Effect of Instructional Guidelines on Mothers' Emotional Status Regarding Children Returning to School during Corona Virus Disease

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Abstract:

Corona virus Disease 2019 (COVID-19) outbreaks and lockdown measures have a negative psychological impact on Egyptian mothers. Back to school planning will look different for mothers this year than it has in previous years that cause an increase of mothers' stress and anxiety about their children. **Aim**: This study aimed to evaluate the effect of instructional guideline on mothers' emotional status regarding children returning to school during the COVID -19. **Subjects and method:** A quasi-experimental research design was used on a convenience sample of 330 mothers residing at Sohag Governorate, Egypt, having children at the primary education level. Two tools were utilized to collect the data in this study: A self-administered questionnaire (pre and posttest format) to assess mothers' knowledge about COVID - 19, and Depression, Anxiety, and Stress Scale (DASS) to measure the mothers' emotional status symptoms. The link of the survey using the questionnaire, the scale and the instructional guideline were sent to the respondents' mothers via Face book and Whats App groups. **Results**: The present study revealed that, there were highly statistical significant differences between mothers' knowledge about COVID-19 and their depression, anxiety and stress levels regarding children returning to school at the COVID-19pandemic outbreaks before and after implementation of the instructional guideline. Also, Mothers' emotional status (stress, depression and anxiety levels) were severe before implementation of the guideline while, these levels were low after guideline implementation. **Conclusion:** The instructional guidelines were effective in decreasing mothers' emotional disturbance as depression, anxiety and stress regarding children returning to school during COVID-19 pandemic outbreaks and improving their knowledge about COVID-19 before and after implementation of the instructional guideline. **Recommendations**: Educational programs about COVID -19 and its preventive measures should be taught to all mothers and psychological support and intervention activities should be carried out to help them to cope and become more resilient during the COVID-19 epidemic.

Keywords: Corona virus, Emotional status, Instructional guidelines, Mothers, Returning to school.

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Introduction:

Corona virus disease (COVID-19) is a highly infectious respiratory disease caused by a new corona virus. Which was discovered in China in December 2019 and then spread around the world, causing an unprecedented public health crisis disease? This rapid rise in confirmed cases and deaths has caused stress, anxiety, and depression in both medical staff and the general population (**Bai et al., 2020**). The time span following the onset of symptoms is classically approximately five days but may range from two days to two weeks. As the last second week of May 2020, more than 4.35

million cases have been reported across 185 countries and territories, more than 1.55 million people have recovered and more than 297,000 deaths**(W HO, 2020).**

Changes in everyday life have been rapid and drastic, with virus surge outbreaks, the death rate escalating, and stringent steps to control the disease spread increasing across regions of the world, while significant attention has been paid to efforts to diagnose people with corona virus infection, recognizing the mental health needs of people **(Bao et al., 2020**).

Since the corona virus pandemic hit the world, people try to cope with the virus and the changes that have brought in their lives. This new analysis finds a gap in mothers' worries and their views on returning to schools, as well as the reported effects of corona virus-related stress on their mental health and wellbeing. Mothers not want children to return to school or until the covid-19 has cleared completely. These causes have physical and psychological effects on mothers. In this context, most mothers experience reactions to stress, anxiety, and depression **(Campbell, 2020).**

Stress and anxiety regarding school reopening reflects a higher level of worry for mothers regarding the risks of reopening. Mothers are more likely to be anxious about the health and safety of their child, family members, or other people at school if their child were to return to school **(UNICEF, 2020).** About 85% of mothers reported that, they are "very worried" or "somewhat worried" that the teachers at their children's school will get sick from corona virus and 82% of them said   that, children at the school will be unable to adhere to the physical distancing guidelines. Also, 77% of mothers were worried that, their child will suffer from corona virus if their child returns to school, or that the school will be unable to comply with public health recommendations **(Lunna et al., 2020)**.

Mothers in particular reported struggling with several signs of anxiety and stress. Some of these feelings are, thoughts and fears that mothers could be experiencing during the corona virus crisis: apprehension, depression, restlessness, irritation, anger, trouble sleeping, racing mind, and helplessness **(Frank et al., 2020)**.

Mothers are likely to worry about their children because they have enough to eat them at home and have access to necessary technology for their children to learn at home. Additionally, they are worried and stressed related to corona virus , have a major negative impact on their mental health and have experienced specific adverse effects due to anxiety related to this infection and return to school during coronavirus pandemic **(Lunna et al., 2020)**.

