

Mothers 'Knowledge Versus Their Practices Toward COVID -19 Pandemic Among Children.

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Abstract

*The Coronavirus Disease (COVID-19) has a rapidly growing pandemic involving several nations. It is one of serious concern and extreme challenge not only to the health personnel but also to the countries for containment. Thus, the pediatric nurse play a crucial role in the COVID-19 pandemic, graduate from prevention, assessment, intervention, health education, vaccination till caring of critical ill patient. **Objective:** Determine the mothers' knowledge versus their practices toward COVID -19 pandemic among children. **Design:** A descriptive research design was used to accomplish this study. **Setting:** The study was carried out in the pediatrics Out Patient Clinic at Alexandria University Children Hospital at El- Shatby and El-Hammam Central Hospital Matrouh Governorate. **Subjects:** A convenient sample of 400 mothers having children aged from 6-12 years was comprised the study subjects. **Tools:** Two tools were used for data collection. Tool I: Mothers 'Knowledge about COVID -19 Pandemic among Children. Tool II: Mothers' Application of Precautions Measures toward COVID -19 Pandemic Observational Checklists. **Results:** It was observed that more than one third of mothers had 30 to less than 40 years (34.8%) and 32.0% of them had 40 years and more with mean \pm SD age 35.22 ± 9.906 . Regarding the level of education, one third of mothers (33.5%) were illiterate and 30.0% of them had secondary/technical education, while, 13% only of mothers had university education, Furthermore, small percent of mothers had poor level of knowledge (16.0%) while, more than half of mothers (56.3%) had fair level of knowledge and more than one quarter of them had good level of knowledge about COVID-19(27.7%). It was also found that the majority of mothers who had fair and good knowledge (80.5%) about half of them had good level of practices (44.3%). **Conclusion:** The majority of mothers who had fair and good knowledge about half of them had good level of practice. Mothers' knowledge was significantly associated with their proper practices. **Recommendations:** Implementing counseling programs about COVID-19 for mothers to improve their awareness about the disease manifestations, complications and proper management approaches. In addition, educating mothers about the COVID-19 process through mass media and providing manual booklet involving updated guidelines about COVID-19 modes of transmission, manifestations, and safety precautions.*

Keywords: Mothers, knowledge, Practice, Children, COVID-19 Pandemic.

Introduction

The Coronavirus Disease (COVID-19) has a rapidly growing pandemic involving several nations. It is one of serious concern and extreme challenge not only to the health personnel but also to the countries for containment. Coronavirus (COVID-19) was identified as the cause of a cluster of pneumonia cases which spread firstly in Wuhan of China then worldwide. The World Health Organization (2019) designated the disease COVID-19, which stands for coronavirus disease 2019 (Wiersinga, 2020).

The World Health Organization (2020) declared COVID-19 as a global public health emergency in January 2020 and then a pandemic in March 2020. WHO (2023) stated that there have been 765,903,278 confirmed cases of COVID-19, with 6,927,378 deaths. It was estimated that of the fatality rate for COVID-19 from the global case is 2.2%. However, the case fatality rate is affected by factors that include age, underlying preexisting conditions, and severity of illness and significantly varies between countries. In Egypt, from 3 January 2020 to 16 May 2022, there have been 516,023 confirmed cases of COVID-19 with 24,830 deaths, as reported by WHO (2023).

COVID-19 occurred due to direct contact with infected cases, unprotected direct contact with infectious secretions, face-to-face contact within 2 meters and more than 15 minutes, closed environment such as classroom, meeting room, hospital waiting room, a healthcare worker or other person providing direct care for infected case (Ahmad et al., 2020). The most common symptoms include fever, dry cough, chest pain, fatigue and myalgia. In addition, headache, sore throat, rhinorrhea and gastrointestinal symptoms, loss in normal sense of smell (anosmia) or taste (ageusia)

also found in the early stages of infection (Hassan et al., 2020).

All the symptomatic children should be hospitalized (Guo, 2020). Children with mild-to-moderate symptoms should be admitted in isolated room and managed with symptomatic and supportive care. Its management include antipyretics for fever and myalgia, external cooling, nutritional supplementation, antiviral, and oxygen administration for dyspnea (Saleem, 2020). Extraordinary efforts by clinical researchers have resulted in the development of novel vaccines against SARS-CoV-2 to contain this viral illness that has devastated communities worldwide (Aleem et al 2021).

Preventive measures established by the government are importance to prevent the spread of the disease. These measures are divided into personal actions that include physical distancing, personal hygiene, use of protective equipment, avoiding touching nose, eyes, mouth, and face and maintain possibility 1–2meter distance with others. Regulatory actions which include governmental limits on sizes of gatherings or business capacity, stay-at-home orders, proactive school, workplace, and public transport closure or restriction, cordon sanitaire or internal border closures and international border measures such as border closure or enforced quarantine (Guo et al., 2020 & Suresh et al., 2020).

