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Maternal Care of their Children Suffering from Covid 19 during Home Isolation

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Abstract:
Background*: COVID-19 pandemic has significantly impacted a large number of children worldwide.*
Aim: *the study aimed to assess maternal care of their children suffering from Covid-19 during home isolation.*
Materials and Methods*: A descriptive design was used in this study. The study was conducted at the emergency department in the Pediatric Hospital affiliated to Fayoum University. A purposive sample of 100 mothers and their children who suffering from Covid-19 according to inclusion criteria was recruited. Tools: Four tools were utilized in this study, I) A pre structured interviewing questionnaire to assess the mothers and their children characteristics and mothers' knowledge regarding care of their children with Covid-19 during home isolation. II) Mothers' reported practices regarding care of their children with Covid-19 during home isolation. III) Pitfalls faced the mothers during home care of their children suffering from Covid-19. IV) Hand washing checklist to assess the mothers' practice regarding hand hygiene during care of their children.*
Results*: The results revealed that, less than two thirds of studied mothers had a poor total score level of knowledge related to Covid-19 infection while the highest of them have unsatisfactory reported practices. Furthermore, all of the studied mothers experienced psychological and social pitfalls when caring for their infected children with Covid-19.*
Conclusion: *The study concluded that the studied mothers had low total knowledge scores and overall unsatisfactory reported practices for caring for their Covid-19-infected children during home isolation. Furthermore, they encountered a number of (obstacles) pitfalls while caring for their infected children.*
Recommendation: *the study recommended to, develop, and implements educational programs to improve maternal care of their children suffering from Covid- 19 during home isolation.*
Key Word*: Maternal care; Covid- 19; Home isolation; Children.*

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I. Introduction

The new pandemic corona-virus 2019, also known as (COVID-19) has spread significantly across the world. it has spread from Wuhan, China to several countries, some of which have encountered external expansion as well, poses a threat to people of all ages **(Abuhammad, 2021).** Global spread included Egypt and the first case was recorded in Egypt on February 14, 2020 **(WHO, 2020).** The total number of confirmed cases on May 1, 2020, was 5895, with case fatality rate of 6.9%. Children were affected like the other age groups. Centers for Disease Control and Prevention reported that, more than 15% of all cases of COVID-19 among children **(CDC, 2020).** The COVID-19 pandemic has a major impact on child's health, mainly physical, social, psychological and educational aspects. All these implications must be identified and dealt with properly to avoid their consequences. Children's ability to transmit COVID-19 infection is crucial, even in asymptomatic cases or having milder symptoms than adults. The predominant route of transmission is droplet transmission with the virus discharged in respiratory secretions, there is also growing evidence of aerosol transmission **(Hossny & El-Owaidy, 2020)**.

Fever, upper respiratory symptoms and gastrointestinal problems are the most prevalent symptoms in children with Covid-19 **(Galindo, Chow & Rongkavilit, 2021).** Supportive treatment including sufficient fluid and calories intake and additional oxygen supplementation should be used in the treatment of children infected with COVID-19 **(Zimmermann & Curtis, 2020)**. Asymptomatic and uncomplicated cases, which account for the vast majority of cases during this pandemic, can be managed at home by skilled family members with occasional assistance from healthcare providers **(Raveendran et al., 2021)**. The decision of the site of management either at home or in hospital depends on the clinical presentation, requirement for supportive care, potential risk factors for severe disease and the ability of the patient to self-isolate at home **(Chen et al., 2020).** However, home isolation and care for an infected person based on a clinical assessment of the COVID-19

patient, assessment of the home environment and the ability to monitor the clinical progression of a COVID-19 patient at home **(WHO, 2020).**

Home isolation is recommended if the child's situation and living conditions permit it, such as the availability of appropriate caregivers, the presence of a separate bedroom for isolation until recovery, open access to food and other necessities and the ability to care for the child at home **(Mahrous, 2021)**. Mothers are the key to family health. Therefore, proper knowledge, attitudes and practices of mothers has a key role for prevention and control of the diseases, especially communicable ones (**Lee et al., 2020)**. Pediatric nurse play a critical role during Covid- 19 spread. The pediatric nurse help the families to keep their children healthy and safe in these uncertain times. Important considerations for children include, sharing everyday preventive health behaviors; promoting physical activity; maintaining social connections; watching for signs of stress, anxiety, depression and promoting adequate support systems **(Society of Pediatric Nurses, 2020).**

The pediatric nurse has a vital role in reduction the impact of Covid-19 on children's health, they interact with children and their families, thus allowing them to identify their health problems early and focus on ways to reduce Covid-19 stressors. Pediatric nurses also can support parents through encourage parent child communication, reassuring the children, educating them about the situation in age-appropriate ways, maintaining daily routines, educating children on maintaining safe distances and practicing personal hygiene and answering all their questions with honesty **(Henderson, Schmus, Mcdonald & Irving, 2020).** Nurses have the mindset and professional training required to effectively tackle COVID-19. In addition to, the direct care provided by pediatric nurses. While, nurses in communities perform contact tracing, offer care through case monitoring and follow-up as part of home isolation, also educate the public about good hand hygiene **(Huang et al., 2020).**

