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Corona virus (COVID-19) infection: Perception based practices and obstacles of prevention among mothers in a rural area

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Abstract

Background: The Corona Virus (COVID-19) pandemic is considered a major public health problem all over the world. The aim of this work was to identify the perception, practice of mothers in a rural area for prevention of COVID-19 infection and barriers facing them when dealing with this pandemic.

Methods: This cross-sectional study was carried out on 400 mothers who were approached by convenience sampling using a self-administered questionnaire and direct interviewing for illiterate participants.

Results: A statistically significant association was found regarding the family income also between total attitude score and educational level. All the women who had enough income and spare had good total knowledge level. The majority of female were exposed to difficulties for providing main needs and less than 50% reported that they have no sufficient income if there were reapplying restrictions. Majority of the studied mothers had increased stress on old people due to infection prevention restrictions. More than 50% reported failure in providing sufficient children care, about two thirds reported that they discovered hidden characteristics in her family members. Most of the studied mother's income was affected during COVID-19 pandemic. About three quarters of females reported facing education problems and refusal of prevention measures. There was significant positive correlation between attitude and practice.

Conclusions: The mothers' work negatively affected their ability to help their family against COVID-19. The majority of females were exposed to difficulties for providing main needs and suffered from the increased stress on old people of their family due to infection prevention restrictions.

Keywords: Corona virus (COVID-19), perception and obstacles of prevention, mothers, rural area

Introduction

Corona viruses (COVID-19) are RNA viruses and were described for the first time in 1966 when extracted from individuals with common cold ^[1]. Most typically, corona viruses are categorized according to their morphology (corona is Latin for "crown") ^[2]. Four COVID-19 sub-families that are now recognized were existed: alpha, gamma, beta, and delta corona viruses. Alpha corona viruses induce infections that are asymptomatic or very slightly symptomatic, while beta COVID-19 may result in severe illness and even death ^[3]. SAR-COV2 is a highly infectious illness with fever, exhaustion, myalgia, a dry cough, and dyspnea as its primary manifestations ^[4]. In extreme circumstances, it may result in pneumonia, cardiac arrest, respiratory failure, and even death. However, according to other research, the virus may be present in 30% to 70% of individuals even in the absence of clinical signs ^[5].

Nasal and oral droplets as well as contact with infected surfaces are the major transmission pathways. The illness takes 6.4 days on average to incubate. The virus may last on certain surfaces for 14 days, it is also reported ^[6].

Since there is currently no viable cure, several countries and health organizations, including the WHO, are aggressively teaching the public to adopt preventative measures, such as lockdown measures, to slow the spread of the virus ^[7].

The population's mental health had been significantly impacted by COVID-19 and related preventative measures, which were made worse by a shortage in social contact and worries

about the future of employment. Rising levels of stress, anxiety, frustration, depressive disorders, and insomnia also contributed to psychological issues and possibly mental changes^[8].

The moms are on the front lines of the COVID-19 pandemic defenses and are subjected to not only COVID-19 infection but also psychological misery, lengthy workdays, exhaustion, and often physical violence^[9]. In order to anticipate and correlate the results of COVID-19, it might be helpful to recognize the understanding, beliefs, and behaviors of mothers.

The aim of this work was to identify the perception, practice of mothers in a rural area for prevention of COVID-19 infection and barriers facing them when dealing with this pandemic.

Patients and Methods

This cross-sectional work was performed on 400 mothers who were approached by convenience sampling using a self-administered questionnaire and direct interviewing for illiterate participants.

After receiving clearance from Tanta University Hospitals' Ethics Committee and being registered with clinicaltrials.gov, the research was carried out. December 2022 until January 2021. The patient or the patient's family members provided written, informed approval.