Knowledge and attitudes of people should be directed towards strict preventive practices to prevent the spread of the corona virus infection and decrease their stress. Facts about mothers' perceptions and practices can be gained by assessing their knowledge about corona virus which helps to identify attributes that affect the mothers' adoption of healthy practices and responsive behaviors **(Babiker et al., 2014)**. The need to understand the children's knowledge, attitudes, and practice toward COVID-19 at this critical moment is necessary to reduce the stress, depression and anxiety level of mothers **(CDC COVID-19 Response Team, 2020).**

Nursing management regarding COVID-19 should focus on preventing the

spread of infection. Pediatric nurses have an important role as a teachers and advisors in educating service users and caregivers, in providing health education in society and in facilitating the development of other multidisciplinary team members. They should teach the mothers to apply the ideal hand washing technique, follow the social distance , use the disinfectant materials such as alcohol, avoid shaking hands, put a tissue when coughing or sneezing on the mouth and nose and wearing mask to prevent the infection transmission . Also, educating the mothers to encourage the child not to touch the eyes, nose and mouth, about appropriate hand washing after contact with others, sneezing, or coughing and they should be discouraged from sharing towels, washcloth, and get a separate bottle for each family member**(WHO, 2020).**

Significance of the study:

There is an increase flow rate of children with COVID-19 in Egyptian 2020, mostly school age children. Mothers face a unique set of challenges as they attempt to balance the needs of their children, especially their schooling and their health. With the new school year approaching that related to school returning decisions, mothers are worried from schools returning, as well as corona virus-related stress on their wellbeing. Most mothers of children aged 6-12, and attend the primary schools found that, better to open schools later because, most of their children are young, liable for any infections during the school day specially respiratory infection and have poor knowledge and behaviors regarding the preventive measures of COVID- 19 **(Ministry of Health and Population in Egypt "MOHP" ,2020).**

Sufficient support and knowledge for mothers about COVID-19 may decrease their depression, anxiety and stress levels and indirectly achieve better outcomes for mothers and their children. Therefore, implementing the instructional guideline for mothers will be helpful in acquiring adequate knowledge and skills regarding COVID- 19 and may relieve their stressors **(UNICEF, 2020).**

Aim of the study

The study aimed to evaluate the effect of an instructional guideline on mothers' emotional status regarding children returning to school during COVID-19.

Research hypothesis:

Mothers of primary school children will have a low level of emotional disturbance as stress, anxiety and depression regarding children returning to school during the COVID -19 immediately after implementation of the instructional guideline.

Subjects and Methods:

Research design:

Quasi-experimental research design (pre and post-test) was utilized in this study.

Setting:

The study was conducted at Sohag Governorate, Egypt**.**

Subjects:

A convenience sample was used to achieve the aim of this study. It included 330 of mothers having children at primary

education level in Sohag Governorate through Google form spreadsheet which presented in Facebook and Whats App groups. All the studied mothers meet the following inclusion criteria as: educated mothers, free from physical, mental, chronic disease, free from cognitive disease, no history of mental illness, and agree to participate in this study.

Tools of data collection:

Two tools were used to collect the data of the study as the following:

Tool I: A self- administered questionnaire (pre and posttest format) was developed   by the researchers after reviewing the related literatures and research studies. It included the following two parts:

Part (1): Socio-demographic characteristics of the studied subjects which divided into:

a- Characteristics of the studied mothers: This included age, educational level, residence and working status.

b- Characteristics of the studied children: This involved age, educational level and gender**.**

Part (2):

a- **Mothers' knowledge about COVID -19** which included: definition, mode of transmission, clinical pictures, complications/ risks, high risk persons, treatment, personal protective measures to prevent the spread of infection as: hand washing, wearing mask, use disinfectant materials as alcohol, avoid shaking hands, put a tissue when coughing or sneezing on the mouth and nose and social distance

that was introduced to mothers through the instructional guidelines by the Whats App and Facebook groups.

b- **Mothers reported practice about the ideal hand washing technique** which was demonstrated and measured through a video by the Whats App and Facebook group.

Tool II: Depression, Anxiety and Stress Scale (DASS-21):

The researchers used the Depression, Anxiety, and Stress Scale which was adopted from **Lovibond & Lovibond (1995).** The scale involved 21 items and consisted of a set of three self-report scales designed to measure the symptoms of the emotional state of depression, anxiety, and stress. Each of the three DASS-21 subscales contains seven items. The depression scale assesses hopelessness, dysphoria, and devaluation of life, lack of interest/involvement, self-deprecation, anhedonia, and inertia. The anxiety scale measures autonomic arousal, skeletal muscle symptoms, subjective experience of anxious affect, and situational anxiety. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses nervous arousal, difficulty relaxing and being easily upset/agitated, irritable/over reactive, and impatient. The rating scale responses ranged from (3) applied to me very much or most of the time; (2) applied to me to a considerable degree or a good part of the time; (1) applied to me some of the time or to some degree; and (zero) did not apply to me at all.