Significance of the study

weekly epidemiological update on COVID-19 - 6 July 2021 reported that, the total number of documented COVID-19 cases worldwide has already exceeded 183 million, with nearly 4 million deaths **(WHO, 2021)**.COVID-19 pandemic has significantly impacted a large number of children worldwide **(Galindo, Chow & Rongkavilit, 2021).** Children and adolescents are particularly vulnerable to COVID-19 according to studies **(Nikolopoulou & Maltezou, 2021).** The children under the age of 18 are estimated to account for around 8.5 percent of all reported cases **WHO, (2021)**. In Egypt, thousands of cases from various age groups, have been documented since the diagnosis of the first case of COVID-19, including children **(Baki et al., 2021).** Home isolation may be recommended for a child with confirmed or suspected COVID-19 **(WHO, 2020).** The child's primary caregiver is the mother she is involved in offering additional precautions, strictly maintaining guidance on hand hygiene, social distancing and ensuring that these measures are followed. Adherence to these measures is influenced by knowledge and practices of mothers (Tawfique at al., 2021). Therefore, this study aimed to assess maternal care of their children suffering from COVID-19 during home isolation.

Aim of the study

This study aimed to assess maternal care of their children suffering from Covid-19 during home isolation.

Specific objectives

1. Assess the mothers' knowledge and reported practices regarding care of their children suffering from COVID-19?
2. Identify the pitfalls that faced the mothers regarding care of their children suffering from COVID-19 during home isolation?

Research questions

1. What are the mothers' knowledge and practices regarding care of their children suffering from COVID-19?
2. What are pitfalls that faced the mothers during care of their children suffering from COVID-19?
3. Is there relationship between mothers' characteristics and their knowledge and practices regarding care of their children with Covid-19?

II. Material And Methods

Study Design: A descriptive design was utilized in the current study.

Operational Definition

1. **Maternal care:** defined as a process in which the mother achieves competence in providing care to the child and integrates the mothering behaviors into her established role in a way that she feels comfortable with her identity as a mother **(Shrestha et al., 2019).**

2. **Home isolation:** is separating children who have COVID-19 or symptoms of COVID-19 from those who are not infected or showing symptoms in order to prevent transmission of SARS-CoV-2, the virus that causes COVID-19 **(WHO, 2020).**

Study Location: The current study was conducted at, Emergency department of the Pediatric Hospital affiliated to Fayoum University Hospitals. It was selected due to the high prevalence of children in the selected setting.
Study Duration: January 2021 to June 2021.
Sample size: 100 mothers and their children who suffering from covid-19
Sample size calculation: The sample size was estimated based on considering the level of significance of power analysis of 0.95(β=1-0.95=0.5) at alpha .05 (one-sided) with a large effect size (0.5) was used as the significance, 0.001 was used as the high significance.

Subjects & selection method: A purposive sample of 100 mothers and their children who suffering from covid-19 according to the following inclusion criteria.

Inclusion criteria:
1. Mothers of children suffering from mild or moderate covid-19 regardless their age, residence and socioeconomic standard and who accepted to participate in the study .
2. Children who suffering from mild, moderate covid-19 regardless their age, gender and free from physical and mental disabilities.
3. Home isolated children who suffering from mild, moderate covid-19.

Tools of data collection:
Data for the present study was collected using the following tools:
I. A structured interviewing questionnaire: An interviewing questionnaire format was designed and written in simple Arabic language by the researchers after reviewing the related literature guided by Centers for Disease Control and Prevention **(CDC, 2020)** and expert opinions in light of relevant references. This questionnaire was subdivided into the following parts:
Part (1): Characteristics of the studied sample which included
a. Mothers characteristics namely; age, level of education, occupation, marital status, residence, number of children , family size and family income/ month.
b. Children's characteristics namely; age, gender, rank , residence and their previous health problems.
Part (2): Mothers' knowledge regarding Covid-19 and home isolation which included definition, causative factors, clinical manifestation, mode of transmission, prevention, treatment and complications. In addition to isolation concept, aim, duration and home isolation precaution measures.
The scoring system for mothers' answer included two points zero score for incorrect answers and one score for correct answer**.** Total number of questions were 16 MCQ, True and false questions. The total knowledge score was categorized as: **Good** = scores more than 65% of total scores, **Fair** = scores 50% to 65% and **Poor** = scores less than 50%.
II. Mothers' reported practices/Intervention regarding care of their children having Covid-19 during home isolation which including general isolation measures and caring of children with Covid-19 infection during home isolation. It was adapted by the researchers after reviewing the related literature and guided by guidelines of **(WHO, 2021).**
Scoring system: Mothers' answers included two points zero score for incorrect answers and one score for correct answer. The total score of the mothers' reported practices regarding care of their children was 14 scores which evaluated as satisfactory level of reported practices (≥60%) and unsatisfactory level of reported practices (<60%).

