

Mothers' Pharmacological and Non Pharmacological Interventions in Caring of their Children Suffering from Common Gastrointestinal Disorders

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Abstract

Background: Gastrointestinal disorders are common in children and have significant impact on child's physical and emotional well-being. So, appropriate mothers' interventions either pharmacological or non-pharmacological in caring of their children suffering from common gastrointestinal disorders are essential to prevent potential serious consequences. **Aim:** of this study was to assess mothers' pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders. **Research design:** A descriptive design. **Setting:** The study was conducted at pediatric out-patient clinics at both Children's Hospital affiliated to Ain Shams University Hospitals and Polak El-Dakror Hospital affiliated to Ministry of Health and Population. **Subject:** A Purposive sample of 120 mothers accompanying their children suffering from common gastrointestinal disorder at the previously settings regardless their characteristics. **Tools:** A structured questionnaire to assess mothers' knowledge and observational checklists to assess their reported practice regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders. **Results:** The results of the study showed that more than half of the studied mothers had satisfactory level of knowledge. While, more than one third of them had satisfactory level of total reported practices regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders. **Conclusion:** this study concluded that, the most pharmacological interventions used by the studied mothers in caring of their children suffering from common gastrointestinal disorders were antidiarrheal and antibiotic drugs. While, the most non-pharmacological interventions used by them were the dietary modification and herbal products. **Recommendations:** Provide health education program for mothers regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders.

Key words: gastrointestinal disorders, mothers, non-pharmacological, pharmacological, interventions, knowledge, practice, children, nurses.

Introduction:

Gastrointestinal (GI) disorders are a major pediatric health problem worldwide and important cause of morbidity and mortality in children affecting both developed and developing countries. The GI disorders are commonly encountered in clinical practice and responsible for 41% of all visits to adult gastroenterologists and more than 50% of visits to paediatric gastroenterologists (Lewis *et al.*, 2016).

A gastrointestinal disorder (GI) refers to any condition or disease that occurs within the gastrointestinal tract that causes health

problem of the gastrointestinal system. These disorders can get in the way of day-to-day functioning. These disorders may be acute or chronic. Also, the GI disorders may be classified into organic or functional disorders (Fookes, 2019).

The causes of the GI disorders are multiple. They may be restricted to the digestive system or is a symptom of a wider systemic problem. The common causes are infections, dietary factors (include overeating, eating too much fatty, sugary foods low in fiber, food allergies and intolerance), inadequate water intake, medication side effects and structural abnormalities. Many

systemic diseases affect gastrointestinal system, such as autoimmune diseases, heart failure, genetic diseases and diabetes (*Wilken, 2016*).

Signs and symptoms of gastro-intestinal disorders can include; nausea, vomiting, diarrhea, abdominal pain, constipation, bloating in the belly, bleeding and problems with appetite. GI disorders symptoms can be especially stressful for children since they are less able to cope with the challenges of GI illness, as well as challenging for their parents when physicians cannot identify an organic cause for their child's discomfort or pain (*Gopalan and Sibal, 2015*).

The interventions' options for managing children suffering from common GI disorders can be classified into pharmacological that include conventional drugs (such as antibiotics, antidiarrheal, antispasmodic....etc) and non-pharmacological interventions (such as dietary modifications, behavioral changes....etc). These interventions should aim to reduce suffering of symptoms and achieve complete remission of them (*Lahner et al., 2013*).

Pharmacological interventions mean management of symptoms through the use of medication. It requires a high level of cooperation from parents and a clear understanding of the rationale for using medications, correct dose measurement and frequency, side effects, possible benefits, length of treatment, preparation and storage of medications (*Ann and Weiler, 2013*).

Non-Pharmacological interventions mean management of symptoms without the use of medication. They are usually very well accepted by both children and their parents as they are free from negative pharmacological side effects. Also, they may be as effective as the pharmacological interventions; therefore, according to many experts and evidence, non-pharmacological interventions are the initial interventions that are offered especially in children who do not have severe symptoms (*Brusafferro et al., 2018*).