Pediatric nurses are considered the backbone of health care systems. They coordinate and provide assistance to patients. They play a crucial role in the COVID-19 pandemic, graduate from prevention, assessment, intervention, health education, vaccination till caring of critical ill patient. Pediatric nurses should monitor respiratory function, vital signs and oxygen saturation (Alisson, 2020). Also, they should educate mothers about maintenance of their children isolation. Isolation rooms should be limited access and all who enter the room should use masks, gowns, and hand hygiene should be done after

coughing, entering or leave the room (Alisson, 2020).

In addition, they should provide information for children and their family members about the transmission of COVID-19, the tests to diagnose the disease, disease process, possible complications and ways to protect oneself and one's family from coronavirus (Suresh et al., 2020). So, this study aimed to assess the mother's knowledge versus their practices toward COVID -19 pandemic among children.

MATERIALS AND METHODS

I- Materials

Research Design

A descriptive research design was used to accomplish this study.

Research Question

To what extend mothers' practices based on their knowledge toward COVID -19 pandemic among Children?

Setting:

The study was carried out in the pediatrics Out Patient Clinic at Alexandria University Children Hospital at El- Shatby and El-Hammam Central Hospital Matrouh Governorate. Alexandria University Children Hospital at El- Shatby serves more than one governorate other than Alexandria, such as Beheira, and Kafr El-Sheikh. It contains two clinics with different specialty each day, and the services are provided six days per week for six hours daily. El-Hammam Central Hospital Matrouh governorate, Egypt, consists of two Out-Patient Pediatric Clinics; first room is for physical manifestation and second room for emergency. The services are provided all days of the week for 24 hours.

Subjects:

A convenient sample of 400 mothers having children aged from 6-12 years was comprised the study subjects. The study sample was estimated based on Epi info program which is used to estimate the sample size using the following parameters:

- Population size mothers 5400.
- Expected frequency is 50 %.
- Acceptable error 5%.
- Confidence coefficient is 95%.
- Minimum sample size 359.
- Final sample size 400.

Tools:

Two tools were used for data collection.

Tool I: Mothers 'Knowledge about COVID -19 Pandemic among Children

Interview Schedule.

This tool was developed by the researcher after reviewing the related literature (Erfani et al., 2020; Zhong et al., 2020) to assess the mothers' knowledge about Covid-19 pandemic among children.

It included two parts:

Part I: Mothers' socio- demographic characteristics which included mother's age, level of education, marital status, residence and occupation.

Part II: Mothers' knowledge about COVID-19 pandemic. This part included the following main items of knowledge about COVID -19 pandemic: Definition, causes, methods of transmission, methods of prevention, environmental sanitation, precaution measures, vaccination and treatment.

The totals score of mothers' knowledge was graded as correct (2), correct incomplete (1) and not correct or don't know (0). The total score of mothers

'knowledge was converted into percent score and classified into three levels:

- Good knowledge: above 75 % and more
- Fair knowledge: $50 < 75\%$.
- Poor knowledge: less than 50%.

Tool II: Mothers' Application of Precautions Measures toward COVID - 19 Pandemic Observational Checklists.

This tool was developed by the researcher according to World Health Organization guidance (2019) to assess mothers' application of precautions measures toward COVID -19 pandemic in outpatient department. It included the precautions measures related to hand hygiene and rubbing, wearing a mask and social distance. The researcher observed mothers' practice using observational checklist. Every step was scored as a follow done correctly (1), done incorrect or not done (0).The higher the scores the better were mothers' application of precautions measures of COVID -19 pandemic.

METHOD

1. Approval from the Research Ethics Committee of the Faculty of Nursing at Alexandria University was obtained.
2. Official letters were sent from the Faculty of Nursing to the directors of previously mentioned settings to facilitate research implementation after explaining the aim of the study.
3. Tool I and II were developed by the researcher after thorough reviewing of recent and relevant literature.
4. Tool I and II were submitted to a jury of five experts in the pediatric nursing field for content validity. The validity was 95.0% and 97.0%, respectively.

5. Reliability of tool II was confirmed using Cronbach's Alpha; it was (0.883).
6. A pilot study was carried out on 40 mothers to test the clarity and feasibility of the tools. Accordingly necessary modifications were done. Those mothers were excluded from the study subjects.
7. Every mother was interviewed individually in waiting area of the previously selected settings to obtain her knowledge about Covid-19 pandemic among children using tool 1. The duration of each interview lasted from 15-20 minutes.
8. Every mother was observed by the researcher once while setting in waiting area of outpatient department to application of precautions measures toward corona virus pandemic using observational checklist (Tool 2).
9. Data were collected over a period of eight months extending from January 2022 to August 2022.
10. After completion of data collection, the necessary statistical analysis was used.