The validity of the survey: It was evaluated using a research tool (questionnaire), which a jury of three subject-matter experts used to evaluate the questionnaire's appearance as well as validity. They determined whether the questionnaire's specific inquiries and overall design were relevant and adequate for measuring the things it set out to do. The questionnaire's reliability was assessed during the pilot first session for the purpose of calculating Cronbach's Alpha, that was 0.897 for the utilized questionnaire. The questionnaire's face validity was determined based on experts' opinions, and it was 94%, and the content validity index (%) of its questions was 93%.

Data was collected by interviewing illiterate mothers and self-administrated questionnaire with literate mothers. The average time spent filling the questionnaire for each participant ranged between 15-30 minutes.

Tools for data collection

Questionnaire sheet: about socioeconomic and background information about the mother as: age, marital status, family income, education, occupation, question about history of infection with COVID-19 and to assess participants' knowledge including: modes of transmission and spread of infection as: respiratory droplets from contaminated persons when coughing or sneezing, contacting or shaking an infected individual's hands, handling dirty surfaces with an unwashed hand, and interacting with animals are all risk factors for infection.

Questions to evaluate, attitudes that include maintaining awareness of the number of instances and the government's call for preventative measures is essential for the community. Individuals with COVID-19 should not be subjected to a negative stigma in the community, and individuals who isolate themselves demonstrate that they have a duty to stop the spread of it.

Questions for evaluating proficiency include frequently washing hands with water and soap or utilizing an alcohol-based hand sanitizer, utilizing hands rub based on alcohol,

covering her mouth and nose when she coughs or sneezes with an elbows or tissues, and subsequently throwing away the tissues in the wastebasket.

Breathing trouble

Possible keep at least 1 meter distance when someone is coughing, avoid going outside unnecessarily, avoid attending parties, meetings, and other social occasions, as well as any crowded regions, clean and disinfect frequently touched objects and surfaces.

Questions to assess impacts of COVID-19 including impacts of COVID-19 on the mothers as:

mother's work, exposed to difficulties in providing her main needs such as food, medications, house rent and gas, electricity and water bills?

In case of reapplying restrictions, she has insufficient income to cover her needs.

Effects of COVID-19 on mothers' family including failure in providing sufficient children care, increase violence and bad behavior against the children, husband violence against his wife, problems between the husband and his wife, led to divorce or to relatives intervention to solve it, family income shortage, her children have faced education problems during the pandemic spread of COVID-19.

Questions to assess barriers including: her refusal of any prevention measures, Her family lacks the finances to take such preventative precautions or doesn't pay attention to that prevention measures although repetition of directing them.

The scoring system includes five questions, each question was scored as one for yes answer, zero for no or don't know. Total knowledge level was classified as; poor knowledge level (<50%) (0-10), fair knowledge level (50-70%) (11-14), good knowledge level (>70%) (15-21).

Scoring of attitude includes one question which is classified in to five points, each point was scored as two for agree answer, zero for disagree and one for not sure, classified as: negative attitude (< 60%) (0-6), positive attitude (\geq 60%) (7-10)

Scoring of practice includes one question which is classified into 12 points, each point answer was scored as zero for never, one for rarely, two for sometimes, three for always, classified as: low practice level (< 50%) (0-12), moderate practice level (50-70%) (13-24), good practice level (> 70%) (25-36)

Sample Size Calculation

utilizing version 7 of the statistics program Epi-Info developed by the CDC and WHO in 2007. The sample size calculations took into account the outcome's 50% anticipated frequency, 5% estimated margin of error, and 95% confidence level. The required number of participants was determined to be 384 moms.

Statistical analysis

SPSS v22 (IBM Corporation, Armonk, NY, USA) was used for the statistical analysis. Mean and standard deviation (SD) were used to display quantitative information. Frequency and percentages (%) were used to illustrate qualitative parameters. Utilizing the Chi-square test (χ^2), a comparison between two groups and more was conducted. The Pearson's correlation coefficient (r) was used to assess the relationship between the variables. A two tailed P value < 0.05 was considered significant.

Results

There were no statistically significant associations between total knowledge level and age groups, marital status, educational level, and occupation. A statistically significant association was found only regarding the family income.