Mothers are the first ones who manage the illness of their children. Most of the GI disorders are treated at home and mothers are

the key caregivers for children under five years old. They have a critical role in providing appropriately home care before seeking medical care. They are the ones who decide about the nutrition and management of the GI disorders in their children. Therefore, mothers' knowledge about these common disorders is critically important where early home care is given and complications of disease can be prevented (*Saberi et al., 2014*).

The role of pediatric nurse should focus on improving the infants' symptoms and quality of life of the family, reassuring parents, proposing the correct behavior and nutritional intervention and avoiding inappropriate use of medication. Nutritional advice is an effective strategy in the management of the GI disorders and most of the time prevents adverse effects (*Kyle and Carman, 2017*).

The pediatric nurse plays the pivotal role in preventing infections, improving nutritional status. This can be done by demonstration of health education and guidance to the mothers and children suffering from common gastrointestinal disorders to foster their growth and development and promote an optimum state of health physically, mentally and socially. So that, nurses may function at the peak of their capacity to provide comprehensive care to children (*Vandenplas et al., 2019*).

Significance of the Study

Common gastrointestinal disorders often have serious consequences if not treated properly as increasing morbidity, mortality, economic burden and decreasing quality of children's life (e.g. sustained diarrhea or vomiting can lead to dehydration, electrolyte imbalances, malnutrition and become life threatening). The GI disorders can affect a child's growth and development, so it is important to consider all GI disorders as seriously until they are well controlled (*Kyle and Carman, 2017*).

Gastrointestinal disorders are very common and most children will have experienced some symptoms several times throughout their lives. Mothers are expected to be extensively care giver of the sick child at home. Maternal ability to adequately provide

either pharmacological or non-pharmacological interventions for their children with the common GI disorders directly impacts on long term health outcomes for their children. Lack of mothers' knowledge or faulty practices may lead to serious consequences. Therefore, assessing mothers' knowledge and practices regarding pharmacological and non-pharmacological interventions for their children suffering from common GI disorders is the first step towards improvement of the potential outcomes (*Ward and Hisley, 2016*).

Aim of the study

The aim of this study was to assess mothers' pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders.

Research Question:

What are the mothers' pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders?

Subject and Methods

Research design:

A descriptive design was used.

Setting:

The study was conducted at paediatric out-patient clinics at:

- Children's Hospital affiliated to Ain Shams University Hospitals.
- Polak El-Dakror Hospital in Giza governorate affiliated to Ministry of Health and Population/ Egypt.

Subject:

A Purposive sample of 120 mothers accompanying their children suffering from common gastrointestinal disorders at the previously setting regardless their characteristics over a period of three months.

Exclusion criteria:

- Children were suffering from any psychological problems, chronic illness, metabolic or genetic disorders and congenital anomalies of gastrointestinal system.

Tools of data collection

1- A structured interview questionnaire:

It was designed by the researcher after reviewing the recent and relevant literature *James et al., (2014); Gopalan and Sibal, (2015); Abo Salim et al., (2016); Paul and Basude, (2016)* and written in simple Arabic language to suit the understanding level of the studied mothers. It was consisted of the following parts:

Part I: Characteristics of the studied sample. This part consisted of 4 items as the following:-

- The studied mothers' characteristics including; age, level of education, employment, marital status and residence.
- The studied children's characteristics including; age, gender, level of education and child's rank in the family.
- The children's medical history including complain, its duration and frequency.
- The family characteristics and housing condition including number of family members, type of family, house condition, separate bath room, water supply, sewage disposal, electricity and number of rooms.

Part II: Mothers' knowledge. This part consisted of 39 questions to assess mothers' knowledge regarding the following:

a) The common GI disorders,

it consisted of 25 questions divided into:

- Knowledge about components and function of gastrointestinal system, definition of the GI disorders, its types, causes related to the mother, causes related to the child, associated symptoms, complications and its prevention (9 questions).
- Mothers' knowledge regarding vomiting, diarrhea, constipation and abdominal pain. Each disorder included 4 questions about its definition, causes, associated symptoms and complications (16 questions).

b) The pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders, it consisted of 14 questions.

Part III: Mothers' reported practices:

This part was used to assess mothers' reported practices regarding non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders. It consisted of 10 questions.