Scoring system for Depression, Anxiety, and Stress Scale (DASS):

The responses were categorized with the cutoff point adopted by **Antony et al. (1998)** to categorize stress, anxiety, and

depression. Thus, the level of symptoms (extremely severe, severe, moderate, mild, and no symptoms) was as follows:

Levels of DASS symptoms	Depression	Anxiety	Stress
Normal (no symptoms)	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Scoring system for mothers' knowledge about COVID – 19:

The total mothers' knowledge percentages were calculated for known and unknown answers. Each complete correct answer was given (2 mark) and incomplete correct answer was given (1) and (zero mark) for wrong or unknown answers. For each area of knowledge, the scores of the items were summed up and the total answers were divided by the number of the items, giving a mean score for the knowledge. Then, these scores were converted to a percentage score. Mothers' knowledge was considered satisfactory if the percentage score was 60% or more and unsatisfactory if was less than 60%.

Scoring system for mothers' reported practice:

The steps of the procedure of hand washing which done correctly were scored (1), and the items not done or incorrectly done were scored zero. For each area, the scores of the items were summed up, and the total was divided by the number of the items, giving the mean score for the part. These scores were converted to a percentage score. Mother's performance was considered satisfactory if the percentage score was 60% or more and unsatisfactory if was less than 60%.

The instructional guideline:

The researchers designed and implemented the guideline about COVID-19 in the Arabic language after reviewing the related literature based on assessment of the actual needs of the studied mothers. It covered the theoretical knowledge and the reported practical procedure. The theoretical part included knowledge about the definition, and clinical picture, mode of transmission, diagnostic tests, treatment and preventive measures regarding COVID-19. The reported practical part included the ideal technique of hand washing to prevent the spread of infection.

Validity and reliability of the tool:

The assessment sheet was developed in an English language then, translated to an Arabic language after extensive review of the literatures. The content validity of the tool and the instructional guideline, its clarity, comprehensiveness, appropriateness, and relevance were reviewed by five experts in pediatric nursing field before using it with the responsive mothers in the study. The Reliability of the tool was assessed through Cronbach's alpha test α= 89% which revealed that the tool consisted of relatively homogenous items as indicated by high reliability.

Ethical considerations:

An official permission was obtained through an issued letter from the Dean of Faculty of Nursing, Sohag University to conduct this study. The purpose of the study was explained to the mothers in the first part before starting the administered questionnaire the researcher informed the participants that, the study was voluntary, they were given an opportunity to refuse to participate and

they had the right to withdraw from the study at any time, without giving any reason. Moreover, they were assured that, their information would be confidential and used for research purposes only.

Research process:

Preparatory phase:

The researchers reviewed the current and past available literatures the available text books, articles, magazines and internet search to develop the tools for data collection and prepare the instructional guideline.

A pilot study

After development of the tool, a pilot study was conducted on 10% of the mothers (33 mothers) of children in the primary educational level. It was excluded from the total sample. It was done to notice any ambiguity in the tools, to ensure transparency of the items, as well as, to determine the time devoted to data collection. The clarity and testing the feasibility of the research process needed for modifications were carried out based on the results of the pilot study to develop the final form of the tools.

Field work:

The actual field work was carried out starting from 5 May 2020 to 25 May 2020.

The researchers used the online Google form spreadsheet to create the research. They shared a link to the participant mothers to collect data that included an online administered questionnaire. This link was presented in Facebook and Whats App groups. On the first page of the questionnaire, the mothers were informed about the background,

objectives and expected outcomes of the study.

The online administered questionnaire and the DASS were used twice. In the first time, these were used as a pretest for the assessment of mothers' knowledge about COVID -19 and their reported practice about hand washing technique and their level of depression, anxiety and stress. Then, these tools were used another time as a follow- up after one week to evaluate the effect of instructional guidelines on mothers' knowledge and their level of stress, anxiety and depression regarding children returning to school at the COVID -19. All questions and responses were according to the recent recommendations by the WHO.

The average time spent for mothers' completion of the online administered questionnaire and the DASS was approximately 20 minutes. Each mother involved in the study was informed about the purpose of the study, the components of the tools, and how to answer the online questionnaire and the scale.