11.Ethical Considerations:

- Written Informed consent was obtained from every mother after explaining the purpose of the study.
- Mother's voluntary participation and the right to withdraw from the study at any time were assured.
- Privacy and confidentiality of data were both considered.

Statistical analysis:

- Collected data were revised, coded, and transferred into specially designed format to be suitable for computer

feeding. Following data entry, checking and verification processes were carried out to avoid any error during data entry.

- The data were entered into SPSS system files (SPSS package version 20) using a personal computer. Finally, analysis and interpretation of data were conducted.
- The following statistical measures were used:
 - Descriptive Statistics

Results:

Table (1) describes distribution of mothers according to their socio-demographic data. It was observed that more than one third of mothers had 30 to less than 40 years (34.8%). While less than one third of mothers had 20 to less than 30 years (30.3%) and 32.0% of them had 40 years and more with mean± SD age 35.22 ± 9.906. The majority of mothers were married (87.5%).As regard the level of education, one third of mothers (33.5%) were illiterate and 30.0% of them had secondary/technical education. Concerning mother's occupation the majority of mothers were housewife (86.0%). The same table clarified that the number of family members were five for 30.8% of mothers and less than half of studied mothers had three rooms (49.5%). Regarding family income more than two thirds of mothers reported enough family income (68.5%) and more than half of them stated that the ministry of health as the source of information about COVID-19(59.3%).

Table (2) portrays the distribution of mothers according to their level and means score of total knowledge about COVID-19. It was found that small percent of mothers had poor level of knowledge (16.0%).While

more than half of mothers (56.3%) had fair level of knowledge and more than one quarter of them had good level of knowledge about COVID-19(27.7%) with mean ± SD 21.73±5.199 and mean percent score 63.91%.

Table (3) shows the distribution of mothers according to their level of practices .It was found that nearly one quarter of studied mothers (21.5%) had good levels of practices toward wearing face mask .While more than one quarter of them (27.3%) had good level of practices regarding hand sanitation. Less than half of mothers (41.0%) had good level of practices toward hand washing and only small percent (17.8%) had good level of practices toward social distancing.

Table (4) demonstrates the relationship between mothers' socio-demographic data and their levels of knowledge. Regarding mother's age it was found that more than one third of mothers (31.3%) who had 40 years and more had good levels of knowledge. Also more than half of mothers (44.4%) who were widowed had good level of knowledge and statistical significant differences were found (P=0.000&P=0.003respectively). Moreover, it was found that more than half of mothers who had good level of knowledge were university educated and had two number of family members (53.8%& 53.1% respectively). Less than half of mothers who had good knowledge (42.9%) were employed. About two thirds of mothers who had good knowledge were enough income. Statistical significant differences were found (P=0.000, P=0.011, P=0.000& P=0.001respectively).

Table (5) demonstrates the relationship between mothers' socio-

demographic data and their levels of practices. It was clarified that one third of mothers (33.3%) who had less than 20 years had good practices. Less than half of mothers (42.9%) who were divorced had good practices and about two thirds of mothers(62.5%) who had good practices were primary education and statistical significant differences were found($P=0.001$, $P=0.006$ & $P=0.000$ respectively). More than one third of mothers (35.7%) who were employed had good practices and about half of mothers (44.9%) who had two number of family member had good practices. While small percentage of mothers (21.2%) who were enough income had good practices. Statistical significant differences were found ($P=0.000$, $P=0.000$ & $P=0.031$ respectively).

Table (6) portrays the relationship between mothers' levels of practices and their levels of knowledge. It was found that the majority of mothers who had fair and good knowledge (80.5%) about half of them had good level of practices (44.3%).

Table (7) shows the distribution of mothers according to their mean score of practice. It was clarified that the mean percent score of mothers practices regarding hand hygiene were 63.92% followed by hand sanitation(56.18%).While the mean percent score of mothers practices regarding face mask were 53.38% followed by social distancing(32.0).

Discussion

COVID-19 is a respiratory illness caused by a highly contagious SARS-8 that has the most disastrous global health crisis influenza pandemic since 1918. The World Health Organization (2020) noted that Covid-19 is the pandemic disease resulting from a coronavirus that found in greater

than two hundred international countries with 5.7% of the mortality rate (Baud , 2020).

Mothers' knowledge and their practices regarding Covid-19 are contributing factors to maintaining their children's health and dealing with disease (Goshiye et al., 2022). It was found that small percent of mothers had poor level of knowledge .While more than half of mothers had fair level of knowledge and more than one quarter of them had good level of knowledge about COVID-19. It could be due to mothers' information that provided by the government and media about the COVID-19 since the start of the pandemic. The findings of this study was in the same line with the findings of Abdul Wadood, 2020 who mentioned that almost all of the participants were knowledgeable towards COVID-19.While, the results of Talukder et al., 2022 who studied the knowledge and practices related to COVID-19 stated that mothers had poor knowledge and practices related to COVID.