❖ Scoring system:

The correct and complete answer was scored two grades, the correct and incomplete answer was scored one grade and the incorrect or didn't know answer was scored zero. These scores were summed-up and converted into a percent score. The score ranged from the following:

- Score < 60 % referred to unsatisfactory level of knowledge.
- Score ≥ 60 % referred to satisfactory level of knowledge.

II: Observational checklists:

The observational checklists were adopted to assess the mothers' reported practice regarding:

A) Mothers' pharmacological interventions in caring of their children suffering from the common GI disorders, it consisted of 3 checklists namely:-

1. Administration of oral medication adopted from *Lynn, (2011)* was consisted of 9 steps each step scored 1 to make total scores of 9.
2. Administration of oral rehydration solution adopted from *WHO/UNICEF, (2005)* was consisted of 9 steps each step scored 1 to make total scores of 9.
3. Administration of suppository adopted from *Ford, (2010)* was consisted of 9 steps each step scored 1 to make total scores of 9.

B) Mothers' non-pharmacological interventions in caring of their children suffering from the common GI disorders. It consisted of 3 checklists namely:-

1. Hand washing procedure adopted from *Pittet et al. (2017)* consisted of 7 steps

each step scored 1 to make total score of 7.

2. Preparation of food adopted from *Meggitt, (2003)* was consisted of 10 steps each step scored 1 to make total scores of 10.
3. Preparation of herbal products adopted from *Colombo, (2012)* was consisted of 7 steps each step scored 1 to make total scores of 7.

❖ Scoring system:

The total scores of mothers' reported practices were 51 marks for 51 steps. Each step was scored as "One" if the step is done and scored "Zero" if the step was not done. The total level of mothers' reported practices were classified into:

- (Score <60%) referred to unsatisfactory level of practice.
- (Score ≥60%) referred to satisfactory level of practice.

Validity and Reliability:

The tools were revised by a jury of three expertises from different academic categories (professors and assistant professors) of the pediatric nursing department's staff at the Faculty of Nursing-Ain Shams University. The jury reviewed the tools for clarity, relevance, comprehensiveness, understanding and applicability. Reliability of the designed tools was done statistically by Cronbach's alpha test reached (0.85).

Pilot study:

The pilot study was carried out involving 10% of the expected total study sample (n=10). The results of the data obtained from the pilot study were used to test the clarity and applicability of the study tools. According to the results of the pilot, no corrections or radical modification of items were performed so, the study subjects involved in the pilot study were included in the study sample.

Field work:

The actual field work was carried out over a period of three months from the first week of October, 2018 up to the end of

December, 2018 for data collection. The researcher was available in the study settings 2 days per week (Sunday and Tuesday) one day for each hospital from 8 am to 2 pm by scheduled rotation. After explaining the study aim for the study sample, the tools were distributed and filled in by the researcher during the interval waiting time. The time required for each interview ranged from 15 - 20 minutes.

Administrative design:

An official letter requesting permission to conduct the study was submitted from the dean of Faculty of Nursing- Ain Shams University to the director of each of the previously mentioned setting to collect the necessary data for the current study. The letter included the aim of the study and study tools in order to get permission and cooperation for collection of data.

Ethical consideration:

The research approval was obtained from Scientific Research Ethical Committee affiliated to Faculty of Nursing - Ain Shams University before starting the study. Mothers' right was secured that all data collected was used only for research purpose. The researcher explained the aim and the nature of the study to subjects and took their approval to participate in the study prior to any data collection. All the study subjects had the right to withdraw at any time from the study.

Statistical Design:

Data collected from the studied sample were revised, coded and entered using computer. Data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) software version 21. The obtained data were organized, tabulated, analyzed and represented in tables and graphs as required. Data were presented using qualitative statistics in the form of frequencies, percentages, means, standard deviation (SD), chi-square (χ^2) and correlation coefficient (r).

Level of significance was accepted at P value:

- Non significant difference $> 0.05^*$
- Significant difference $< 0.05^*$
- High statistical significant difference $< 0.001^*$

Results:

Table (1): showed that one third (33.3%) of the studied mothers were in the age group of 30:<35 years, ($\bar{X} \pm SD$ 30.3 \pm 5.7 years). Concerning the mother's level of education, it was found that 37.5% of them had middle education. More than half (60.8%) of them were living in rural residence.