About two thirds (65.6%) of those without enough income and 72.4% of those with enough income had good total knowledge level. Meanwhile all the women who had enough income and spare had good total knowledge level. Table 1

Table 1: Relationship between the socio-demographic information and total knowledge level of the studied mothers at the studied rural area

Socio demographic information	Total knowledge level of the studied mothers (n=400)						X ² Test	P-value
	Poor (n=33)	Fair (n=89)		Good (n=278)		Good (n=278)		
Age (years)							8.365	0.399
18-30	5	4.3	23	19.8	88	75.9	75.9	75.9
31-40	15	9.0	41	24.8	109	66.1	66.1	66.1
41-50	10	10.8	22	23.7	61	65.6	65.6	65.6
51-60	3	15.0	2	10.0	15	75.0	75.0	75.0
61-67	0	0	1	18.3	5	83.3	83.3	83.3
Marital status							0.755	0.944
Married	30	8.2	82	22.3	255	69.5	69.5	69.5
Divorced	1	10.0	3	30.0	6	60.0	60.0	60.0
Widowed	2	8.7	4	17.4	17	73.9	73.9	73.9
Family income							9.823	0.044*
Not enough	24	11.1	50	23.3	141	65.6	65.6	65.6
Enough	9	5.2	39	22.4	126	72.4	72.4	72.4
Enough & spare	0	0	0	0	11	100	100	100
Educational level							9.998	0.125
Illiterate	2	4.9	7	17.1	32	78.0	78.0	78.0
Read and write	10	14.9	18	26.8	39	58.3	58.3	58.3
Secondary	10	7.9	33	26.0	84	66.1	66.1	66.1
University	11	6.7	31	18.8	123	74.5	74.5	74.5
Occupation							9.404	0.494
Housewife	19	8.9	53	24.9	141	66.2	66.2	66.2
Non skilled	2	5.6	10	27.8	24	66.6	66.6	66.6
Skilled worker	0	0	2	40.0	3	60.0	60.0	60.0
Professional work	1	14.3	1	14.3	5	71.4	71.4	71.4
Employee	8	7.1	16	14.2	89	78.7	78.7	78.7
Private work	3	11.5	7	26.9	16	61.6	61.6	61.6

Data are presented as frequency (%).

There was no statistically significant associations between total attitude score and age groups, marital status, family income and the occupation. Statistically significant association was found between total attitude score and

educational level. The highest percent of illiterate women (82.9%) had the lowest positive attitude score, 91% among those who read and write and 96% among those secondary educated with the highest positive attitude score. Table 2

Table 2: Relationship between socio-demographic information and total attitude of the studied females

Socio-demographic information	Total attitude of the studied mothers (n=400)				X ² Test	P-value
	Positive (n=369)		Negative (n=31)			
n	n	%	n	%	%	%
Age (years)					1.251	0.870
▪ 18-30	107	92.2	9	7.8	7.8	7.8
▪ 31-40	153	92.7	12	7.3	7.3	7.3
▪ 41-50	84	90.3	9	9.7	9.7	9.7
▪ 51-60	19	95.0	1	5.0	5.0	5.0
▪ 61-67	5	83.3	1	16.7	16.7	16.7
Marital status					0.881	0.644
▪ Married	338	93.1	29	7.9	7.9	7.9
▪ Divorced	10	100	0	0	0	0
▪ Widowed	21	91.3	2	8.7	8.7	8.7
Family income					1.729	0.421
▪ Not enough	195	90.7	20	9.3	9.3	9.3
▪ Enough	164	94.3	10	5.7	5.7	5.7
▪ Enough & spare	10	90.9	1	9.1	9.1	9.1
Educational level					11.845	0.008*
▪ Illiterate	34	82.9	7	17.1	17.1	17.1

▪ Read and write	61	91.0	6	9.0	9.0	9.0
▪ Secondary	122	96.0	5	4.0	4.0	4.0
▪ University	152	92.1	13	7.9	7.9	7.9
Occupation					4.245	0.515
Housewife	197	92.5	16	7.5	7.5	7.5
Non skilled	32	88.9	4	11.1	11.1	11.1
Skilled worker	4	80.0	1	20.0	20.0	20.0
Professional work	6	85.7	1	14.3	14.3	14.3
Employee	104	92.0	9	8.0	8.0	8.0
Private work	26	100	0	0	0	0

Data are presented as frequency (%).