The current study clarified that half of mothers with more than 3 children had poor level of practice related to COVID-19 preventive measures. It could be related that studied mothers who have 3 children and more had many home duties and might be have enough time to update themselves the number. This result was congruent with the findings of Debrnesh and Goshiye, 2020 who conducted study about knowledge, attitude, and practice towards COVID-19 among mothers and cited that more than one half of studied mothers were less practice COVID-19 preventive measures as a result of increase family members.

The current study also revealed that there are statistical significant differences of

the knowledge and practice score and educational level towards COVID-19. It could be explained on the light of the fact that educated mothers have a better understanding of nature of COVID-19 and control measures and preventive strategies related to it. These results are congruent with the results of Zhong, 2020 who conducted a study about Knowledge, attitudes, and practices towards COVID-19 and mention that participants with high educational level were knowledgeable, followed appropriate practices to prevent the spread of COVID-19.

The current study also clarified that nearly half of studied mothers who were 40 years and more had good knowledge about COVID-19. It could be due to young mothers have not enough time to update their knowledge or older mothers could be more knowledgeable for COVID-19 and their complications. This result was regular with the study of Azlan, 2020 who studied public knowledge, attitudes and practices towards COVID-19 and cited that those who more than 40 years had a good knowledge about COVID-19. While, the findings of Cao J, 2020 found that they have the lowest level of practice among all age groups.

The current study also showed that less than half of studied mothers had a good and fair level of practice on COVID-19 preventive measures. This finding could be related to less educational program application for mothers related to precaution measures prevention practices related to COVID-19. This study was congruent with a study Goshiye, 2020 who conducted a study about mothers knowledge, attitude, and practice towards COVID-19 and reported that less than half of the respondents had a good practice on COVID-19 preventive

measures. This study result also was not the same line with the study of Erfani, 2020 who stated that the majority of participants had good practice towards COVID-19 preventive measures.

Conclusion:

Based on the findings of the current study, it can be concluded that the majority of mothers who had fair and good knowledge about half of them had good level of practice. Mothers' knowledge was significantly associated with their proper practices.

Recommendations: The current study suggested:

1. Implementing counseling programs about COVID-19 for mothers to improve their awareness about the disease manifestations, complications and proper management approaches.
2. Educating mothers about the COVID-19 process through mass media.
3. Providing manual booklet involving updated guidelines about COVID-19 mode of transmission, manifestations, and safety precautions.
4. Conducting continuous training and health education sessions using simplified brochures and leaflets including COVID-19 preventive measures.

Table (1): Distribution of Mothers According to their Socio-Demographic Data:

Table (2): Distribution of the studied mothers

Mothers' characteristics	Total (N=400)	
	No.	%
Age (years)		
▪ <20	12	3.0
▪ 20-	121	30.3
▪ 30-	139	34.8
▪ 40 and more	128	32.0
Min- Max	17.0-57.0	Mean ± SD 35.22 ± 9.906
Marital status		
▪ Married	350	87.5
▪ Divorced	14	3.5
▪ Widowed	36	9.0
Level of education		
▪ Illiterate	134	33.5
▪ Read & Write	30	7.5
▪ Primary education	32	8.0
▪ Preparatory education	28	7.0
▪ Secondary/technical education	120	30.0
▪ University education	52	13.0
▪ Post graduate studies	4	1.0
Occupation		
▪ Working	56	14.0
▪ Not working (housewife)	344	86.0
Number of family members		
▪ Two	49	12.3
▪ Three	68	17.0
▪ Four	71	17.8
▪ Five	123	30.8
▪ Six and more	89	22.2
Min- Max	2.0-7.0	Mean ± SD 4.40± 1.416
Number of rooms		
▪ Two	136	34.0
▪ Three	198	49.5
▪ Four	58	14.5
▪ Five	8	2.0
Min- Max	2.0-5.0	Mean ± SD 2.85 ± 0.736
Sufficiency of income		
▪ Enough	274	68.5
▪ Not enough	126	31.5
Source of information about COVID-19 #		
▪ Ministry of health	237	59.3
▪ Social media	80	20.0
▪ Friends/ relatives	179	44.8

Table (2): Distribution of the studied mothers according to the level and mean score of total knowledge about COVID-19

Items	Levels of Knowledge					
	Poor		Fair		Good	
	No.	%	No.	%	No.	%
	64	16.0	225	56.3	111	27.7
▪ Min –Max	8.0-32.0					
▪ Mean ± SD	21.73±5.199					
▪ Mean Percent Score	63.91%					