III. Mothers' reported pitfalls during home care of their infected children with Covid-19 infection including; psychological, social, financial, educational, physical and environmental problems. it was adapted by the researchers after reviewing the related literature**.** Mothers' answers included two points zero score for no pitfalls and one score for yes.

IV. Hand washing checklist: adopted from (WHO, 2020) used to assess the mothers' practice regarding hand hygiene during care of their children and consist of (6 items) Each correct response was scored one and refer to done item while incorrect response takes zero score and refer to not done item. The total score of the mothers' reported practices regarding hand hygiene was categorized as: Satisfactory = scores 65% of total scores and more. Unsatisfactory = scores less than 65% of total scores.

Ethical Considerations:
Official letter from faculty of nursing Fayoum university was delivered to the the directors of the pediatric hospital. The approval to conduct this study was obtained after the explanation of the study aim.The aim and objectives of the study were explained to study participants to get their consent.Participants were informed that

participation in the study is voluntary. The researchers informed the participants about their rights to withdraw from the study at any time without giving any reason, confidentiality were ensured for all participants. Code numbers were created and kept by the researchers to keep participants' anonymity.

Pilot study

A pilot study was carried out on 10 mothers and their children who represented 10% of the study's sample and fulfilled the study's inclusion criteria. To examine the questionnaires' clarity and completeness, as well as the feasibility of the research process. It was also used to estimate the time required to fill out the tools. Result of data obtained from pilot study helped to modify the study tool, items were then corrected, omitted or added as revealed from pilot study. The tools were revised, designed and rewritten with the objectives of improving its accuracy and consistency and the final forms of the tool were then obtained.

Field work

This study was carried out in two phases (preparatory and implementation) from the 1st week of January, 2021 until the end of June 2021.

Preparatory phase

The researchers reviewed the related literature for developing the used tools. Before starting the study, an official letter was addressed from the Dean of the Nursing Faculty to the directors of Fayoum University Pediatric Hospital to obtain their approval and cooperation in gathering data from the selected setting.

Implementation phase

The researchers were available for 2 days/week by rotation over a period of six months, in the emergency department of the Pediatric Hospital affiliated to Fayoum University. Agreement (oral consent) on participation was taken from the study participants after the purpose and the nature of the study were clearly explained to them, and the researchers assured the mothers that the information obtained was confidential and would be used only for the purpose of the study to obtain their cooperation prior to their contribution in the present study. Interviewing questionnaire sheet filled by the researchers through individual interview of mothers and their children suffering from mild or moderate Covid-19. The data was collected by the researchers using the previously mentioned tools. Each mother and her accompanying child was individually interviewed for 20-30 minutes. Utilizing proper channel of communication using all protective measures with adequate distance.

Validity and reliability

The tools were tested and evaluated for their face and content validity by three experts in nursing /Ain Shams and Fayoum Universities (Professors in pediatric and community nursing) and also to ascertain relevance, clarity and completeness of the tools, experts elicited responses were either agree or disagree for the face and content validity was done. The items on which 85% or more of the experts have agreed were included in the proposed tools. Accordingly, the required corrections and modifications were done. Testing reliability of proposed tools was done by using alpha Cronbach test, assessment the reliability of the question related to knowledge was 0.89 and the practices was 0.88 .

Statistical analysis

After data were collected, they were sorted, coded, organized, categorized and transferred into especially design formats to be appropriate for computer feeding. Statistical analyses were performed using the Microsoft Office Excel and statistical software Stands for Statistical Product for Service Solutions (SPSS) V23. Descriptive analysis as X±SD for quantitative data and frequency and proportion for qualitative data were utilized. Chi-square (X2) and Monte Carlo tests (MC) of association were used to compare between two groups or more regarding one qualitative variable. Correlation coefficient test was used to create correlation between two quantitative variables. The final results were considered not significant if P> 0.05, significant if P< = 0.05.

III. Result

Table (1) shows the demographic characteristics of the studied children. It displays that 46% of children aged from 1 >3years with the mean of 4.84 ± 3.35 years. About 59% and 35% of them were males and at primary school respectively. Also it was noticed that 38% of them were the second sibling.

Table (1) Distribution of the studied children according to their demographic characteristics.

Item	N=(100)	%
Age in years:		
1- >3	46	46
3 ->6	26	26
6 ≤12	28	28

X±SD= 4.84 ± 3.35 years.		
Gender		
Male	59	59
Female	41	41
Child's Order		
First	18	18
Second	38	38
Third	33	33
Fourth	9	9
Fifth	2	2
Education level		
Under age	31	31
Nursery	34	34
Primary schools	35	35

Table (2) Illustrated that 61% of studied mothers aged from 25 > 35 years with the mean of 31.5 ± 5.14 years. It was found that 43% of them were illiterate. In addition to 100% of studied mothers were married and 77% of them were housewives.

Table (2) Distribution of the studied mothers according to their demographic characteristics

Item	N=(100)	%
Age in years		
18-> 25	17	17
25->35	61	61
35-≤ 45	22	22
X ±SD= 31.5 ± 5.14 years		
Education level		
Illiterate	43	43
Read and write	20	20
Primary school	8	8
Secondary education	21	21
High education	8	8
Working condition		
House wife	77	77
Work	23	23

Table (3) Revealed that 60% and 55% of the studied children live in rural areas and live in extended family respectively. In addition to 33% of them live in families include five members and 35% of these families have three children.Furthermore, about 74% of the studied children live in families with inadequate income.