The guideline was distributed by the researchers to the participant mothers in Whats App and Facebook groups after clarifying the purpose of the study, and the researchers explained to the mothers how to use the guidelines.

Statistical analysis:

Data entry and statistical analysis were performed using SPSS for windows, version 20. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and mean and SDs for quantitative variables. Differences between two the means tests (t-test) were used. Statistical significance was considered at P-value <0.05.

Results:

Table (1) shows the characteristics of the studied mothers. It was noticed that, less than half (46%) of the studied mothers was in the age range of 25–30 years with the   mean age of 27.3±2.1 years. Concerning educational level, more than a quarter (36.0 %) of them had bachelor's degree, 70% of mothers were housewives and more than three quarter of them (76%) were living in urban areas.

Regarding to socio-demographic characteristics of children who in primary school level, It was observed from **table (2)** that, three-fifths (60%) of children were aged 8 to less than 10 years, with the mean age of 9±1.5 years. Regarding their educational level, more than one-quarter of them (29.0%) were in the second level in the primary education and also, more than half(54%)of them were females.

Table (3) illustrated the effect of instructional guidelines' implementation on mothers' knowledge about COVID-19. It was noticed that, the majority of mothers have more knowledge about COVID -19 in all items after guidelines implementation than before and there was a highly statistical significant difference between mothers' knowledge about COVID-19 before and after implementation of the instructional guideline (P<0.001).

Figure (1) showed that, the most of mothers (96.0%) had unsatisfactory level of knowledge about COVID- 19 in the pretest but after instructional guidelines' implementation, (94.0%) of them had satisfactory level of knowledge.

It was noticed from **table**s (4) that, the majority of mothers have less knowledge about covid-19. The most of the mothers had poor preventive measures practices' scores before implementation of the instructional guideline, especially   in wearing mask, use disinfectant materials as alcohol, and avoid shacking hands. After guidelines implementation, a highly statistical significant improvements was observed in mothers' knowledge about the preventive measures regarding COVID -19 in all tested areas (P<0.001).

In relation to mothers' total scores of depression, anxiety and stress regarding children returning to school at COVID-19. It was observed from **table (5)** that, the total mothers' depression, anxiety and stress' scores were severe before the instructional guidelines' implementation and there was a highly statistical significant improvements were observed in mothers' total scores of depression, anxiety and stress scores regarding children returning to school at covid-19 at (P<0.001).

Figure(2) presents that, less than three quarter (70 %) of the studied mothers before the instructional guidelines' implementation had severe level of stress, more than half (60 %) of mothers had severe anxiety and half of them (50%) had severe depression while ,these percentages decreased to be moderate in more than half of them post instructional guidelines' implementation.

It was clear from **table (6)** that, there was a significant relation between the studied mothers' emotional status (depression, anxiety and stress levels) and their total level of knowledge pre and post the instructional guidelines' implementation (P< 0.05). Less than half of them who had unsatisfactory level of knowledge had psychological disturbance in the form of depression and anxiety before implementation of the guideline.

Table (7) reflected that there was an association between the socio-demographic characteristics of studied mothers specially their age and residence and their total level of knowledge about COVID- 19 pre and post the instructional guidelines' implementation. Also, approximately three quarter of the mothers who were working and from urban areas had satisfactory knowledge as revealed by 70%&76% of them respectively pre and 75%&60% of them respectively post the instructional guidelines' implementation.

It was clear from **table** (**8**) revealed that, there was a highly statistically significant between the socio-demographic characteristics specially the age and the residence and the total mean scores of depression, anxiety, and stress among the studied mothers regarding their children back to school during COVID-19 pandemic pre and post the instructional guidelines' implementation. In addition to, mothers who aged 35- ≥40, had secondary level of education, were working and were from rural areas had more depression, anxiety and stress before the instructional guidelines' implementation but these scores decreased after the instructional guidelines' implementation.

Discussion:

The COVID-19 is considered a global emergency health pandemic that has a serious impact on mothers, including mental health (**WHO, 2020; Xiang et al., 2020**). Such health emergencies pandemic can lead to psychosocial problems as anxiety, fear, stress, social isolation, and misunderstanding and misinformation about the disease over social media (**Dong &Bouey, 2020**).The study aimed to evaluate the effect of instructional guidelines on the mothers' emotional status as stress, anxiety and depression

regarding children returning to school at COVID-19.

The present study reveals that the highest percentage of mothers aged from 25 to 30 years and their educational level of them was bachelor's degree. This may be the cause of presence of more psychological disturbance as depression, anxiety and stress among mothers because they were not old enough and not having enough knowledge.

