)	0.9
• With presence of dehydration	11 (29.7%)	4 (30.8%)	
<b>Amount of water for one sachet of ORS</b>			
• Correct	30 (81.1%)	9 (69.2%)	0.3
• Incorrect	7 (18.9%)	4 (30.8%)	
<b>Dose of ORS</b>			
• Correct	7 (19%)	2 (14.2%)	0.006*
• Incorrect	30 (81%)	11 (85.8%)	
<b>When to give antibiotic</b>			
• Any diarrhea	0 (0%)	2 (15.4%)	0.08
• Chronic diarrhea	2 (5.4%)	1 (7.7%)	
• Bloody diarrhea	22 (59.5%)	4 (30.8%)	
• Fever	9 (24.3%)	3 (23.1%)	
• Bad general condition	4 (10.8%)	3 (23.1%)	
<b>Another medication used</b>			
• Correct	23 (62.2%)	6 (46%)	0.3
• Incorrect	14 (37.8%)	7 (54%)	
<b>Preferable fluid at home</b>			
• Correct	28 (75.7%)	7 (53.8%)	0.1
• Incorrect	9 (24.3%)	6 (46.2%)	
<b>Fluids to be avoided at home</b>			
• Correct	19 (51.4%)	4 (29.2%)	0.7
• Incorrect	18 (48.6%)	9 (70.8%)	

<b>Semisolids preferred after 6 months</b>			
• Correct	34 (91.9%)	11(91.7%)	0.9
• Incorrect	3 (8.1%)	1 (8.3%)	
<b>When to use nasogastric tube</b>			
• Correct	34 (91.9%)	11(84.6%)	0.5
• Incorrect	3 (8.1%)	2 (15.4%)	
<b>Indication of IV therapy</b>			
• Correct	30 (81.1%)	11(84.6%)	0.7
• Incorrect	7 (18.9%)	2 (15.4%)	
<b>The effective solution in IV shock</b>			
• Ringer lactate	27(73%)	5 (38.5%)	0.5
• Glucose	1 (2.7%)	3 (23%)	
• Saline	9 (24.3%)	5 (38.5%)	
<b>Dealing with vomiting with diarrhea</b>			
• Correct	17 (46%)	5 (38.5%)	0.01*
• Incorrect	20 (54%)	8 (61.5%)	

Al-Azhar HOs who received training have good knowledge about ORS starting, home infusion and type of IV fluid than HOs who

did not receive, but less expected knowledge about avoided home fluids and ORS dose (P 0.006).

**Table (9): Knowledge about treatment of diarrheal disease among HOs who received training in pediatrics and did not receive in Minia University**

Knowledge about treatment	Received training N=36	Not received training N=14	P
<b>When to give ORS</b>			
• To all diarrhea	29 (80.6%)	10(71.4%)	0.4
• With presence of dehydration	7 (19.4%)	4 (28.6%)	
<b>Amount of water for one sachet of ORS</b>			
• Correct	28 (77.8%)	12(85.7%)	0.5
• Incorrect	8 (22.2%)	2 (14.3%)	
<b>Dose of ORS</b>			
• Correct	9 (25%)	3(21.4%)	0.7
• Incorrect	27 (75%)	11(78.6%)	
<b>When to give antibiotic</b>			
• Any diarrhea	1 (2.8%)	0 (0%)	0.2
• Chronic diarrhea	3 (8.3%)	2 (14.3%)	
• Bloody diarrhea	11 (30.6%)	6 (42.9%)	
• Fever	17 (47.2%)	2 (14.3%)	
• Bad general condition	4 (11.1%)	4 (28.6%)	