Table (3) Distribution of the studied sample according to their family characteristics

Item	N=(100)	%
Residence		
Rural	60	60
Urban	40	40
Type of the family		
Nuclear	45	45
Extended	55	55
Number of the family members		
Three	4	4
Four	25	25
Five	33	33
Six	27	27
Seven	8	8
Eight	3	3
Number of the children in the family		
One		
Two	4	4
Three	25	25
Four	35	35
Five	30	30
	6	6
Income/ month		
Inadequate	74	74
Adequate	26	26

Table (4) indicates that 70%, and 71% of studied mothers reported the cause, and clinical manifestations of Covid-19 infection respectively. In addition to 95% and 90% of the them don't know, warning signs for seeking emergency .Furthermore, 55% of studied mothers reported the mode of transmission of Covid-19 infection. While only 6% and 10% of them reported the duration and measures of home isolation related to Covid-19 infection.

Table (4) Mothers' knowledge regarding Covid-19 infection

items	know		Don't Know	
	N= (100)	%	No	%
General knowledge related to Covid-19 infection				
Definition	50	50	50	50
Causative factor	70	70	30	30
Clinical manifestations	71	71	29	29
Mode of transmission	55	55	45	45
Preventive measures	26	26	74	74
Warning signs for seeking emergency care	5	5	95	95
Treatment of infected child with Covid-19	10	10	90	90
knowledge regarding home isolation for children with COVID-19 infection				
Definition of home isolation	40	40	60	60
Aim of home isolation	85	85	15	15
Duration of home isolation	6	6	94	94
Care during home isolation	20	20	80	80

Figure (1) shows the distribution of the studied mothers according to their total scoring level of knowledge related to Covid-19 infection. It was found that 82% of them had a poor score level of knowledge related to Covid-19 infection with a mean of 4.2 ± 2.27.

Figure (1) Distribution of studied mothers according to their total scoring level of knowledge related to Covid-19 infection

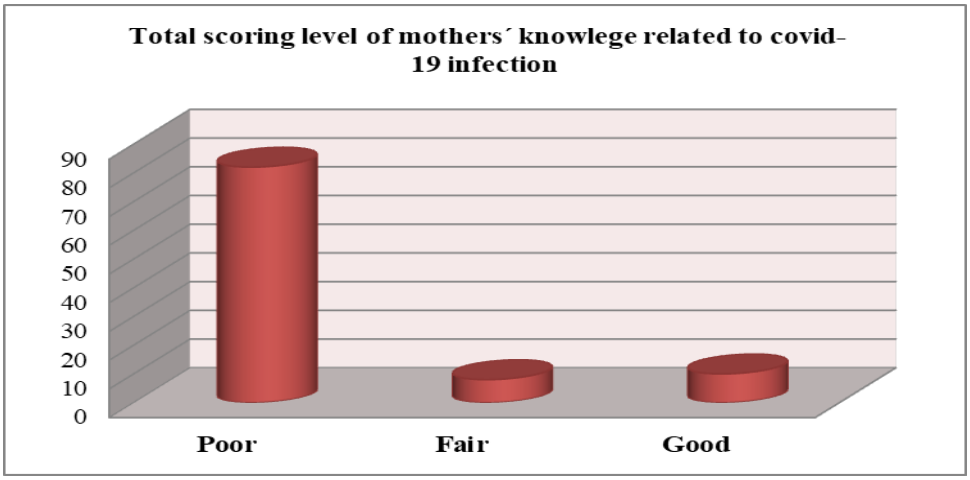

Table (5) clarifies that 100% of the studied mothers were clean and disinfect the home continuously. only 27% of them isolated their infected children in well-ventilated room.While, 95% of them were sure that their infected children wear their protective equipment.Moreover it was observed that 95% of the them contact with their infected children directly.

Table (5) Distribution of mothers' according to their general reported practice during home isolation for their children with Covid-19.

Item	Yes		No	
	N= (100)	%	N= (100)	%
Washing hands with soap and water	70	70	30	30
Dealing with infected child without gloves	89	89	12	12
Wearing face mask when dealing with infected child	33	33	67	67

Isolation of the infected child in well-ventilated room	27	27	73	73
Being sure that the infected child uses his own personal equipment	27	27	73	73
Continuous cleaning and disinfection of the home	100	100	0	0
Being sure that the infected child wears the protective equipment	95	95	5	5
Direct contact with the infected child	95	95	5	5
Unsafe discard of wastes of the infected child	86	86	14	14

Table (6) portrayed distribution of studied mothers according to their reported practices regarding care of symptoms for their infected children with Covid-19 infection. it was noticed that 100% of them increased fluid intake, and only 13%were measured body temperature for their infected children having fever. While 24%, 90%, and 92% of them used nebulizer, replaced fluid loss, and went to hospital for seeking help for their infected children respectively.