The present study finds regarding mothers knowledge about COVID -19 that, after guidelines implementation, a highly statistical significant improvements is observed in mothers' knowledge in all items of COVID-19 (P<0.001). This clarifies the importance of introducing the instructional guidelines about covid-19 to the mothers of children in primary school.

The finding of the present study reveals that, most mothers had unsatisfactory knowledge level pre but post the instructional guidelines' implementation. Also, a highly statistical significant improvement was observed in mothers' knowledge (*P*<0.001).This may be related to deficiency of knowledge about COVID-19 which affected the people's compliance to preventive measures. This result agreed with the study by **Fan et al**., (**2020)** about the "KAP theory" and reported that, a health behavior change when gaining the right knowledge and adopting practice**.** Also**,** recent study by **Rana et al., (2020)** illustrated that, sufficient individual knowledge is associated with effective prevention, control of disease and promotion of person's health**.** A study by **Ricardo et al., (2018)** supported that; knowledge deficit is associated with poor health and maladaptive disease preventive behavior**.**

The current result illustrates that, the most of the mothers had unsatisfactory practical knowledge about COVID- 19, especially in wearing mask, use disinfectant materials as alcohol, and avoid shaking hands that had improved after instructional guidelines' implementation. This result reflects the need of the mothers of children in primary school to increase their awareness and know that adequate practicing during COVID - 19 in protecting their children was a method of prevention against virus infection.

The present result reveals that, the total level of mothers' depression, anxiety and stress' scores were severe at the pretest, but after instructional guidelines' implementation, a highly statistical significant improvements were observed in mothers' total scores of emotional disturbance as depression, anxiety and stress scores regarding children returning to school at covid-19 (P<0.001). These results explained an absence of any definite therapy against COVID-19 and knowledge deficit that, causes increasing emotional disturbances level and also children may be infected from other children when they are returning to school. These results were consistent with the study done by **Huang and Zhao (2020)** regarding generalized anxiety disorder, sleep quality, depressive symptoms during the COVID-19 outbreak in China, and noticed that anxiety disorder affected depressive symptoms.

These results may indicate that, corona virus outbreak caused major stressors to mothers in all daily life activities including returning of their children to school which not only welcomed but very exciting for them, others were feeling anxiety or fear of their children be infected while, with having sufficient knowledge about COVID-19

their stress and worry decreased than before .

The study findings indicate that, three-fifth of the mothers in pre instructional guideline's implementation was suffered from severe anxiety and half of mothers had severe level of depression. These results may be due to the reasons of mothers 'anxiety as worry about their children being infected, difficult control of the epidemic, and the shortage of the medical facilities in the country. Mothers at home may feel emotional disturbance toward their children especially if they become sick (**CDC, 2020**). These results disagree with the study done by **Ozamiz et al., (2020),** on a sample in North Spain to assess stress, anxiety, and depression levels among caregivers during COVID-19 outbreak. They indicated that, more than two thirds of the sample had severe levels of stress, anxiety and depression.

The studied mothers in our study had higher levels of stress before implementation of the instructional guideline. This result is similar to the findings of a study conducted by **Sharma et al., (2020)** about psychological and anxiety/depression level assessment among quarantine people during COVID 19 outbreak, who reported that, negative emotions such as anxiety, depression, and stress were found among people during the quarantine. However, this result was un similar with the study conducted by **Wang et al. (2020),** about immediate psychological responses and related factors during the early stages of the 2019 corona virus epidemic among China's general population and found that, only 8.1% of people reported severe stress levels due to this infectious disease.

The present study reveals that, there is a highly positive correlation between total mothers' knowledge, and

their total levels of depression, anxiety and stress' scores regarding children returning to school at COVID-19 before and after the instructional guidelines' implementation respectively at p-value (<0.0001). Also, there is an improvement in mothers' knowledge level which associated with decreasing levels of depression, anxiety and stress about their young children. This result reflects the benefit of administering the instructional guidelines, which met the mothers' needs and provide them with sufficient knowledge to cope with this disease.

The current result indicates that, there is 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 and residence. This may explain that, mothers with young age had insufficient knowledge about this new disease which caused more stress for them about their young children who are at risk for infection when they going to school than old age mothers. This may be related to lack of mothers' knowledge about the disease, care of their children and preventive measures especially, there is no medication or vaccine for this virus when their children are getting infection, which is the main reason for their psychological disturbance.