<b>Another medication used</b>			
• Correct	22 (61.1%)	5 (35.7%)	0.1
• Incorrect	14 (38.9%)	9 (64.3%)	
<b>Preferable fluid at home</b>			
• Correct	24 (66.7%)	11(78.6%)	0.4
• Incorrect	12 (33.3%)	3(21.4%)	
<b>Fluids to be avoided at home</b>			
• Correct	9 (25%)	1 (7.1%)	0.1
• Incorrect	27 (75%)	13(92.9%)	
<b>Semisolid fluid preferred in after 6 months</b>			
• Correct	28 (77.8%)	13(92.9%)	0.2
• Incorrect	8 (22.2%)	1 (7.1%)	
<b>When to use nasogastric tube</b>			
• Correct	19 (52.8%)	6 (42.9%)	0.5
• Incorrect	17 (47.2%)	8 (57.1%)	
<b>Indication of IV therapy</b>			
• Correct	34 (94.4%)	13(92.9%)	0.8
• Incorrect	2 (5.6%)	1 (7.1%)	
<b>The effective solution in IV shock</b>			
• Ringer lactate	19 (53%)	6 (42.8%)	0.2
• Glucose	4 (11%)	3 (21.4%)	
• Saline	13 (36%)	5(35.8%)	
<b>Dealing with vomiting with diarrhea</b>			
• Correct	7 (19.4%)	2 (14.3%)	0.6
• Incorrect	29 (80.6%)	12(85.7%)	

HOs who received training had good knowledge about ORS starting, home infusion and type of IV fluid than HOs who were not

received, but poor knowledge toward ORS dose, Avoided fluids and dealing with vomiting with diarrhea.

## DISCUSSION

A cross-sectional study was conducted to assess the knowledge, attitude and practice of house officers toward diarrhea and its management in children under five years. House officers (HOs) from faculties of medicine at Al-Azhar University in Cairo for boys and Minia University. Most of HOs were satisfied and cooperated especially Al-azhar

HOs due to this research under supervision of Professor Mahmoud El-Mougi and some of them were annoyed due to work over load or they were uninterested.

All Al-azhar HOs were males, but most of El-Minia HOs were males 35 and females were only 15 as some female HO don't attend at the time of the investigator visit to the hospitals

mostly in afternoons and evening and they took conservative attitude toward the investigator.

Regarding results, in both faculties HOs who wanted pediatrics as a future specialization their percentage was unexpectedly high Al-azhar HOs 16% and El-Minia HOs 20%. Bias may resulted due to the HOs liked to more or less satisfy the investigator.

There was good knowledge toward Assessment of dehydration (classification and signs), And dehydration is the most dangerous complication of diarrhea that cause death of child but, poor knowledge toward ORS composition due to unconcern or not offered to them. They had poor knowledge toward ORS dose due to common mistake that addition of one sachet of ORS to 200 ml water and give 50 ml after each diarrheal attack or not interest with the dose in spite of mention of the dose in both studying books but not in a clear form.

A few fluids are potentially dangerous and should be avoided during diarrhea. Especially important are drinks sweetened with sugar, which can cause osmotic diarrhea and hypernatremia (El-Mougi., 2016). Some examples are

commercial carbonated beverages, commercial fruit juices and sweetened tea. Other fluids to avoid are those with stimulant, diuretic or purgative effects, like coffee and some medicinal teas or infusions. (WHO, 2005). There was poor knowledge toward these avoided fluids especially El-Minia HOs due to common mistake that giving high sugar and sweetly fluids like soft drinks produce good rehydration.

Rehydration by gastric tube is occasionally used if the child is too weak to swallow, or in cases of persistent vomiting (>4 times per hour) (El-Mougi et al., 1991). Al-azhar HOs had good knowledge toward usage of NG tube in gastroenteritis (90%), but El-Mini HOs had poor knowledge (50%) due to this knowledge wasn't offered to El-Mini HOs.

Over 90% of children with some dehydration caused by acute watery diarrhea can be effectively treated with ORS and continuation of proper nutritional intake. The use of antimicrobial and anti-parasitic drugs should be used only when indicated in cases of cholera, giardiasis, amebic dysentery or shigellosis. The use of adjunct anti-diarrheal drugs, i.e. adsorbants, anti-

motility agents, prostaglandin inhibitors and anti-emetic drugs are contraindicated and may be harmful. (Kassem et al., 1991). Al-azhar HOs had good knowledge in giving zinc supplementation in cases of acute diarrhea (66%) than El-Minia HOs (54%) when asked to give other medication with diarrhea.

Oral Rehydration Solution (ORS) is a primary intervention for the management of diarrhea (WHO, 2004). It can be easily administered at home by the mothers and caregivers as soon as a diarrhea episode begins (Adimoral et al., 2011). ORS is simple, inexpensive and the most effective way to treat dehydration and reduce diarrhea mortality. Its use has been widely advocated mainly by World Health Organization and other health authorities particularly in developing countries.