Table (2): showed that, 42.5% of the studied children were in the age group of 1:<3, ($\bar{X} \pm SD$ 2.6 \pm 0.9 years). In relation to children's gender, 60% of them were males. More than half (53.3%), (56.7%) of them were under age and ranked as the last child in the family respectively.

Figure (1): showed that more than half (61.7%) of the studied mothers had satisfactory level of knowledge regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common GI disorders.

Figure (2): cleared that, more than one-third (36.7%) of the studied mothers had satisfactory level of reported practice regarding pharma-cological and non-pharmacological interventions in caring of their children suffering from the common GI disorders.

Table (3): showed that there was significant statistical difference in mothers' total knowledge level and their age ($\chi^2= 14.80$, $p= .002$), level of education ($\chi^2= 36.78$, $p= .00$) and employment ($\chi^2= 8.94$, $p= .003$). But there was an insignificant statistical difference in mothers' total knowledge level and their residence place ($\chi^2= 1.00$, $p= .58$).

Table (4): showed that, there were significant statistical differences in mothers' total reported practice level and their level of education ($\chi^2= 22.32$, $p= .00$) and employment ($\chi^2= 6.74$, $p= .009$). But there were insignificant statistical differences in mothers' total reported practice level and their age ($\chi^2= 3.67$, $p= 0.30$) and residence place ($\chi^2= 0.66$, $p= .38$).

Table (5): showed that there was a highly statistically significant positive correlation ($r=0.53$,

p=.00) between the studied mothers' total knowledge and their total reported practice.

Table (1): Distribution of the studied mothers according to their characteristics (n=120).

Mothers' characteristics	Number (No.)	Percentage (%)
Age in years		
20:< 25	23	19.2
25:<30	32	26.7
30:<35	40	33.3
35:≤40	25	20.8
$\bar{X} \pm SD$		30.3±5.7
Level of education		
Illiterate	12	10
Primary	33	27.5
Middle	45	37.5
High	30	25
Employment		
Employed	21	17.5
Housewife	99	82.5
Residence place		
Urban	47	39.2
Rural	73	60.8

Table (2): Distribution of the studied children according to their characteristics (n=120).

Child's characteristics	No.	%
Age (years)		
< 1	12	10
1:<3	51	42.5
3:<6	33	27.5
6:≤9	24	20
$\bar{X} \pm SD$		2.6±0.9
Gender		
Male	72	60
Female	48	40
Child's education		
Under age	64	53.3
Nursery	36	30
Primary school	20	16.7
Child's rank, the		
First	36	30
Middle	10	8.3
Last child	68	56.7
Only child	6	5

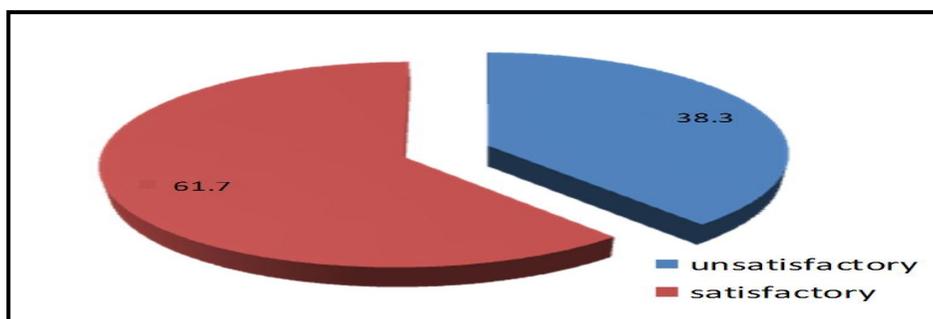


Figure (1): Distribution of total knowledge level of the studied mothers regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common GI disorders (n=120)