The present study reveals that, there is a highly statistically significant relationship between the socio-demographic characteristics and total emotional disturbance (depression, anxiety, and stress) mean scores among mothers regarding their children returning to school during COVID-19 pre and posts the instructional guideline's implementation. Residence of the studied mothers specially the rural areas is associated with high mean scores of their emotional disturbance before implementation of the guideline. This may explain that, rural areas is different in culture, values and believes and mothers in these areas are more stressed because deficit in medical protective supplies, lack of awareness from social media and difficulty in going to the health center or the hospital in urban areas when any suspected manifestations of infection appear in their children. Also, high level of mothers' stress was associated with working mothers. This result may be because working mothers left their young children for long time when they were in their work without observation which increase their stress level about their children in the primary school who are stay alone at home and at risk for getting infection.

A study by **Gao et al.,(2020)** supported our results and reported that, an educational guideline was very effective for the studied mothers and was associated with decrease their levels of depression, anxiety, and stress because, exposure to social media and reading a lot about COVID 19 pandemic were associated with positive psychological outcomes.

Table (1): Percentage distribution of the studied mothers regarding their socio--demographic characteristics (N=330)

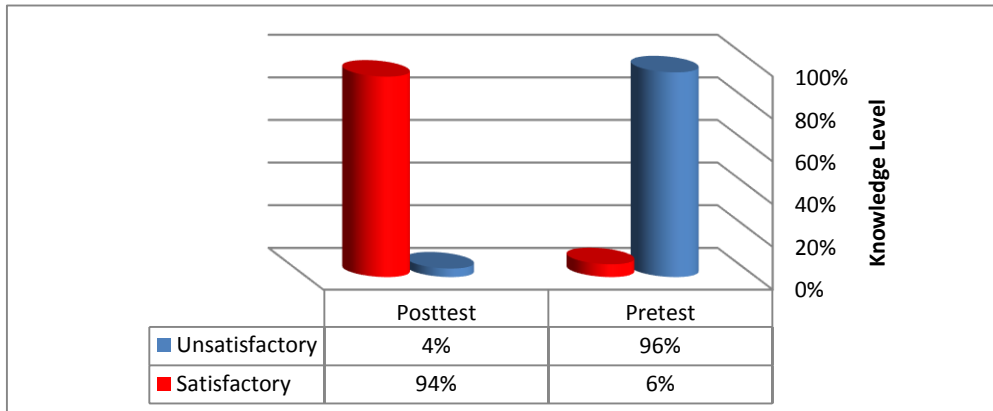| Socio-demographic characteristics	N=330	%
1-Age(years):		
- 25 < 30		
- 30 - 35	152	46.0
- 35 ≥40	112	34.0
Mean and SD(27.3±2. 1)	66	20.0
2-Educational level:		
- Postgraduate	20	6.00
- Bachelor's degree	119	36.00
- Technical Institute	92	28.00
- Secondary school diploma	99	30.00
3- Working status:		
- Working	231	70.00
- Not working	99	30.00
4- Residence		
- Urban	251	76.00
- Rural	79	24.00

Table (2): Percentage distribution of the children regarding their sociodemographic characteristics (N=330)

Sociodemographic characteristics	N=330	%
1-Age(years)		
• 6 < 8	99	30.00
• 8 < 10	198	60.00
• 10 ≥ 12	33	10.00
Mean and SD (9±1.5)		
2-Education Level		
- First level	36	11.00
- Second level	96	29.00
- Third level	33	10.00
- Fourth level	66	20.00
- Fifth level	66	20.00
- Sixth level	33	10.00
3-Gender		
- Female	178	54.0
- Male	152	46.0

Table (3): Percentage distribution of mothers' knowledge about COVID -19 before and after the instructional guidelines' implementation

Covid-19 characteristics	No =(330)		p-value
	Pre	**Post**	
Definition	79(24.0)	310(94.0)	<0.001*
Clinical picture	112(34.0)	330(100.0)	<0.001*
Mode of transmission	122(37.0)	317(96.0)	<0.001*
Diagnostic test	112(34.0)	317 (96.0)	<0.001*
Management	56(17.0)	313(95.0)	<0.001*
Preventive measures	79(24.0)	297(90.0)	<0.001*

*Significance at 0.0001 levels

	Posttest	Pretest
■ Unsatisfactory	4%	96%
■ Satisfactory	94%	6%

Figure (1): Percentage distribution of the total mothers' knowledge level about COVID-19

Table (4): Percentage distribution of mothers' knowledge regarding the preventive measures about COVID-19 before and after the instructional guidelines' implementation