(WHO, 2012) Both HOs of Al-Azhar and El-Minia had good attitude in giving the mothers advice to give ORS to their infants with the start of diarrhea to prevent dehydration. In both sites, well believed that anti-diarrheal drugs have no role. They had poor attitude about infant mortality in Egypt especially at Al-azhar HOs due to unconcern in spite of presence

of a chapter on infant mortality in the Community medicine department book as the investigator previously read it.

Although the worldwide child mortality rate has declined by two-fifths since 1990 (UNICEF., 2011), an estimated 6.9 million children under the age of five still die annually in low and middle income countries (LMIC) because of preventable and treatable illnesses including pneumonia, diarrheal disease, malaria, and underlying malnutrition (Liu et al., 2012). Globally, diarrheal diseases remain a major public health threat with nearly 1.7 billion cases occurring annually (WHO, 2014). In Africa, diarrheal diseases cause about 16% of deaths among children under five years (UNICEF. 2009).

Both faculties of medicine give IMCI course in the lectures as shown in table 3 (EL-Minia 96%, Al-azhar 78%) due to IMCI importance in improving the health status of the world's children and the updated guidelines of WHO recommends it (WHO, 2011).

In the 1990s, WHO and UNICEF developed the Integrated Management of Childhood Illness (IMCI) strategy to improve quality of

child health care and reduce under five mortality. It has now been introduced into the health systems of over 100 countries (Costello et al., 2016). IMCI is a strategy that aims to reduce child deaths and the frequency and severity of illness and disability among children in developing countries, and to contribute to improved growth and development. The IMCI strategy is widely implemented in health centers of the ministry of health in Egypt. The strategy addresses the five major life-threatening conditions of childhood: acute respiratory infections (ARI), diarrhea, measles, malaria (not in Egypt) and malnutrition. It includes activities designed to improve the performance of health workers, to improve health systems, and to improve family and community practices (WHO, 2014). Modifications of IMCI were introduced in Egypt to be suitable to our health problems.

**Comparison** was done between HOs who received training in pediatric department in HO year and who those didn't yet receive in both faculties of medicine showed that there were no differences in knowledge, Attitude and practice between them except in ORS dose, dealing with vomiting with

diarrhea and give antibiotics in cases of bloody diarrhea especially at Al-azhar HOs. These may be due to lack of interest from HO, No discussion between resident doctors, Physicians and HOs and Many HOs didn't attend regularly the pediatric training of 2 months in HO year. Many of them complained of carrying tasks that are actually not the job of HOs, but of workers and secretaries.

The main source of studying in Al-azhar HOs is pediatric department book, Diarrheal diseases in 5.5 pages of total pages 371 (1.5%), This book did not mention explicitly the meaning of ORS and the dose wasn't clear, did not mention the role and dose of zinc in diarrhea and it didn't clear the identified most important 4 signs of dehydration according to IMCI. The main source of studying in El-Minia HOs is lectures notes, Diarrheal diseases in 20 pages of total pages almost 300(all pediatrics) 6.6% by lecturer Dr Asmaa Netag Reiad lecturer of pediatrics. Professor Mahmoud El-Mougi Book represents diarrheal diseases in 16 pages from total pages 522 pages (3.1%).

In Al azhar faculty of medicine representation of diarrheal



diseases in final written exams was high (50%) this was discovered to be probably incorrect because when we reviewed most written exams in the last 15 years we found that questions on diarrhea were few not exceeds 2.6%, clinical exams 33% and oral exams 86% this incorrect in reality as it is difficult to remember the oral questions some 2 years ago, but in El-Minia faculty of medicine in written exams were 28% incorrect results due to collected written questions not exceeds 4.5%, clinical exams 25% and oral exams 90% which is incorrect results in comparison with collected reviewed exams may be due to they gave answers that were likely to "please" the investigator or say any answer.

Some of the answers of the HOs were unreliable as shown by the marked discrepancy between what they mentioned regarding questions on diarrhea in the written exams and what we observed while reviewing the written exams directly.