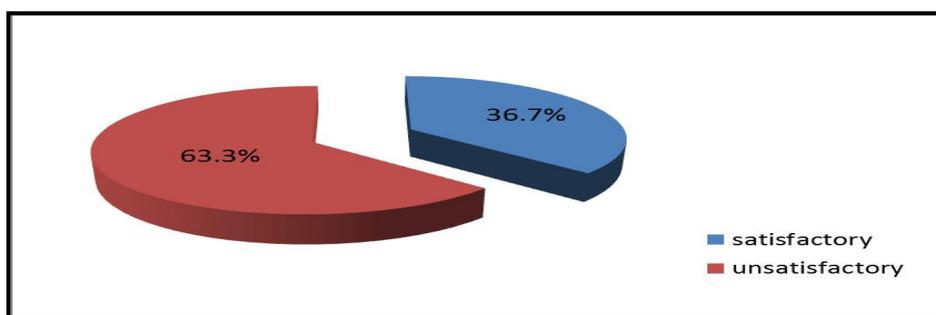


Figure (2): Distribution of total reported practice level of the studied mothers regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common GI disorders (n=120).

Table (3): Relation between demographic characteristics of the studied mothers and their total knowledge regarding pharmacological and non-pharmacological interventions in caring of their children suffering from the common GI disorders (n=120)

Demographic Characteristics	Total knowledge				Significant test	
	No.	%	No.	%	χ^2	P
Age in years						
20:< 25	8	34.8	15	65.2	14.80	.002*
25:<30	18	56.2	14	43.8		
30:<35	33	82.5	7	17.5		
35:<40	15	60	10	40		
Level of education					36.78	.00*
Illiterate	6	50	6	50		
Primary	8	24.2	25	75.8		
Middle	31	68.9	14	31.1		
High	29	86.7	1	3.3		
Employment					8.94	.003*
Employed	19	90.5	2	9.5		
House wife	55	55.6	44	44.4		
Residence place					1.00	.58
Urban	29	61.7	18	38.3		
Rural	45	61.6	28	38.4		

Statistical significant difference < 0.05 * Non statistical significant difference > 0.05*
High statistical significant difference < 0.001*

Table (4): Relation between demographic characteristics of the studied mothers and their total reported practice regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common GI disorders (n=120).

	Total practice				Significant test	
	Satisfactory		Unsatisfactory		χ^2	P
	No.	%	No.	%		
Age in years						
20:<25	4	17.4	19	82.6	3.67	.30
25:<30	22	68.7	10	31.3		
30:<35	10	25	30	75		
35:<40	8	32	17	68		
Level of education					22.32	.00*
Illiterate	0	0	12	100		
Primary	2	6.1	31	93.9		
Middle	27	60	18	40		
High	15	50	15	50		
Employment					6.74	.009*
Employed	9	42.9	12	57.1		
House wife	35	35.4	64	64.6		
Residence place					.66	.38
Urban	27	57.4	20	42.6		
Rural	17	23.3	56	76.1		

Table (5): Correlation between the studied mothers' total knowledge and their total reported practice (n=120).

	Total reported practice		Total knowledge		Pearson correlation	
	Satisfactory		Unsatisfactory		R	P
	No.	%	No.	%		
Unsatisfactory	50	53.2	44	46.8	.53	.00
Satisfactory	24	92.3	2	7.7		

Discussion

Gastrointestinal disorders are a major pediatric health problem. The GI disorders have a significant impact on child's physical and emotional well-being and major socioeconomic impact for the family and wider society. Inappropriate treatment of GI disorders early at an appropriate time increases the frequency of complicated acute forms of the GI disorders (*Vandenplas et al., 2019*).

Mothers are usually the key caregiver for their sick children. Improving mothers' education regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders is very important in treating these disorders and preventing their complications (*Hockenberry et al., 2019*).

The study aimed to assess mothers' pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders.

As regards the characteristics of the studied mothers, the finding of the current study showed that, one third of the studied mothers were in the age group of 30<35 years ($\bar{X} \pm SD$ 30.3±5.7 years), majority of them were housewives and all of them were married (**table 1**). This finding was nearly similar to the finding of *Abdel-Aziz et al. (2016)*, who studied "Assessing the Impact of a Community-Based Health and Nutrition Education on the Management of Diarrhea in an Urban District, Cairo, Egypt" found that, $\bar{X} \pm SD$ of mothers was 33.8 ± 4.3 and most of them were housewives. Another similar study by *Workie et al. (2018)*, who studied "Mothers' Knowledge, Attitude and Practice towards the Prevention and Home-Based Management of Diarrheal Disease

among under-five Children in Diredawa, Eastern Ethiopia A Cross-Sectional Study" found that, more than half of the mothers were in the age of 30-34 years, most of them were housewives and the majority of them were married. This finding was disagreed with a study by *Mumtaz et al. (2014)*, who studied "Knowledge, Attitude and Practices of Mothers about Diarrhea in Children under 5 Years" revealed that, the majority of the studied mother aged less than 30 years. This difference could be due to difference in residence of the study setting.