Statistically non-significant associations were found between total practice level and age groups, marital status, family income, educational level, and occupation. Table 3

Table 3: Relationship between socio-demographic information and total practice level of the studied mothers

Socio-demographic information	Total practice level of the studied mothers (n=400)						X ² Test	P-value
	Low (n=16)		Moderate (n=35)		Good (n=349)			
	n	%	n	%	n	%	%	%
Age (years)							3.030	0.932
▪ 18-30	4	3.4	9	7.8	103	88.8	88.8	88.8
▪ 31-40	8	4.8	17	10.3	140	84.8	84.8	84.8
▪ 41-50	4	4.3	7	7.5	82	88.2	88.2	88.2
▪ 51-60	0	0	2	10	18	90.0	90.0	90.0
▪ 61-67	0	0	0	0	6	100	100	100
Marital status							1.606	0.808
▪ Married	14	3.8	31	8.4	322	87.7	87.7	87.7
▪ Divorced	1	10.0	1	10	8	80.0	80.0	80.0
▪ Widowed	1	4.3	3	13.1	19	82.6	82.6	82.6
Family income							6.873	0.143
▪ Not enough	13	6.0	21	9.8	181	84.2	84.2	84.2
▪ Enough	3	1.7	14	8.1	157	90.2	90.2	90.2
▪ Enough & spare	0	0	0	0	11	100	100	100
Educational level							9.830	0.132
▪ Illiterate	4	9.8	6	14.6	31	75.6	75.6	75.6
▪ Read and write	4	6.0	8	11.9	55	82.1	82.1	82.1
▪ Secondary	4	3.1	8	6.3	115	90.6	90.6	90.6
▪ University	4	2.4	13	7.9	148	89.7	89.7	89.7
Occupation							17.250	0.069
Housewife	12	5.6	27	12.7	174	81.7	81.7	81.7
Nonskilled	0	0	3	8.3	33	91.7	91.7	91.7
Skilled worker	0	0	0	0	5	100	100	100
Professional work	0	0	0	0	7	100	100	100
Employee	2	1.8	3	2.7	108	95.6	95.6	95.6
Private work	2	7.7	2	7.8	22	84.6	84.6	84.6

Data are presented as frequency (%).

There were no significant associations between the total knowledge level of the studied mothers with their total practice, nor their total attitude level. Table 4

Table 4: Relationship between total level of knowledge, practice and attitude of the studied mother of COVID 19

Variables		Total knowledge level of the studied mothers (n=400)				X ² Test	P-value
Poor (n=33)		Poor (n=33)		Fair (n=89)			
	n	n	%	n	%	n	%
Total practice level	Low (n=16)	2	6.1	2	2.2	12	4.3
	Moderate (n=35)	2	6.1	10	11.2	23	8.3
	Good (n=349)	29	87.9	77	86.5	243	87.4
Total attitude level	Positive (n=369)	30	90.9	83	93.3	256	92.1
	Negative (n=31)	3	9.1	6	6.7	22	7.9

Data are presented as frequency (%).