Most diarrheal questions that were present in the written exams of both faculties weren't in the assessment of dehydration or in plans management of dehydration, epidemiology of diarrhea and not in ORS, but as

enumerate complications, types and symptoms of dehydration mostly severe, causes of diarrhea. Types of dehydration as a question was repeated several times in El-Minia University although it has no significant value in clinical evaluation. This is a low presentation of diarrheal diseases and dehydration although it is considered the second most common leading cause of infant mortality in Egypt and globally encouraging the medical students to neglect this disease and therefore decrease their knowledge, attitude and practice toward diarrhea.

Pediatric department of El-Minia faculty of medicine has twenty staff members and inpatient units with seventy beds but, have no rehydration units. EL-Hussein pediatric department has no rehydration unit with inpatient unit has 42 beds but, in Saied Galal pediatric department has a rehydration unit under supervision of professor Mahmoud El-Mougi who founded it since 1983 for management of dehydration either some or severe . The Diarrheal Diseases Research and rehydration center (DDRRC) start its work at the beginning of May 1983. The center treated 2,843 diarrheal cases in 1983 and

5,010 in 1984. All diarrheal cases coming to the outpatient area were referred to the center where data collection from the mothers regarding diarrhea symptoms and signs of dehydration then assessment of dehydration and start treatment (El-Mougi et al., 1991). The unit contains ORS cup, special chairs and continuous assessment of cases for decision taking either taking home treatment or admission. Presence of rehydration unit in Saied Galal pediatric department is supposed to improve health qualities towards gastroenteritis cases and prevents dehydration. Although the HOs and resident doctors don't attend in the rehydration unit.

### **CONCLUSION**

Non-significant differences between Al-azhar HOs and El-Minia HOs in the knowledge, Attitude and practice toward diarrhea in children. Non-significant differences between HOs who received training in pediatrics during HO year and who didn't yet receive in both universities. Poor knowledge toward ORS dose, ORS composition and in dealing with vomiting with diarrhea in both HOs. Poor knowledge toward avoided fluids like soft drinks

especially El-Minia HOs. Good knowledge toward classification and signs of dehydration. Poor awareness toward infant mortality especially Al-azhar HOs. Diarrheal diseases weren't represented adequately in final written exams in both faculties of medicine. Sayed Galal hospital has a rehydration unit while Al-Hussein and El-Minia Hospitals don't have. El-Minia pediatric department didn't have a department book. Some of the answers of the HO were likely to be unreliable especially those regarding final examinations.

### **RECOMMENDATIONS**

Establishment of a rehydration unit in both Al-Hussein and El-Minia pediatric departments and HOs should participate in its work. Participation of resident doctors and house officers in the works of the rehydration unit of Sayed Galal hospital. More diarrheal cases in clinical rounds. More questions that represent diarrheal diseases in the final exams and emphasis on ORS and plans of management of dehydration. Regarding studying books should represent the subject of diarrheal diseases more clearly and without omission points (the meaning of ORS- the role and dose of zinc), the last updated

guidelines of WHO. More training of HOs toward management of diarrhea and assessment of dehydration and open discussion with the physicians and resident doctors with HOs. A letter to the head of pediatric department of both Al-azhar Cairo for boys and El-Minia university hospitals showing the main results in hope of improving the present situation.