Preventive measures	**No =(330)**		**p-value**
	pre	**Post**	
Hand washing	112(34.0)	317 (96.0)	<0.001*
Wearing mask	46(14.0)	231(70.0)	<0.001*
Use disinfectant materials as alcohol	23(7.0)	165(50.0)	<0.001*
Avoid shacking hands	46(14.0)	320(97.0)	<0.001*
Social distance	56(17.0)	287(87.0)	<0.001*
Put a tissue when coughing or sneezing on the mouth and nose	122(37.0)	313(95.0)	<0.001*

More than one answer was reported by the studied mothers *Significance at 0.0001 levels

Table (5): Total mean scores of mothers' emotional status (depression, anxiety and stress) regarding children returning to school during COVID -19 before and after the instructional guidelines' implementation

DASS	**No =(330)**		**p-value**
	pre	**Post**	
Depression	24.70 ± 3.60	12.60 ± 1.40	<0.001*
Anxiety	17.80 ± 1.12	11.83 ± 1.13	<0.001*
Stress	32.70 ± 3.60	23.40 ± 3.70	<0.001*

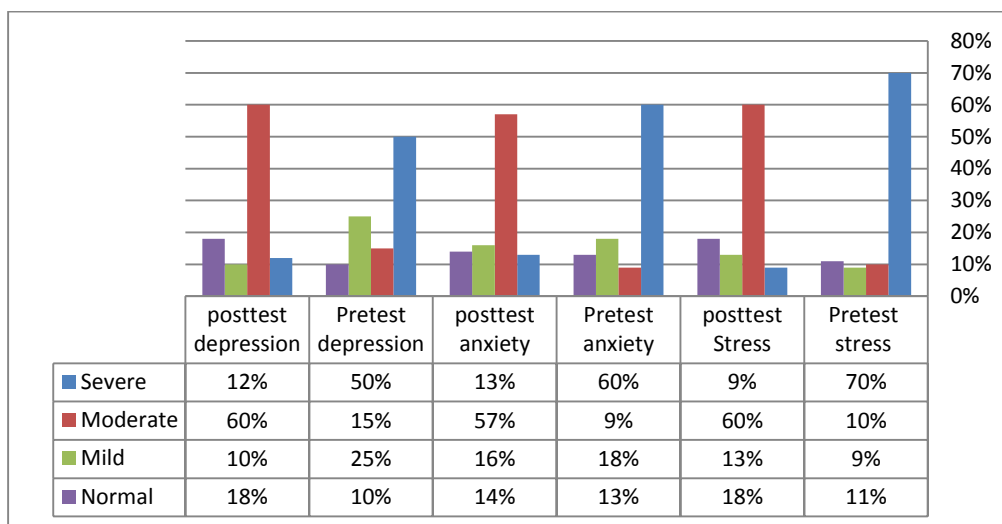|	posttest depression	Pretest depression	posttest anxiety	Pretest anxiety	posttest Stress	Pretest stress
■ Severe	12%	50%	13%	60%	9%	70%
■ Moderate	60%	15%	57%	9%	60%	10%
■ Mild	10%	25%	16%	18%	13%	9%
■ Normal	18%	10%	14%	13%	18%	11%

Figure (2): Percentage distribution of the studied mothers' emotional status (depression, anxiety and stress level) regarding children returning to school during COVID -19 pre and post the instructional guidelines' implementation (N=330)

Table (6) Association between mothers' level of depression, anxiety and stress and their total level of knowledge about COVID-19 pre and post the instructional guideline's implementation

	Pre				Post					p-value
DASS	**Satisfactory**		**Unsatisfactory**		**Satisfactory**		**Unsatisfactory**			
									X2	
	No= 13	**%**	**No= 317**	**%**	**No= 297**	**%**	**No= 33**	**%**		
Depression	2	14.0	133	42.0	73	24.4	9	27.0		
Anxiety	6	46.0	127	40.0	130	43.9	12	36.5	34.8	<0.0001*
Stress	5	40.0	57	18.0	94	31.7	12	36.5		

Table (7) Association between socio-demographic characteristics of the studied mothers and their total level of knowledge about COVID- 19 pre and post the instructional guidelines' implementation (N=330)