Table (3): Distribution of Mothers according to their level of practices:

Items	Levels of Practices					
	Poor		Fair		Good	
	No.	%	No.	%	No.	%
▪ Face mask	196	49.0	118	29.5	86	21.5
▪ Hand sanitation	142	35.5	149	37.3	109	27.3
▪ Hand washing	79	19.8	157	39.3	164	41.0
▪ Social distancing	266	66.5	63	15.8	71	17.8
Total Practices	163	40.8	161	40.3	76	19.0

Table (4): Relationship between Mothers’ Socio-Demographic Data and Their Levels of Knowledge:

Mothers’ Socio-Demographic Data	Levels of Mothers’ Knowledge						Total (N=400)		Test of Significance
	Poor (N= 64)		Fair (N= 225)		Good (N= 111)				
	No.	%	No.	%	No.	%	%	%	
Age (years)									
▪ <20	8	66.7	4	33.3	0	0.0	12	3.0	X ² =30.708 P=0.000*
▪ 20-	16	13.2	73	60.3	32	26.4	121	30.3	
▪ 30-	20	14.4	80	57.6	39	28.1	139	34.8	
▪ 40and more	20	15.6	68	53.1	40	31.3	128	32.0	
Marital status									
▪ Married	60	17.1	195	55.7	95	27.1	350	87.5	X ² =16.284 P=0.003*
▪ Divorced	0	0.0	14	100.0	0	0.0	14	3.5	
▪ Widowed	4	11.1	16	44.4	16	44.4	36	9.0	
Level of education									
▪ Illiterate	28	20.9	66	49.3	40	29.9	134	33.5	X ² =49.408 P=0.000*
▪ Read & Write	0	0.0	26	86.7	4	13.3	30	7.5	
▪ Primary education	4	12.5	21	65.6	7	21.9	32	8.0	
▪ Preparatory education	8	28.6	12	42.9	8	28.6	28	7.0	
▪ Secondary/technical education	24	20.0	72	60.0	24	20.0	120	30.0	
▪ University education	0	0.0	24	46.2	28	53.8	52	13.0	
▪ Post graduate studies	0	0.0	4	100.0	0	0.0	4	1.0	
Occupation									
▪ Working	4	7.1	28	50.0	24	42.9	56	14.0	X ² =9.000 P=0.011*
▪ Not working (housewife)	60	17.4	197	57.3	87	25.3	344	86.0	
Number of family members									
▪ Two	8	16.3	15	30.6	26	53.1	49	12.3	X ² =53.302 P=0.000*
▪ Three	12	17.6	36	52.9	20	29.4	68	17.0	
▪ Four	16	22.5	51	71.8	4	5.6	71	17.8	
▪ Five	8	6.5	74	60.2	41	33.3	123	30.8	
▪ Six and more	20	22.5	49	55.1	20	22.5	89	22.2	
Sufficiency of income									
▪ Enough	36	13.1	148	54.0	90	32.8	274	68.5	X ² =13.366 P=0.001*
▪ Not enough	28	22.2	77	61.1	21	16.7	126	31.5	

Table (5): Relationship between Mothers’ Socio-Demographic Data and their levels of practices:

Mothers’ Socio-Demographic Data	Levels of Mothers’ Practices						Total (N=400)		Test of Significance
	Poor (N= 163)		Fair (N= 161)		Good (N= 76)				
	No.	%	No.	%	No.	%	%	%	
Age (years)									
▪ <20	0	0.0	8	66.7	4	33.3	12	3.0	X ² =18.812 P=0.004*
▪ 20-	41	33.9	50	41.3	30	24.8	121	30.3	
▪ 30-	60	43.2	51	36.7	28	20.1	139	34.8	
▪ 40 and more	62	48.4	52	40.6	14	11.0	128	32.0	
Marital status									

▪ Married	143	40.9	141	40.3	66	18.9	350	87.5	X ² =14.440 P=0.006*
▪ Divorced	0	0.0	8	57.1	6	42.9	14	3.5	
▪ Widowed	20	55.6	12	33.3	4	11.1	36	9.0	
Level of education									
▪ Illiterate	74	55.2	52	38.8	8	6.0	134	33.5	X ² =112.326 P=0.000*
▪ Read & Write	9	30.0	13	43.3	8	26.7	30	7.5	
▪ Primary education	8	25.0	4	12.5	20	62.5	32	8.0	
▪ Preparatory education	12	42.9	8	28.6	8	28.6	28	7.0	
▪ Secondary/technical education	44	36.7	68	56.7	8	6.7	120	30.0	
▪ University education	12	23.1	16	30.8	24	46.2	52	13.0	
▪ Post graduate studies	4	100.0	0	0.0	0	0.0	4	1.0	
Occupation									
▪ Working	12	21.4	24	42.9	20	35.7	56	14.0	X ² =15.650 P=0.000*
▪ Not working (housewife)	151	43.9	137	39.8	56	16.3	344	86.0	
Number of family members									
▪ Two	0	0.0	27	55.1	22	44.9	49	12.3	X ² =57.357 P=0.000*
▪ Three	28	41.2	28	41.2	12	17.6	68	17.0	
▪ Four	25	35.2	32	45.1	14	19.7	71	17.8	
▪ Five	62	50.4	41	33.3	20	16.3	123	30.8	
▪ Six and more	48	53.9	33	37.1	8	9.0	89	22.2	
Sufficiency of income									
▪ Enough	100	36.5	116	42.3	58	21.2	274	68.5	X ² =6.954 P=0.031*
▪ Not enough	63	50.0	45	35.7	18	14.3	126	31.5	