## REFERENCES

1. **Adimoral GN, Ikefuna AN, Ilechekwa G (2011):** Home management of childhood diarrhea. *Niger J Clin Pract* 2011, 14(2):237–241.
2. **Bowen A, Agboatwalla M, Luby S, Tobery T, Ayers T, Hoekstra RM, (2012):** Association between intensive hand washing promotion and child development in Karachi, Pakistan: a cluster randomized controlled trial. *Arch Pediatric Adolescent Med.* 2012; 166(11): 1037-1044.
3. **Costello AM, Dalglish SL, (2016):** on behalf of the Strategic Review Study Team. Towards a grand convergence for child survival and health: a strategic review of options for the future building on lessons learnt from IMNCI. Geneva: WHO; 2016.
4. **Digre P, Simpson E, Cali S, Lartey B, Moodley M, Diop N, (2016):** Caregiver perceptions and utilization of oral rehydration solution and other treatments for diarrhea among young children in Burkina Faso. *J Glob Health.* 2016; 6(2).
5. **El-Mougi M (2016):** Basic pediatrics Mahmoud El-Mougi, Digestive system, Diarrhea. The fifth edition. Fager center, Cairo. 2016; 237.
6. **Inter-agency Group for Child Mortality Estimation (IGME), 2015 update. Egypt Demographic and Health Survey 2014(Accessed in March 2016)** UNICEF Children in Egypt: a statistical digest, UNICEF Egypt, Cairo at: [www.unicef.org/egypt](http://www.unicef.org/egypt).
7. **Kassem A, El-Mougi M, Moustafa A, Fayad I., (1991):** The role of drugs in the treatment of acute childhood diarrhea in the National Control of Diarrheal Disease Project (NCDDP). *Diarrheal Disease Newsletter, Ministry of Health, Cairo 1991: Number 6, Special Issue, Spring 1987; Page ten.*
8. **Kosek M, Bern C, Guerrant RL., (2003):** The global burden of diarrheal disease, as estimated from studies published between 1992 and 2000. *Bull World Health Organ* 2003, 81(3):197-204.
9. **Liu L, Johnson HL, Cousens S, Perin J, Scott S, et al. (2012):** Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *The Lancet* 379: 2151–2161.
10. **Mougi M, El-Hadi M, El-Geindy A, Abdel Salam, Amer A (1991):** Pattern of diarrheal disease in the Diarrheal Disease Research and rehydration Center. In the National Control of Diarrheal Disease Project. *Diarrheal Disease Newsletter, Ministry of Health, Cairo 199, Number 4, Summer 1985: 3.*
11. **Unger CC, Salam SS, Sarker MS, Black R, Cravioto A, El Arifeen S., (2014):** Treating diarrheal disease in children under five: the global picture. *Arch Dis Child.* 2014; 99(3):273–278.
12. **UNICEF. June (2016):** The State of the World's Children 2016 A fair chance for every child (PDF). UNICEF. June 2016. pp. 117, 129. ISBN 978-92-806-4838-6. Archived (PDF) from the original on 20 September 2016. Retrieved 14 January 2017.
13. **UNICEF Levels and trends of child mortality., (2011):** Report 2011. Estimates developed by the UN inter-agency group for child mortality estimation .available at

- [http://www.unicef.org/media/files/Child\\_Mortality\\_Report\\_2011\\_Final.pdf](http://www.unicef.org/media/files/Child_Mortality_Report_2011_Final.pdf). (Accessed 12 November 2012).
14. **UNICEF, Organization Mundial de la Salud, Diarrhea. (2009):** why children are still dying and what can be done. New York: United Nations Children's Fund 2009
15. **World Health Organization. (2005):** The Treatment of Diarrhea. A Manual for Physicians and Other Senior Health Workers. Geneva: World Health Organization; 2005:3. Available from: [http://www.who.int/maternal\\_child\\_adolescent/documents/9241593180/en/](http://www.who.int/maternal_child_adolescent/documents/9241593180/en/). Accessed May 1, 2017
16. **WHO. (2013):** Diarrheal disease. WHO. Media Centre. Fact sheet N°330. April 2013; Available at: <http://www.who.int/mediacentre/factsheets/fs330/en/>. [Cited on 2013, August 25]
17. **WHO. Diarrheal disease. (2014):** WHO. <http://www.who.int/mediacentre/factsheets/fs330/en/> (accessed 16 Sep 2014).
18. **World Health Organization. Diarrhea (2017):** Why Children Are Still Dying and What Can Be Done. UNICEF: World Health Organization; 2009. Available from: [http://www.who.int/maternal\\_child\\_adolescent/documents/9789241598415/en/](http://www.who.int/maternal_child_adolescent/documents/9789241598415/en/). Accessed May 1, 2017
19. **World Health Organization/United Nations Children's Fund: Clinical Management of Acute diarrhea. New York: WHO/UNICEF; 2004.**

## معارف واتجاهات وممارسات أطباء الامتياز نحو الاسهال عند الأطفال البالغ عمرهم أقل من خمس سنوات في مستشفيات جامعتي المنيا والأزهر بالقاهرة

محمود جمعه محمد\*، محمود ظاهر الموجي\*، ابراهيم محمد ابو فرج\*، تحسين سمير

محمد\*\*

قسم الأطفال\* والصحة العامة\*\*، كلية طب الأزهر

**المقدمة:** في جميع أنحاء العالم ، يصاب ما يقدر بنحو 2.5 مليار طفل دون سن الخامسة بالإسهال الحاد سنوياً. ، ويعد الإسهال هو ثاني أكبر سبب للوفيات في هؤلاء الأطفال (بعد أمراض الجهاز التنفسي الحادة) مع الغالبية العظمى التي تحدث في ظروف منخفضة الموارد مثل أفريقيا جنوب الصحراء الكبرى. وقد أجريت دراسة مستعرضة لأطباء التدريب تجاه الإسهال وعلاجه في الأطفال دون سن الخامسة.