Less than one fifth of the studied mothers' work was affected (16%). The majority of female were exposed to difficulties for providing main needs such as food, medications, house rent and gas, electricity and water bills

ranged from greatly (36%) to slightly (10%). Less than half of the participants (45%) reported that they have no sufficient income if there were reapplying restrictions. Table 5

Table 5: Perceived effect of the studied mothers about COVID-19

Effect of COVID-19	The studied mothers (n=400)	
	n	%
Effect on the mothers' work		
▪ No working	213	53.3
▪ I'm in a paid vacation	10	2.5
▪ I'm in a non-paid vacation	13	3.25
▪ My salary has been reduced	25	6.25
▪ Not affected	75	18.75
▪ Affected	64	16.0
Exposal to difficulties for providing main needs such as food, medications, house rent and gas, electricity and water bills		
▪ No	58	14.5
▪ Slightly	40	10.0
▪ Moderately	158	39.5
▪ Greatly	144	36.0
Period of income sufficiency to cover needs, if restrictions are reapplied		
▪ No	180	45.0
▪ < 1 week	96	24.0
▪ 1-< 2 weeks.	49	12.3
▪ 2 weeks.-< 1 month.	42	10.5
▪ 1-3 months.	33	8.3

Data are presented as frequency (%).

The majority of the mothers who participated in the study reported higher stress levels on elderly people as a result of infections preventive measures, raised stress on both mothers and fathers at home, a rise in internet usage by children of 81.3%, and a raise in depression among children of 71.5% as a result of temporary school closures. Over fifty percent reported failing to provide adequate childcare, 58.8% experiencing partner violence, and 55.3% exhibiting more aggressive with unfavourable behaviours toward the kids, about two thirds reported that they discovered hidden

characteristics in her family members (67%) and (63.3%) had enhanced family relationship, (48.8%) had enhanced relationship with husband, and (57%) had problems with the husband. Most of the studied mother's income was affected during COVID-19 pandemic ranged from greatly (43.8%) to slightly (18%). About three quarters of females reported facing education problems during the pandemic spread of COVID-19 (17%) did not have internet access, (22%) did not have smart phones, and (32%) had other problems. Table 6

Table 6: Perceived of effect of COVID-19 on the family of the studied mothers.

Accepted effects of COVID-19 on the studied mother's family	Yes, answer of the studied mothers (n=400)	
	n	%
▪ Failure in providing sufficient children care	233	58.3
▪ Increase violence and bad behavior against the children	221	55.3
▪ Husband violence against his wife leads to family destruction and increase the negative behavior	235	58.8
▪ Problems between the husband and his wife, led to divorce	82	20.5
▪ Problems between the husband and his wife, led to relatives intervention to solve it	146	36.5
▪ Family relationship enhancement and increase corporation	253	63.3
▪ The children were out of control	302	75.5
▪ Increase stress on both mother and father in the house	354	88.5
▪ Children suffering from depression due to temporary schools closure	286	71.5
▪ Children spent more times on internet	325	81.3
▪ Increase stress on old people duo to infection prevention restrictions	366	91.5
▪ Discovered hidden characteristics in her family members	268	67
▪ Relationship has been enhanced with her husband	195	48.8
Family income has been affected because of COVID-19		
▪ No	37	9.3
▪ Slightly	72	18.0

▪ Moderately	116	29.0
▪ Greatly	175	43.8
Your children have faced education problems during the pandemic spread of COVID-19?		
▪ Not have studying children	88	22.0
▪ Didn't have internet access at house	69	17.3
▪ Didn't have smart devices support e-learning	91	22.8
▪ Other problems	128	32.0
▪ Didn't have any problems	24	6.0

Data are presented as frequency (%).

There was significant positive correlation between attitude and practice. Figure 1