Table (6) Distribution of mothers according to their reported practices regarding care of symptoms for their infected children with Covid-19 infection

Item	Yes		No	
	N= (100)	%	N= (100)	%
Fever				
Increasing fluid intake	100	100	0	0
Measuring body temperature	13	13	87	87
Using cold compresses	85	85	15	15
Administration of anti-pyretic	98	98	2	2
Dyspnea				
Administering warm fluid	49	49	51	51
Using nebulizer	24	24	76	76
Going to hospital	92	92	8	8
Persistent cough				
Provision of oxygen therapy	26	26	74	74
Administration of frequent fluid	88	88	22	22
Administration of antitussive	100	100	0	0
Diarrhea				
Replacement of fluid loss	90	90	10	10
Good nutrition	77	77	23	23
Administration of Oral Rehydration Solution (ORS)	52	52	48	48
Seeking medical help	17	17	83	83

* The total number not mutually exclusive.

Figure (2) illustrated that, 71% of studied mothers showed unsatisfactory level of practice with a mean of 17.19 ± 3.36.

Figure(2): Distribution of the studied mothers according to their total scoring level of reported practice regarding care of their children with Covid-19 during home isolation.

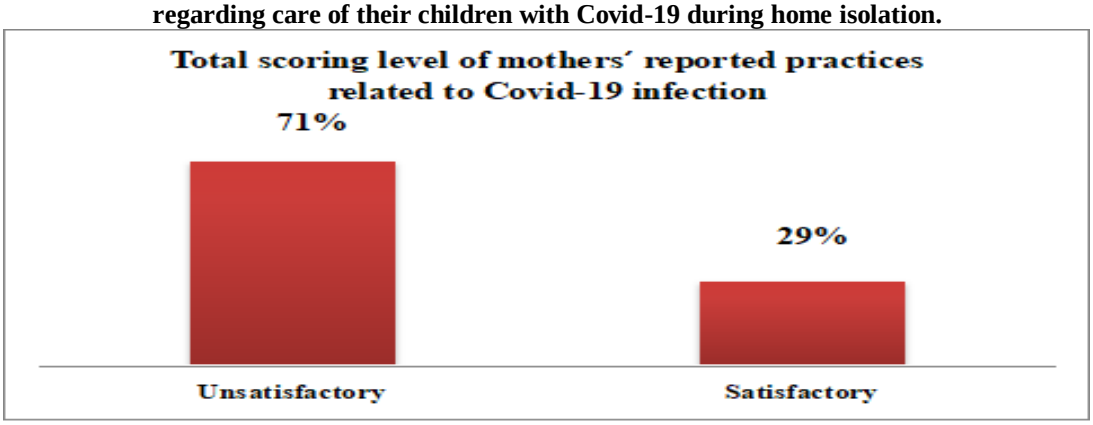

Figure (3) illustrated that, 100% of studied mothers wet their hands, washed their hands with soap and water and rinsed their hands in addition to, 92% of them dried their hands. While 55% of them washed their hands for more than 20 seconds and only 21% of them washed between their fingers.

Figure (3) Distribution of the studied mothers according to their reported practices related to hand washing

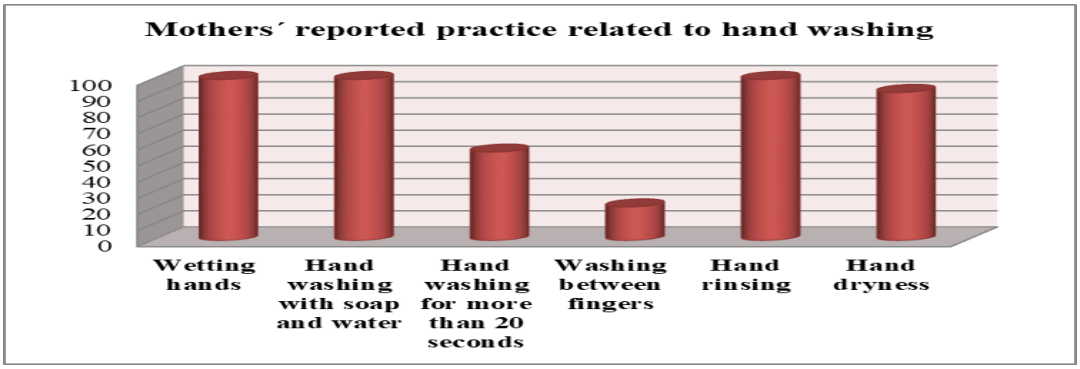

Figure (4) demonstrates the reported pitfalls faced the mothers during care of their infected children with Covid-19 infection.It was noticed that 100% of studied mothers had psychological and social problems . Also it was noticed that 91%, 88%, 84%, 77%, and 63% and of them had health care services, financial, educational, physical and environmental problems respectively.