Table (6): The Relationship between Mothers’ Levels of Practices and their Levels of Knowledge:

Items	Levels of Mothers’ Practices						Total (N=400)		Test of Significance
	Poor (N= 163)		Fair (N= 161)		Good (N= 76)		%	%	
	No.	%	No.	%	No.	%			
Levels of knowledge									
▪ Poor	28	43.8	36	56.2	0	0.0	64	16.0	X ² =19.907 P=0.000*
▪ Fair	90	40.0	82	36.4	53	23.6	225	56.2	
▪ Good	45	40.5	43	38.7	23	20.7	111	27.8	
Correlation coefficient between mean score of knowledge and Practices	R= 0.258 P= 0.000*								

Table (7): Distribution of mothers according to the mean score of practices

Items	Min –Max	Mean ± SD	Mean Percent Score	Rank
▪ Face mask	0.0-13.0	6.940±2.978	53.38%	3
▪ Hand sanitation	0.0-11.0	6.180±2.500	56.18%	2
▪ Hand washing	0.0-12.0	7.670±2.305	63.92%	1
▪ Social distancing	0.0-3.0	0.960±1.191	32.00%	4
Total Practices	0.0-38.0	21.76±7.218	55.79%	

Reference

- Abdelhafz, S., Mohammed, Z., Ibrahim, E., Ziady, H., Alorabi M., Ayyad, M., Sultan, E. (2020). Knowledge, Perceptions, and Attitude of Egyptians towards the Novel Coronavirus Disease, Published online: 21 April 2020.
- Akalu, Y., Ayelign, B., Molla MD.(2020). Knowledge, Attitude and Practice Towards COVID-19 Among Chronic Disease Patients at Addis Zemen Hospital, Northwest Ethiopia .available at <https://www.dovepress.com/terms>.
- Al-Hanawi ,K., Angawi, K., Alshareef, N., Qattan, N., Helmy, Z., Abudawood , et al. (2020). Knowledge, Attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: a cross-sectional study. *Front Public Health*;8(1):217.
- Al-Wutayd1,O., Mansour, A E., Hamad A , Hamdan ,A,Z., & Al-Batanony, M. (2021). Handwashing knowledge, attitudes, and practices during the COVID-19 pandemic in Saudi Arabia: | <https://doi.org/10.1038/s41598-021-96393-6>
- Amirhossein E, Reza S, Keivan R, Alireza M, Mohsen M. (2020) Knowledge, Attitude and Practice toward the Novel Coronavirus (COVID-19) Outbreak: A Population-Based Survey in Iran. *Bull World Heal Organ.* 2020. 10.2471/BLT.20.256651. [CrossRef] [Google Scholar] [Ref list].
- Aronu ,E., Awoere T. Nduagubam, C., Ossai, N., Chinawa,J.(2022). COVID-19: Knowledge of Mode of Spread and Preventive Practices Among Mothers Attending a Tertiary Health Institution, Nigeria. Available from: <http://www.ijmhdev.com> on Monday, December 12, 2022, IP: 154.186.117.67]
- Azlan, A., Hamzah, M., Sern, J., Ayub, S., Mohamad, E .(2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PLoS ONE* 15(5): e0233668.Available from:<https://doi.org/10.1371/journal.pone.0233668>
- Baud, D., Qi, X., Saines, et al. (2020). Real estimates of mortality following COVID-19 infection. *The Lancet Infectious Diseases.* [https://doi.org/10.1016/S1473-3099\(20\)30195-X](https://doi.org/10.1016/S1473-3099(20)30195-X).
- Bhagavathula ,S., Aldhaleei, W., Rahmani, J., Mahabadi, A., Bandari, K. Knowledge and perceptions of COVID-19 among health care workers: cross-sectional study. *JMIR Public Heal Surveill.* 2020;6(2):e19160. doi: <http://10.2196/19160>
- Cao, J., Hu, X., Cheng, W., Yu L., Tu ,W-J., Liu, Q. (2019). Clinical features and short-term outcomes of 18 patients with corona virus disease in intensive care unit. *Intensive Care Med.* <https://doi.org/10.1007/s00134-020-05987-7>
- Centers for Disease Control and Prevention.(2019). Hand sanitizer use Out & About . <https://www.cdc.gov/handwashing/hand-sanitizer-use.html>
- Centers for Disease Control and Prevention.(2019).Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-gettingsick/cloth-face-cover.html>.
- Ciotti M, Ciccozzi M, Terrinoni A, Jiang WC, Wang CB, Bernardini S. The COVID-19 pandemic. *Crit Rev Clin Lab Sci.* 2020 Sep;57(6):365-388. doi: 10.1080/10408363.2020.1783198. Epub 2020 Jul 9. PMID: 32645276.
- Christopher ,R., Margaret ,R ., Dauda, M. A. D., Saleh, A., and Ene, P.(2020). “Knowledge, attitudes and practices towards COVID19: an epidemiological survey in North-Central Nigeria,” *Journal of Community Health*, vol. 46, Article ID 0123456789, 2020. doi:10.1371/journal.pone.0145455 DOI:<http://dx.doi.org/10.24018/ejmed.2021.3.1.654> <dx.doi.org/10.13005/bbra/1279>
- Elawady,S., Bassam,M. (2022).Maternal Level of Knowledge and Practice Regarding Physical and Psychological Care of Children with COVID-19,2022Doi: 10.3371/CSRP.BS.05 1322
- Erfani A., Shahriarirad, R., Ranjbar, K., Mirahmadizadeh, A., & Moghadami, M.(2020). Knowledge, Attitude and Practice toward the Novel Coronavirus (COVID-19) Outbreak: A Population-Based Survey in Iran. [Preprint]. *Bull World Health Organ.* E-pub:doi: <http://dx.doi.org/10.2471/BLT.20.256651>.