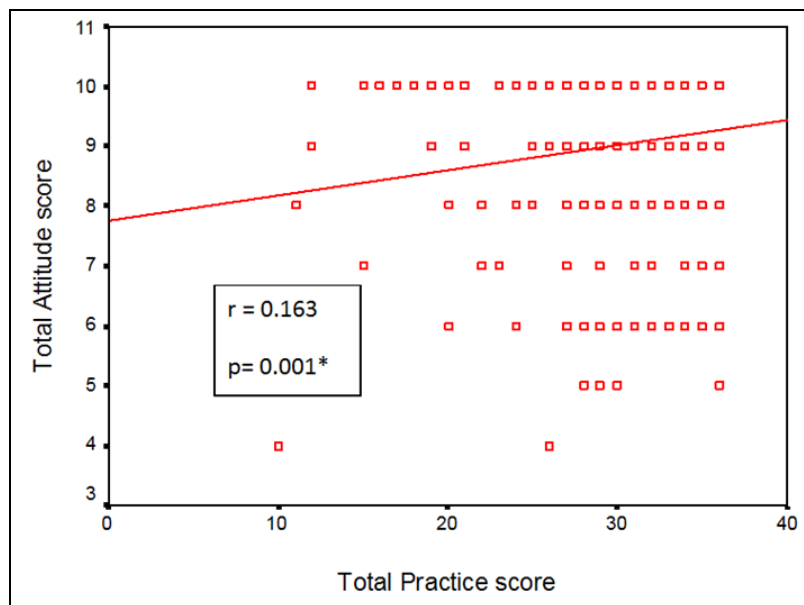


Fig 1: Correlation between total scores of attitude and practice of the studied mothers at the studied rural area about COVID-19

Three quarters of the women reported their refusal of prevention measures, 52.8% family doesn't pay attention to that prevention measures although repetition, Work negatively impacted their ability to protect their families from COVID-19 in 48% of cases, their family didn't have sufficient resources to implement preventative measures in

41.8% of cases, there wasn't enough space at home for the infected individuals to be isolated in 30% of cases, the community around them wasn't paying attention to the preventative measures taken in 24.3% of cases, and 15.5% of cases, health authorities hadn't provided them with sufficient free masks. Figure 2

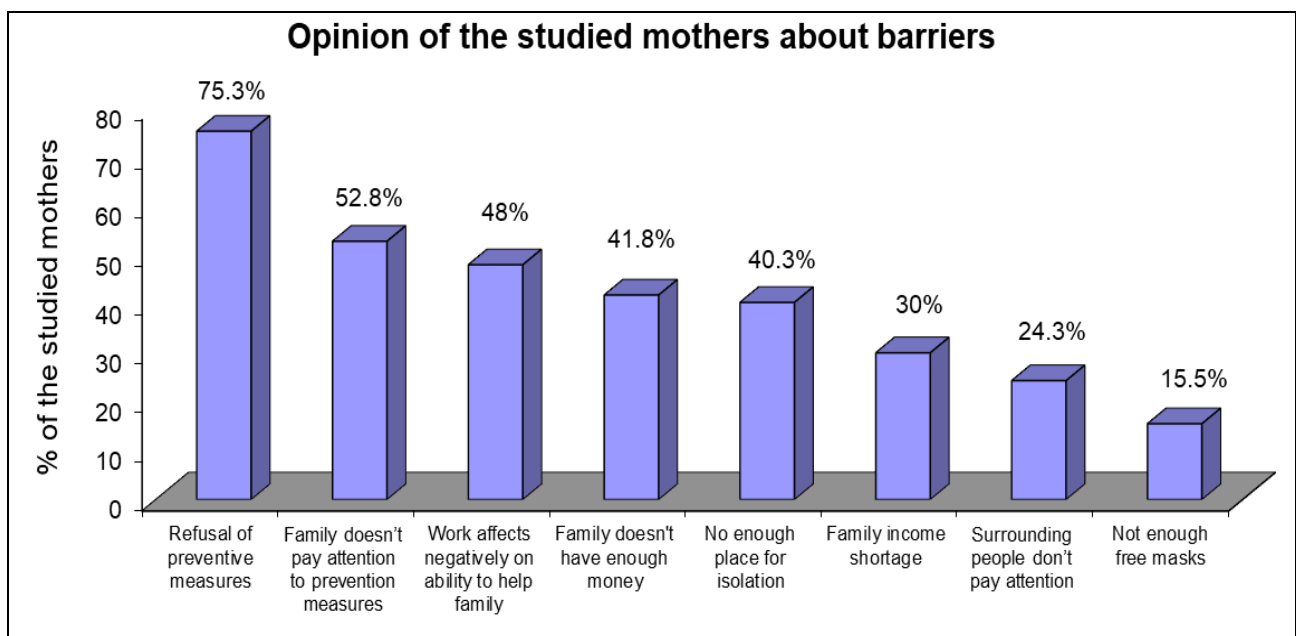


Fig 2: Perceived barriers for applying preventive and control methods to COVID-19 among the studied mothers at the studied rural area