Concerning the mothers' level of education and their residence, the result of the current study showed that more than one third of the studied mothers had middle education and more than half of them were living in rural areas (**table 1**). This finding was agreed with *Khalil and Alkot, (2018)*, who conducted a study which entitled "Functional Constipation among Children Attending the Gastroenterology Clinic at Alexandria University Children's Hospital" included pharmacological treatment of constipation reported that, less than half of the studied mothers had middle education and more than half of them were living in rural areas. This finding in contrast with a study by *Mohamed et al. (2013)*, who studied "Mothers' Knowledge and Attitude Regarding Acute Diarrheal Disease at Outpatient Clinic, Assiut University Children's Hospital" reported that two fifths of the studied mothers were illiterate. Also, this finding disagreed with *Padhy et al. (2017)*, who studied "Mother's knowledge, attitude and practice regarding prevention and management of diarrhea in children in Southern Odisha" found that, more than one third were having primary education. This difference might be attributed to many factors including socio-demographic variation of the study population, study setting, sample size and tool used for data collection.

As regards the characteristics of the studied children, the present study showed that less than half of the studied children were in the age group of $1 < 3$, more than half of them were males and more than half of them were ranked as the last child in the family (**table 2**). This finding was in an agreement with *Farahat et al. (2020)*, who conducted a study "Diarrheal Management Approach among Caregivers of under-5-Year-Old Children in an Egyptian Rural Area in Menoufia, Egypt" reported that, less than half of the studied

children were 1–2 years of age and were males. In terms of their birth order more than half of them had an order of three and above. Also, this finding was supported by *Mansour et al. (2013)*, who studied "The Modifiable Diarrhea Risk Factors in Egyptian children Aged <5 Years" stated that, the males were more affected than females. This study was not supported with *Bahartha and Alezzi, (2015)*, who studied "Risk Factors of Diarrhea in Children under 5 Years in Al-Mukalla, Yemen" found that, more than two thirds of the studied children were in the age of less than one year. This might be due to a decline in the maternally acquired antibodies and the introduction of complementary foods that are given in unhygienic ways. Moreover, teething and crawling begins at this age, both of which pose a risk of contamination through fingers and infectious tools into the mouth.

As regards total level of knowledge, the current study showed that, more than half of the studied mothers had satisfactory level of knowledge regarding mothers' pharmacological and non-pharmacological interventions in caring of their children suffering from the common GI disorders (**figure 1**). This finding was agreed with *Mohamed et al. (2013)*, who found that, more than half of mothers had satisfactory knowledge about diarrhea. Also, this study goes in line with *Amare et al. (2014)*, who studied "Maternal Knowledge and Practice towards Diarrhea Management in Under Five Children" mentioned that more than half of mothers had good knowledge about diarrhea in their children. Another similar study performed by *Chiabi et al. (2018)*, who carried out a study about "Assessment of Knowledge and Practices of Mothers on the Home Management of Diarrhea in the Northern Part of Cameroon" reported that three quarters of mothers had adequate knowledge on diarrhea. However, this finding contraindicated with *Abo Salim et al. (2016)*, who conducted a study about "Knowledge and Practice of Mothers as Determinants of Gastroenteritis among Preschool Children in Sedi-Salim District, Kafer Al-Sheikh Governorate, Egypt" showed that, there was deficiency in knowledge of the studied mothers regarding gastroenteritis in their children. This high level of knowledge might be due to most of mothers were educated.

So, they have more access to the public service and understand better the information given to them that improving their knowledge. This high level of knowledge could be due to exposures to information on child care during immunization visits as well as experiences shared among mothers of under-five.