- Ferdous, Z., Islam, S., Sikder, T., et al. (2020). Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: an online-based cross-sectional study. *PLoS One*; 15:e0239254
- Fikrie, A., Amaje, E., Golicha, W. (2021). Social distancing practice and associated factors in response to COVID-19 pandemic at West Guji Zone, Southern Ethiopia, 2021: A community based cross-sectional study. *PLoS One*. 20;16(12):e0261065. doi: 10.1371/journal.pone.0261065. PMID: 34928975; PMCID: PMC8687536.
- Fisher, A., Fisher, D., Rye, J. (1995). Understanding and promoting AIDS preventive behavior: insights from the theory of reasoned action. *Health Psych.*;14 (255)64.
- Gollar H., Avabratha, S. (2021). Knowledge, attitude, and practice of mothers of under-five children regarding diarrheal illness: A study from coastal Karnataka. Available from : <http://www.mjmsr.net> on Saturday, September 4, 2021, IP: 197.48.46.118]
- Goshiye, D., Abegaz, Z., Gedamu S. (2020). Knowledge, Attitude, and Practice towards COVID-19 among Mothers in Dessie Town, Northeast Ethiopia. *Interdisciplinary Perspective of Infectious Disease*. 2022 | Article ID 4377460 | <https://doi.org/10.1155/2022/4377460>.
- Hoque, M., Alam, M., G. Van, Hal. (2021). Knowledge, Attitudes, and Practices towards COVID-19 of Pregnant Women at a Primary Health Care Facility in South Africa. *A. M. Published Online*: January 15, 2021.
<https://WWW.who.int>
<https://WWW.who.int>
<https://www.who.int/dg/speeches/detail/COVID-19-11-march-2020>).
- Hussain, SA. (2018). Hand hygiene amongst health workers in a teaching hospital. *Journal: Annals of Epidemiology and Public Health Publisher*. 2018; 1: 1005. <http://meddocsonline.org/>
- Jafari, F., Aminzadeh, M., Azami F., and Samadpour, M. (2014). The Knowledge, Attitude and Practice of Mothers Regarding Acute Respiratory Tract Infection in Children.
- Jakia, Y., Jabin A., et al. (2022). Knowledge and Self-Reported Practice of Face Mask Utilization Among Outdoor Patients During the Covid-19 Pandemic. *Archives of Community and Family Medicine*. 2022; 5(2): 14-21. DOI: <https://doi.org/10.22259/2638-4787.0501002>
- James, P. T., Kunoor, A. & Rakesh, P. S. (2018). Awareness of health care workers, patients and visitors regarding air borne. *Indian J. Tuberc.* 65, 168–171 (2018).
- Lau, J. T. F., Yang, X., Tsui, H. Y. & Pang, E. (2004). SARS related preventive and risk behaviours practised by Hong Kong-mainland China cross border travellers during the outbreak of the SARS epidemic in Hong Kong. *J. Epidemiol. Community Health* 58, 988–996 (2004).
- Mahdi, H. et al. (2020). Hand hygiene knowledge and practices among domestic hajj pilgrims. Implications for future mass gatherings amidst COVID-19. *Trop. Med. Infect. Dis.* 5, 1–10 (2020).
- Mantwill, S., Monestel-uma S., Schulz PJ. (2015). The relationship between health literacy and health disparities: a systematic review. *PLoS One*. 2015;10(12):1–22.
- McGuigan, K. (2012). *The Role of Mothers in Family Health* Palmerston North, New Zealand: Massey University; 2012. [Google Scholar].
- Ngwewondo, A., Nkengazong L., Ambe et al. (2020). Knowledge, attitudes, practices of/towards COVID-19 preventive measures and symptoms: a cross-sectional study during the exponential rise of the outbreak in Cameroon,” *PLoS Neglected Tropical Diseases*, vol. 14, no. 9, Article ID e0008700.
- Nunan D., Brassey J. (2020). What is the evidence for social distancing during global pandemics. A rapid summary of current knowledge. *Oxford COVID-19 Evid Serv*. 2020; 1–9. Available: www.cebm.net/oxfordcovid-19/.
- Nwafor, J. I., Aniukwu, J. K., and Anozie, B. O. (2020). Knowledge and Practice of Preventive Measures against COVID-19 Infection Among Pregnant Women in a Low-Resource African Setting, *BMJ, Noida, India*, 2020.
- Pingzheng, Mo et al. (2020). Clinical characteristics of refractory COVID-19 pneumonia in Wuhan, China doi: 10.1093/cid/ciaa270.