Figure (4) The reported pitfalls faced the mothers during care of their infected children with Covid-19 infection

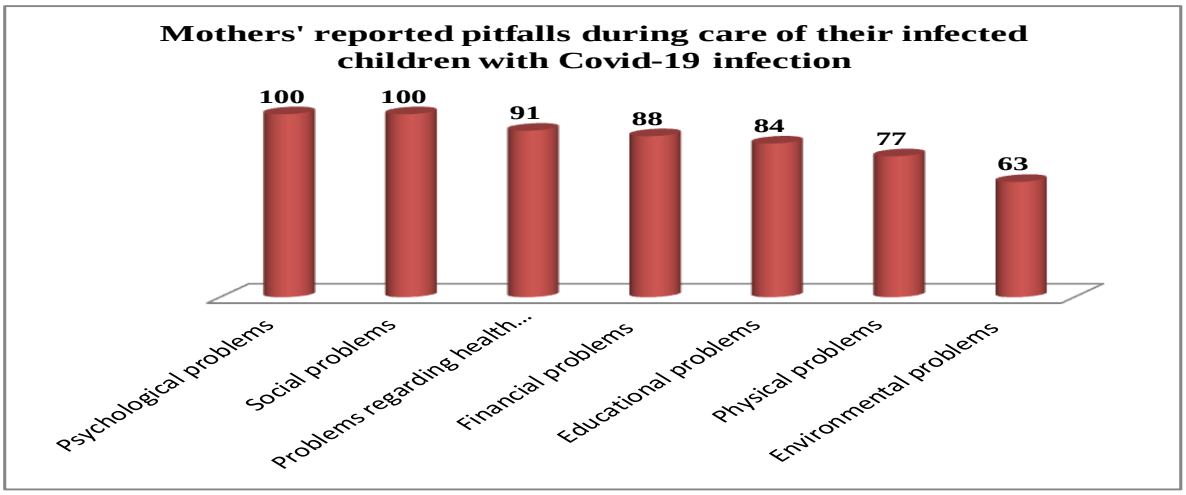

Table (7) portrays association between mothers´ age, educational level, in addition to working condition and their total score level of knowledge and reported practice related to Covid-19 infection. Related to mothers´ age by years, there was no statistically significance between mothers´ age and their total score level of knowledge nor reported practice related to Covid-19 infection (P = 0.910 and 0.342 respectively). Regarding mothers´ educational level, there was statistically significance between mothers´ educational level and their total score level of knowledge and reported practice related to Covid-19 infection (P = 0.000). Concerning mothers´ working condition, there was statistically significance between mothers´ working condition and reported practice related to Covid-19 infection ((P = 0.000).

Table (7) Association between mothers mother´ age, educational level, in addition to working condition and their total score level of knowledge and reported practice related to Covid-19 infection

Item	Total score level of knowledge (N = 100)						Test of significance	P value	Total score level of reported practice (N = 100)				Test of significance	P value
	Poor		Fair		Good				Unsatisfactory		Satisfactory			
	N	%	N	%	N	%			N	%	N	%		
Mothers´ age by years														
18-> 25	14	14	2	2	1	1	MC	0.910	12	12	5	5	MC	0.342
25 - >35	50	50	5	5	6	6			42	42	19	19		
35-≤ 45	18	18	1	1	3	3			17	17	4	4		
Educational level														
Illiterate	37	37	6	6	0	0	MC	0.000*	42	42	1	1	MC	0.000*
Read and write	20	20	0	0	0	0			16	16	4	4		
Primary	8	8	0	0	0	0			8	8	0	0		
Secondary	14	14	1	1	6	6			5	5	16	16		
High	3	3	1	1	4	4			0	0	8	8		
Working condition														
House wife	64	64	7	7	6	6	MC	0.344	61	61	16	16	X^2	0.000*
Work	18	18	1	1	4	4			10	10	13	13		

Good = scores more than 65% of Total scores.
Fair = scores 50% to 65% of Total sores.
Poor = scores less than 50% of Total scores.
P Significance.
* Significant (p≤ 0.05).
Satisfactory = scores 65% of Total scores and more.
Unsatisfactory = scores less than 65% of total scores.
x2 for Chi-square test.
MC for Monte Carlo test result of Pearson Chi-square test.
X± SD = Mean ± Standard Deviation.

Table (8) portrays correlation between total score level of knowledge and reported practice of studied mothers related to Covid-19 infection. There is positive intermediate correlation was observed between total score level of knowledge and reported practice of studied mothers related to Covid-19 infection(P = 0.000 and r = 0.421).

Table (8): Correlation between knowledge and reported practice scores of studied mothers related to Covid-19 infection.

Predictor	Total score level of knowledge	
	r	P value
Total score level of reported practice	0.421	0.000

Note. r: for Spearman correlation
P value significant if ≤ 0.05
If r = Zero this means no correlation between the two variables.
If 0 < r < 0.25 = weak correlation. If 0.25 ≤ r < 0.75 = intermediate correlation.
If 0.75 ≤ r < 1 = strong correlation. If r = l = perfect correlation.