It was illustrated from the current study that more than one third of the studied mothers had satisfactory level of reported practice regarding pharmacological and non-pharmacological interventions in caring of their children suffering from the common GI disorders (**figure 2**). This finding was nearly similar to the finding of *Workie et al. (2018)*, showed that two fifths of mothers had good practice towards home-based management and prevention of diarrhea among under-five children. *Farahat et al. (2020)*, found that, more than one third of mothers had good diarrheal management while, many children were not receiving adequate management for diarrhea. Thus, more efforts are required to improve the quality of care for childhood diarrhea in both health facilities and at the community level. These findings were in contrast with *Chiabi et al. (2018)*, who found that two thirds of mothers had good practice regarding diarrhea in their children. This might be due to the fact that, increased maternal knowledge would have a positive effect on their practices.

As regards the relation between demographic characteristics of the studied mothers and their total knowledge regarding pharmacological and non-pharmacological interventions in caring of their children suffering from the common GI disorders, there was significant statistical difference in mothers' total knowledge level and their age, level of education and employment (**table 3**). This finding in an agreement with *Ghasemi et al. (2013)*, who studied "Knowledge of Mothers in Management of Diarrhea in under-Five Children, in Kashan, Iran" found that, the knowledge of the studied mothers had significant relationship with their age, education and occupation. Also, These findings were in an agreement with *Amare et al. (2014)*, who reported that, demographic factors such as mothers' education, employment, and age were allied with mothers' knowledge about diarrhea and its management. These results of the present study could be explained by the fact that, the knowledge

of the mothers was much better when they had a good educational level.

As regards the relation between demographic characteristics of the studied mothers and their reported practice, there were significant statistical differences in mothers' total reported practice level and their level of education and employment (**table 4**). This finding was supported with *Chiabi et al. (2018)*, who studied "Assessment of Knowledge and Practices of Mothers on the Home Management of Diarrhea in the Northern Part of Cameroon" and observed a statistically significant relationship between the mothers' practices and their educational level and profession. Also, this finding was supported by *Khalili et al. (2013)*, who studied "Maternal Knowledge and Practice regarding Childhood Diarrhea and Diet in Zahedan, Iran" reported that, a statistically significant relationship between the mothers' practices and their educational level and profession. This might be due to the fact that, practices improved with the increase in the level of education. As educated mothers would easily understand and integrate the information received and this would influence the choice of treatment and hence improve their practices.

Regarding correlation between the studied mothers' total knowledge and their total reported practice, there was a highly statistically significant positive correlation ($r=0.53$, $p=.00$) between the studied mothers' total knowledge and their total reported practice (**table 5**). This finding was in an agreement with *Hanif et al. (2018)*, who studied "Knowledge, Attitude and Practice of Mother regarding the Use of Oral Rehydration Solution in Children Suffering from Diarrhea" found that, the study showed a positive correlation between knowledge, attitude and practice of mothers. Also, this finding was supported with *Mohamed et al. (2013)*, who found that there was a positive correlation between mothers' knowledge and their practice toward diarrhea in their children. While, this finding in contrast with *Saberi et al. (2014)* who studied "Mothers' Roles in Prevention and Care of Diarrhea in Children of Aran and Bidgol, Iran" reported that there was insignificant relationship between the mothers' knowledge and their practices regarding care of diarrheal disease in their children. The researcher's point of view as, when knowledge increases, practices increases.

Conclusion:

The current study concluded that, the most pharmacological interventions used by the studied mothers in caring of their children suffering from common gastrointestinal disorders were antidiarrheal and antibiotic drugs. While, the most non-pharmacological interventions used by them were the dietary modification and herbal products. In addition, more than half of the studied mothers had satisfactory level of knowledge. While, more than one third of them had satisfactory level of reported practice regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders.

Recommendations:

Based on the finding of this study, the following recommendation are proposed

- Provide health education program for mothers regarding pharmacological and non-pharmacological interventions in caring of their children suffering from common gastrointestinal disorders.
- Encourage the mothers to seek early medical advice & help for management of their children suffering from common GI disorders through different health care services and mass media.
- Improve maternal practices regarding care of their children with common gastrointestinal disorders that include; brochures containing simple information, posters posted in outpatient clinic and films or audio-visual materials about the practical procedures.
- Further study can be replicated in different setting and various age groups of the pediatrics to strengthen the findings.

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