**الهدف من البحث:** الهدف من هذا البحث هو تحسين جودة صحة الأطفال دون سن الخامسة من خلال العلاج السليم للإسهال ولتقييم معارف واتجاهات وممارسات اطباء التدريب تجاه الإسهال وعلاجه للأطفال دون سن الخامسة.

**طريقة البحث:** اجريت دراسة مستعرضه علي اطباء التدريب بكليات الطب بجامعتي الأزهر بنين بالقاهرة وجامعة المنيا. حجم العينة (100) طبيب تدريب حاضرين وقت الدراسة بمستشفيات جامعة الأزهر والمنيا (خمسون من كل جامعه). تم استخدام استبيان منظم لجمع البيانات الشخصية والاجتماعية والديموغرافية والأكاديمية وبيانات مرتبطة بالإسهال من أطباء التدريب. كما تم استعراض الامتحانات التحريرية النهائية ودراسة الكتب في طب الأطفال لكل كلية طب وتم تحليل النتائج. تم ترميز البيانات المجمعة وتحليلها باستخدام الإصدار 18 من SPSS (الحزمة الإحصائية للعلوم الاجتماعية).

**النتائج :** المجموع الكلي لأطباء التدريب الذين تمت مقابلتهم 100 طبيب تدريب من كليات الطب في جامعة الأزهر بالقاهرة للبنين وجامعة المنيا. كان التدريب الجامعي في المنيا هو أكثر من تدريب الأزهر تجاه حضور جولة الاطفال الدراسية ومناقشة حالات الاسهال خلال الجولات العملية، ولكن لم يصل الي دلالة احصائية. كان المصدر الرئيسي

لدراسة في الأزهر هو كتاب قسم طب الأطفال ، لكن مذكرات المحاضرات في المنيا كانت المصدر الرئيسي. كان لدى معظم أطباء التدريب في كل كلية معرفة جيدة حول تصنيف وعلامات الجفاف ، ولكن كان لديهم معرفة ضعيفة حول تركيبة محاليل الجفاف بالفم والجرعة. كان لدى أطباء تدريب الأزهر معرفة جيدة تجاه السوائل الممنوعة ( P < 0.003) ومؤشر استخدام أنبوب تنظير المعدة عبر الأنف في الإسهال (P < 0.001) مقارنة بأطباء تدريب المنيا. أطباء التدريب في كلا الموقعين كان لديهم ضعف في الوعي تجاه وفيات الأطفال في مصر ، أطباء تدريب الأزهر هو (32٪) صحيح ، أطباء تدريب المنيا (46٪). كان تمثيل أمراض الإسهال في الامتحانات التحريرية النهائية في كلا الجامعتين قليل لا يتجاوز 3,7 ٪ في الأزهر ولكن 4,5 ٪ في المنيا.

**الإستنتاج:** عدم وجود فروق ذات دلالة احصائية بين أطباء التدريب بجامعة الأزهر واطباء التدريب بجامعة المنيا في المعرفة والاتجاه والممارسة تجاه الاسهال عند الاطفال، ولا توجد ايضا فروق ذات دلالة احصائية بين أطباء التدريب الذين تلقوا التدريب في طب الاطفال خلال العام التدريبي والذين لم يتلقوا بعد في كلا الجامعتين. معرفة ضعيفة تجاه السوائل الممنوعه مثل المشروبات الغازية خاصة أطباء تدريب المنيا. ضعف الوعي تجاه وفيات الاطفال وخاصة أطباء تدريب الازهر. لم يتم تمثيل أمراض الإسهال بشكل كاف في الامتحانات التحريرية النهائية في كليتي الطب. تحتوي مستشفى سيد جلال على وحدة إعادة تميو بينما لا يوجد بمستشفيات الحسين والمنيا.