IV. Discussion

COVID-19 pandemic has resulted in an unprecedented reliance on home care as a pillar of the healthcare system to support COVID-19 pediatric patients, whether confirmed or suspected. Furthermore, the people living in low-income and resource-constrained communities who may not have access to healthcare facilities due to distance, lack of transportation, or financial considerations, home care may be their only choice **(Chan et al ., 2020).** Which is posing major challenges for parents around the world. Globally, the mothers play a vital role in providing care for their children **(Gromada, Richardson & Rees, 2020).**

Regarding to the demographic characteristics of the studied mothers, the present study findings indicated that, less than two thirds of mothers were aged from 25 to less than 35 years, this result go in the same line with a study done by **Shahbaznejad et al., (2021),** who stated that, the majority of the studied mothers were aged between 27 to 36 years. Concerning their educational levels the current study revealed that, less than half of them were illiterate. This finding was inconsistent with **Mirmohammadkhani et al., (2021),** who reported that, more than half of the study participants were educated until high school level.

Concerning the residence more than half of the current study participants were live in rural areas. This agreed to some extent with study done by **El Mezayen, et al., (2020)**. At Al Gharbia Governorate Egypt to assess public knowledge, attitude and practice regarding COVID-19 pandemic and indicated that slightly less than three quarters of the studied sample were from rural areas. These finding were incongruent with **Abuhammad, (2021),** who reported that, only one third the studied sample were lived in rural areas. The

researchers believes that, early marriage is common in rural areas of Egypt including Fayoum and women who married young often had great difficulty getting an education El-Fayoum located in upper Egypt and the participant were from rural areas characterized by low education.

As regards to characteristic of the studied children the study findings revealed that, the mean age of studied children was 4.84 ± 3.35 years and more than half of them were males this was supported with **Shahbaznejad et al., (2020)** who study "Clinical characteristics of 10 children with a pediatric inflammatory multisystem syndrome associated with COVID-19 in Iran" and found that, the mean age of the patients was 5.37 ± 3.9 years. Six of them were boys. In relation to family income the current study found that about three quarters studied children live in families with inadequate income. this was supported with (**Khaton, 2021)** who found that, about two fifth of studied sample reported that they the income was not sufficient. The researchers believes that, Children of all ages can get the coronavirus disease 2019 (COVID-19) and experience its complications. This was due to the children in this age don't follow protective measures and contact with the other children outdoor.

The current study findings revealed that, half of the studied mothers don't know Covid-19 definition and the majority of them don't know warning signs for seeking emergency and treatment of infected child with Covid- 19. this findings in agreement with (**Kiyimba, 2021)** who reported that less than one quarter of the studied participants have an average knowledge about early warning signs for worsening COVID-19 disease.as regard to general knowledge of COVID-19 preventive measures the present result reveals that, more than two-thirds of the studied mothers had a poor background knowledge regarding preventive measures from COVID-19.This results supported by (**Ahmed Ayed & Hashem, 2020).** who found that the majority of mothers had less knowledge of Covid-19. and most of the mothers had poor knowledge scores regarding practicing preventative measures particularly in wearing masks, using disinfectants such as alcohol, and avoiding shaking hands.In addition to two third of participant stated the correct answer of **COVID-19** Clinical manifestations . This was supported with **Shahbaznejad et al., (2021)** in the study titled "**Knowledge, attitude and practice of Sari birth cohort members during early weeks of COVID-19 outbreak in Iran"** who stated that, the studied mothers knew the main clinical symptoms of COVID-19, they agreed that taking measures to prevent the infection is necessary for children and infants,

Concerning the mothers knowledge regarding home isolation for children with COVID-19 infection.the present study results found that the majority of the studied mothers don't know the duration of home isolation related to Covid-19 infection, and four-fifths of them were unaware of the care during home isolation.This result inconsistent with **Gudiet al., (2020),** who found that the majority of participants correctly identified the time period of self-isolation, and two-fifths of them were not aware of the isolation measures that are commonly followed during outbreaks.The researchers believe that due to less than half of studied mothers were less educated and don't access of information in internet and the electronic sites.

The current study results revealed that, less than two thirds of the studied mothers had a poor total score level of knowledge related to Covid-19 infection. This result consistent with those of **Ahmed Ayed & Hashem, (2020).**Who reported that the most of studied mothers had unsatisfactory knowledge level about COVID -19. This was Inconsistent with **Naik et al., (2021)** study conducted to describe the knowledge and attitude of parents regarding the COVID-19 infection in children, comprising of the mode of transmission, protection measures and clinical signs of the disease who found that, the studied participants knowledge regarding COVID- 19 in children was considered good.

Concerning the mothers' reported practice during home isolation for their infected children with Covid-19 infection, the present study finding revealed that all of them were clean and disinfect the home continuously. This result is supported to some extent with that of **Shahbaznejad et al., (2021)** who in their recent study found that, the majority of studied mothers were disinfected indoor surfaces and handles regularly. The researchers believe that, increase the mothers awareness will increase the mothers' knowledge regarding care of their children with covid- 19.