Discussion

Global health, social, and economical variables have all been significantly impacted by the COVID-19 pandemic [10, 11].

The present study revealed poor to fair knowledge regarding the vulnerable groups susceptible to COVID-19. Poor knowledge regarding such issue was also reported by Fang *et al* [12] with 47.2% of the participants knew the most susceptible groups for COVID-19. Higher percentages were documented by Lee *et al.*, [13] and Abd Elhameed *et al* [14] with 89.3%, and 91.7% of the participants respectively, knew that individuals with chronic disease are vulnerable to infection

The present study explored that over two thirds of the mothers had an overall good total knowledge score. This is comparable with the studies of Abd Elhameed *et al* [14] and Sugiharto *et al* [15], who found that 88.9% and 78.6% of the individuals had sufficient knowledge about COVID-19 prevention health protocols. Similar data (81.6%) was also disclosed by Al-Hanawi *et al.* [16].

In the present study non-statistically substantial associations were found between total knowledge level and age groups, marital status, educational level and occupation and the majority of mothers had positive attitude towards COVID-19 infection. These findings come consistent with Lee *et al* [13] who reported that the knowledge score varied by social determinants. Meanwhile, the participant's age, marital status, place of residence, and existence of children had no effect on their degree of COVID-19 awareness. The family income was described as a significant predictor of participants' knowledge by Takoudjou *et al.* [17].

Similarly, Atri *et al* [18] reported that the majority of participants showing positive attitudes regarding the avoidance of corona illness

A great number of those participating in the research thought that it is crucial for the community to be informed about the prevalence of cases and the government's demand for preventative measures, and that they felt anxious after learning the information about the number of incidents. In accordance, the study of Abdelhafiz *et al* [19] and Reuben *et al* [20] found that 94.7% and 89.4% of the respondents keep up with the governmental preventive guidelines against Covid-19 respectively. Lower rates of positive attitude were reported by the study of Fang *et al.*, [12] who showed that 43.1% of the participants said they would stay informed about COVID-19, and 45.9% indicated they would be extremely interested to understand more regarding it.

The present study showed that 93.5% agreed on people with COVID-19 should not be given a negative stigma in society, this is rather higher than found in the earlier Egyptian study of Abdelhafiz *et al* [19] who found that 71% of the participants felt that having COVID-19 is not a stigmatizing issue.

The present study found that 95.5% agreed on the responsibility of people infected with COVID-19 who isolate themselves in preventing the transmission of it. This finding is supported by the study of Sugiharto *et al* [15] who found that 94.8% of the participants thought that it is important to stay at home and avoiding crowds. Also, Reuben *et al* [20] and Abdelhafiz *et al* [19] reported that 93.4% and 86.7% of the participants, respectively, agreed on the importance of home isolation during the pandemic.

In the current study, the total attitude score; findings were reported matching with the study of Fang *et al* [12] and

Takoudjou *et al* [17] who reported education as the significant predictors of the attitude score.

The present study explored the majority of the participants had good total practice score. This is aligning with the Indian study of Narayana *et al* and the Chinese study of Zhong *et al.*, [21, 22]. However, other studies reported poor levels of practice including Ali *et al*, Takoudjou *et al* [17] and Obi *et al* [23] studies.