- Pittet, D., Mourouga P., Perneger TV. (1999). Compliance with handwashing in a teaching hospital. Infection control program. *Ann Intern Med.* 1999; 130:126–130.
- Simiyu, D., E. Wafula., and R. Nduati.(2004). Mothers’ knowledge, attitudes and practices regarding acute respiratory infections in children in Baringo District, Kenya. *East African medical journal*, 2004. 80(6): p. 303-307.
- Sulistiyawati, R., Sulistiyawati., Rokhmayanti, B., Aji., Wijayanti,S., Hastuti, K., Sukesi, M .(2021).“Knowledge , Attitudes , Practices and Information Needs During the COVID-19 Pandemic in Indonesia,” *Risk Manag. Healthc. Policy*, vol. 14, pp. 163–175, 2021.
- Talukder, A1., Islam ,N ., Sarker, M.(2022) .Knowledge and practices related to COVID-19 among mothers of under-2 children and adult males(2022) : a cross-sectional study in Bangladesh *BMJ Open*;12(5):e059091. doi:10.1136/bmjopen-2021-059091
- Tian, H., Liu, Y., Li, Y., Wu, CH., Chen, B., Kraemer MUG, et al.(2020) An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in china. *Science* 2020; 368:638-42.
- Toharudin ,T., Pontoh R. S., Zahroh, S., Akbar, A., and Sunengsih,N.(2020) .“Impact of large scale social restriction on the COVID-19 cases in East Java,” *Commun. Math. Biol. Neurosci.*, vol. 2020, pp. 1–19, 2020, doi: 10.28919/cmbn/4837.
- Wadood, A., Abdur Rafi, M., I, Mohd, K, Lee ,L., Hossain G.(2020). Knowledge, attitude, practice and perception regarding COVID-19 among students in Bangladesh , 2020 doi: <https://doi.org/10.1101/2020.04.21.20074757>;
- World Health Organization. Hand Hygiene: Why, How & When? WHY? (2009). Accessed 5 Jul 2020.
- World Health Organization.(2020).COVID-19 Infection Prevention and Control During Health Care When Coronavirus Disease <https://www.who.int/publications/i/item/WHO-2019-nCoV-IPC-2020.4>. Accessed 3 Jul 2020.
- WHO.(2020) Director-General’s opening remarks at the media briefng on COVID-19 11 March 2020. Retrieved April 4, 2020, from
- Wolf, SM., Serper, M., Opsasnick, L.(2020). Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the U. S. outbreak. *Ann Intern Med.* 2020;9:1–10. doi:10.7326/M20-1239
- World Health Organization.(2020) Guide to Local Production: WHO-Recommended Handrub Formulations
- Yuniarti, A., Himawan, M., Rian, H. (2022).Knowledge and Attitudes of Mothers on the Behavior of Wearing Masks to Children Towards COVID -19 Prevention in Meri Mojokerto East Java .
- Zhong, B. L., Luo, W., Li, H. M., et al. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 . *International Journal of Biological Sciences*, 16(10), 1745–1752.