Socio-demographic characteristics	Total level of Mothers' knowledge								X2	p-value
	Pre				Post					
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory			
	No= 13	%	No= 317	%	No= 297	%	No= 33	%		
1-Age(years):									0.953	<0.001*
- 25 < 30	6	46.0	158	50.0	125	42.0	7	20.0		
- 30 – 35	5	34.0	127	40.0	112	38.	17	53.0		
- 35 ≥ 40	2	20.0	32	10.0	60	20.	9	27.0		
2-Educational level:									0.523	0.008
- Postgraduate	3	26.00	114	36.00	103	35.00	8	25.00		
- Bachelor's degree	5	36.00	89	28.00	89	30.00	5	15.00		
- Technical Institute	1	8.00	95	30.00	45	15.00	8	25.00		
- Secondary school	4	30.00	19	6.00	59	20.00	12	35.00		
3- Working status:									0.543	0.004
- Working	9	70.00	254	80.00	223	75.00	25	76.00		
- Not working	4	30.00	63	20.00	74	25.00	8	24.00		
4- Residence									0.607	<0.001*
- Urban	10	76.00	222	70.00	178	60.00	25	75.00		
- Rural	3	24.00	95	30.00	119	40.00	8	25.00		

Table (8) Association between socio-demographic characteristics of the studied mothers and their mean scores of emotional status (depression, anxiety and stress) pre and post the instructional guideline's implementation (N=330)

Mothers' characteristics	DASS						P-
	Depression		Anxiety		Stress		
	Pre	Post	Pre	Post	Pre	Post	
1-Age(years):							<0.001*
- 25 < 30	22.55 ± 3.60	11.45 ± 2.60	15.55 ± 3.60	10.12 ± 1.60	30.40 ± 3.60	23.25 ± 3.60	
- 30 – 35	23.70 ± 3.60	13.60 ± 1.40	16.60 ± 3.60	12.83 ± 1.13	31.50 ± 2.60	22.30 ± 3.60	
- 35 ≥ 40	24.70 ± 3.60	12.60 ± 1.40	17.80 ± 1.12	11.83 ± 1.13	32.70 ± 3.60	24.40 ± 3.70	
2-Educational level:							0.008
- Postgraduate	23.70 ± 3.60	13.60 ± 1.40	16.80 ± 1.12	12.83 ± 1.13	33.70 ± 3.60	24.40 ± 3.70	
- Bachelor's degree	22.55 ± 3.60	11.45 ± 2.60	15.55 ± 3.60	10.12 ± 1.60	30.45 ± 3.60	21.25 ± 3.60	
- Technical Institute	21.60 ± 2.60	12.50 ± 2.60	16.60 ± 3.60	10.12 ± 1.60	31.50 ± 2.60	22.30 ± 3.60	
- Secondary school	24.70 ± 3.60	12.60 ± 1.40	17.80 ± 1.12	11.83 ± 1.13	32.70 ± 3.60	23.40 ± 3.70	
3- Working status:							0.004
- Not Working	21.60 ± 2.60	12.50 ± 2.60	16.60 ± 3.60	10.12 ± 1.60	31.50 ± 2.60	22.30 ± 3.60	
- Working	24.70 ± 3.60	12.60 ± 1.40	17.80 ± 1.12	11.83 ± 1.13	32.70 ± 3.60	23.40 ± 3.70	
4- Residence							<0.001*
- Urban	22.60 ± 3.60	11.50 ± 2.60	15.60 ± 3.60	10.12 ± 2.60	30.50 ± 3.60	21.30 ± 3.60	
- Rural	24.70 ± 3.60	12.60 ± 1.40	17.80 ± 1.12	11.83 ± 1.13	32.70 ± 3.60	23.40 ± 3.70	

Conclusion:

The study findings conclude that, a highly statistical significant relation was found between mothers' knowledge about COVID -19 and their level of emotional disturbance symptoms as stress, depression and anxiety mothers regarding their children returning to school during COVID -19 pre and post implementation of the instructional guideline. Also, there was a positive effect of the instructional guideline on improving the emotional status of the studied mothers and their knowledge about COVID -19.

Recommendations:

The following recommendations were suggested based on the results of the present study:

1- Mothers' classes and educational programs about COVID -19 should be held at Sohag Governorate for educated and non-educated mothers.

2- Psychological support should be carried out through the media to help mothers become more resilient during the COVID-19 epidemic.

3- A well-planned health education programs about COVID-19 should be introduced to the children at preparatory school level.

4- Booklets and brochures containing sufficient knowledge about COVID-19 and its preventive measures should be printed and kept in clinics and schools and given to all mothers and caregivers of young children.

Limitations of the study:

The current study had two limitations, first, inability to interview with the mothers face-to-face. Second, the study online-based questionnaire method was used during corona virus pandemic outbreak to avoid infection transmission and school lockdown. So that, there was sampling bias being conducted online and restricted to only educated mothers with internet access that not represent and reflect the whole mothers.

Conflict of interest

No

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