In this study, 74.3% of the participants cleaned and disinfected frequently touched objects and surfaces also about 70% of the participants avoided touching their nose, eyes, and mouth with unwashed hands this was higher than found by Ali *et al* [14] and Sugiharto *et al* [15] who found this behavior in 91% and 59.5% of the respondents, respectively. Concerning social distancing, this was followed by 67.8% of this study participants. Higher percentages were reported by Yanti *et al* [24] who identified that For the purpose of avoiding COVID-19 in Indonesia, 93% of the participants demonstrated excellent behaviors towards social isolation. Also Sugiharto *et al* [15] reported that 82% of the respondents kept social distancing. A lower percent was found by Ali *et al* [14] and Tesfaye *et al* [25] who found that 41% and 41.6% of the participants respectively maintained physical distancing. About half of current study participants avoided going outside unnecessarily. This practice was found by Sugiharto *et al* [15] and Paul *et al* [26] who found that 80.5% and 86.1% of the participants, respectively avoided crowded areas.

The present work revealed that, no statistically substantial relationship was existed among knowledge and practice, while a statistically substantial relationship among attitude and practice. The current findings are in line with the study of Sidamo *et al.* [27] in Ethiopia who stated that the major barrier was the acceptability of prevention and control measures.

In the present study, About 50% of the moms who participated in the study said that their jobs negatively impacted their capacity to protect their family towards COVID-19, while 40% of their families lacked sufficient resources to implement preventative measures and 4% lacked enough space for isolating sick individuals at homes and about one third stated that their family income shortage affects their ability to take some prevention measures. In similarity with the work of Tesfaw *et al.* [28] noted that one of the key obstacles was that individuals had to work every day in order to get their daily intake; otherwise, many would go hungry. According to research by Sidamo *et al.* [27], the primary obstacles to obtaining public health interventions for the avoidance of COVID 19 were financial ones. In harmony with the study of Sehgal *et al.* [29] who found that there was lack of sufficient space and plumbing facilities.

According to the most recent survey, 15% of the moms who participated said that health officials had not given them access to enough free masks. Shortage of the face masks was also reported as a main barrier in the work of Sehgal *et al.* [29].

In the present work, 16% of the studied mothers' work was affected. These findings are consistent with a study in Kenya and Uganda conducted by Dang *et al* [30] who found COVID-19 pandemic affected the source of income in 70% of the households. Also Maison *et al* [31] revealed that the limitations on mobility and travel, as well as the consequent limitations on most activities, are the biggest obstacles brought on by the COVID-19 epidemic.

About three quarters of females reported facing education problems throughout COVID-19's pandemic spreading. These findings are supported by what was declared by Hoofman & Secord^[32] who reported that the transition to an online education during the pandemic might bring about adverse educational changes.

The results of the present research revealed that the majority of participants stated and experienced higher stress toward senior citizens as a result of restrictions for infection prevention and suffered from increased stress on both mother and father in the house. More than half reported failure in providing sufficient children care and experienced husband violence. In accordance, McIntyre & Lee^[33] have found a predicted rise in Canadian cases of suicide linked to unemployment from 418 to 2114.

This study found some family benefits during the pandemic. About two thirds of mothers reported that they discovered hidden characteristics in her family members and 63.3% had enhanced family relationship, 48.8% had enhanced relationship with husband. This is in line with the findings of the research by Wong *et al.*^[34], which showed greater family harmony, higher family positivity, and improved family adaptability to adversity.

It was recommended that: empowerment of mothers by suitable jobs. Health authorities should provide deprived citizens with necessary needs and provide enough places to isolate patients especially in rural areas. Authorities and policymakers have to develop effective and well-planned health education programs and awareness campaigns to train mothers how to teach their families to adhere to preventive measures and provide family counseling programs with hotlines to solve problems. The government should impose penalties for those who do not adhere to the preventive measures and decrease the hours of work for mothers.

Conclusions:

The mothers' work negatively affected their ability to help their family against COVID-19. The majority of female were exposed to difficulties for providing main needs and suffered from the increased stress on old people of their family due to infection prevention restrictions.

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