World health organization suggested several practices for caring of COVID-19 patients at home including wear a mask when in the same room as the affected person **(WHO, 2020).** Only one third of studied mothers were maintain wearing a face mask when caring of their infected child . From the researchers point of view this might be due to lack of mothers' knowledge regarding the importance of wearing personal protective equipment to minimize the spread of Covid -19 infection. This result is in accordance with **Lee et al., (2020),** who reported that, less than one-fifth of the studied participants always wore a face mask when taking care of family members with respiratory infections. In contrast with **Khaton, (2021),** study conducted in Egypt to assess the awareness and preventive practices of rural mothers towards COVID-19 and their role to protect their family members and discovered that, less than two third of the studied mothers reporting wearing face mask.

Supportive treatment is recommend for children with COVID-19, including antipyretics for fever and pain as well as adequate nutrition and appropriate re-hydration **(WHO, 2020).** All studied mothers reported that they increased the fluid intake, offered cough antitussive for their infected children with a persistent cough and

the majority of them administered antipyretic to control Covid-19 infection symptoms. These findings in accordance with the study done by **El Mezayen & Elhossiny Elkazeh, (2020),** who stated that drinking plenty of water and warm liquids were reported by the majority of the studied participants.

As regard to hand washing practice of the studied mothers. The present study finding revealed that all of the studied mothers were wet their hands, washed their hands, use soap and water for hand washing, and rinsed their hands.These results in consistent with **Zhong et al., (2020)**, who stated that almost all participants were washed their hands frequently.Agreed with **Tawfique et al., (2021),** who found that vast majority of mothers were performed hand washing with soap and water. On the other hand more than half of studied mothers washed their hands for more than 20 seconds. This in contrast with **El Mezayen et al., (2020)** who found that the majority of studied participants were washed their hands for 20 seconds.

The current result illustrates that, more than two third of studied mothers had unsatisfactory total practices scores level regarding Covid-19 infection. According to the researchers, this may be attributed to mothers' lack of knowledge about caring for their children with Covid-19 during isolation at home. This result congruent with those of **Hezima et al., (2020),** who stated that the studied sample had poor practices towards COVID-19. Also This was inconsistent with **Zhong et al., (2020)** in the study titled "Knowledge, attitudes and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey" who found that, higher COVID-19 knowledge scores were found to be significantly associated with a lower likelihood of negative attitudes and potentially dangerous practices towards COVID-19 epidemic and indicate the importance of improving residents' COVID-19 knowledge via health education, which may also result in improvements in their attitudes and practices towards COVID-19. However, these results were inconsistent with those of **Jadoo et al., (2021)**, which reported that the majority of participants showed a high rate of practice towards COVID-19. The researchers believe that, the health education intervention would be more effective and the COVID-19 knowledge may be greatly increased if the health education programs are specifically designed for mothers with a low level of education.

The current study's findings portrays that there were no statistically significant association between study participants´ age and their total score level of knowledge related to Covid-19 infection. This result is contradicted with **Ayed & Hashem, (2020)**, who reported that, there was a significance statistical relation between the socio-demographic characteristics of the studied mothers and their total level of knowledge about COVID 19 specially their age. While there were statistically significance association between mothers´ educational level and their total score level of reported practice related to Covid-19 infection. Also this findings supported with **Abdelhafiz et al., (2020)** who stated that, the knowledge was significantly lower among older, less educated, lower income participants and rural residents.

These findings are consistent with **Alves et al., (2021)** who stated that, there was significant association between study sample prevention and control practices towards COVID-19 with their educational level. In contrast with **Saeed et al., (2021)** study conducted in Iraq to to assess the socio-demographic correlate of knowledge and practices of Iraqi living in Mosul-Iraq towards COVID-19 during its rapid rise, and found that no significant association were reported between the participants practice level score with their educational level.This findings in agreement with **Li et al., (2020),** who reported lower levels of knowledge and practices related to COVID-19 in older mothers while better-educated respondents had higher levels of knowledge and practices.In addition to, there was a positive intermediate correlation between total knowledge scores and reported total practice scores of studied mothers related to Covid-19 infection. This result agreed with **Afzal et al., (2021)**, Who found that, participant knowledge was positively correlated with their practices.

As regards pitfalls that faced the mothers during caring for their children with Covid -19. The current study findings indicated that all of the participants had psychological and social difficulties. In addition, the majority of them experienced health care, financial, and educational challenges. These results supported with **Toran, (2021)** study conducted to answers to the research question: how did Turkish and Chinese parents perceive experiences with their 3–6 years old children in covid-19 quarantine process?, and found that the study participants focused on the challenges of isolation, particularly the negative psychological impact. Agreed with **Atout, Tarawneh & Al-Kharabsheh, (2021),** who report that COVID-19 imposes an additional financial burden on parents.

V. Conclusion

The study concluded that, the highest proportion of studied mothers, who were unable to care for their children had poor total knowledge scores, and overall unsatisfactory reported practices regarding care of their infected children with Covid-19 during home isolation.Moreover, put on a spotlight on the various pitfalls that the mothers encountered in a caring journey of their infected children with Covid-19 infection.

Recommendation

This study recommends the development and implementation of educational programs for mothers regarding the care of children infected with Covid-19 during home isolation. Further research with a large sample size is recommended.

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