

Community Awareness, Preparedness, Precautionary Measures and Self-Quarantine Activities Related to COVID-19 Pandemic in Egypt

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Abstract

Background: A global pandemic of Coronavirus disease-2019 (COVID-19) was declared in early March 2020 by the World Health Organization (WHO). Across the globe, extraordinary measures are being taken to stop the formidable spread of the ongoing outbreak. Awareness of the disease, preparedness greatly influences people's adherence to preventive measures and quarantine under such conditions. **Aim of study:** to assess the community awareness, preparedness, precautionary measures, and self-quarantine activities related to COVID-19 pandemic in Egypt. **Study Design:** A descriptive research design was used. **Study Settings:** The current study was conducted among Egyptian subjects living in 27 governorates using an online survey method. **Study Subjects:** the study was carried out on a 640 Egyptian who were responded to the online questionnaire. **Data collection tools:** a Community Awareness, Preparedness, Precautionary Measures and Self-Quarantine Activities Related to COVID-19 Pandemic Assessment Survey was used which include five main parts. **Results:** Only one third had good awareness by the COVID-19. A little more than a third of the study subjects had good preparedness levels for fighting the disease. Around two fifths follow precautionary measures effectively. Over half of them conduct self-quarantine activities safely. **Conclusion:** A statistically significant association exists between the study subjects' preparedness and self-quarantine activities and their total awareness scores. **Recommendations:** An educational program should be designed to improve awareness and contribute to better practices toward COVID-19 prevention and Conduct community awareness campaigns based on the pre assessment of community needs and problems related to COVID-19 and using the issued WHO and MOH guidelines.

Keywords: COVID, Precautionary, Quarantine, Preparedness.

Introduction

The spread of the corona virus (COVID-19) is the most serious global health security threat in decades, since many people have lost their lives (Johns Hopkins Bloomberg School of Public Health, 2020). Globally, as of 3rd of July 2020, there have been 10,720,449 confirmed cases of COVID-19, including 517,340 deaths, reported to the World Health Organization (WHO). According to WHO Coronavirus Disease (COVID-19) Dashboard statistics, there are 329,796 confirmed COVID-19 cases among the African countries (WHO Coronavirus Disease (COVID-19)

Dashboard, 2020). In Egypt, the government of Egypt at the 3rd of July 2020 documented that the total number of confirmed COVID-19 cases reached 72,711 cases including 3,201 deaths (Information Decision Support Center (IDSC), Egypt, 2020).

Since the global pandemic of COVID-19 began, scientists and clinician's researchers have rushed to understand and mitigate the threat, sharing their view with others (Shmmon, et al., 2020). Awareness campaigns will help to dispel misinformation about the coronavirus while promoting precautionary measures like frequent hand washing and wearing masks (World Bank, 2020). In this regard, the United

Nation Information Center (UNIC) in Egypt, launched campaign to curb COVID-19 online rumors which aimed to raise the community awareness regarding the disease (UNIC, 2020).

World Health Organization (WHO) and the Egyptian Ministry of Health and Population (MOHP) are acting together to develop precautionary measures healthy message materials which are regularly updated based on new scientific findings as the epidemic evolves. These materials aimed to enhance the community understanding for the precautionary measures. The precautionary measures include stay at home messages, regularly and thoroughly clean hands, using of filter face mask, and maintaining social distance (WHO, 2020), (MOHP, Egypt, 2020). The commitment and adherence to the precautionary measures will positively minimize the risk of getting infection as well as its live threatening consequences (Wan et al., 2020). Thangavel, Suresh, and Arthi (2020) in their study entitled "A Study on the Perception and Precautionary Measures taken by the General Public Amidst COVID-19" added that the preventive measures will slow the transmission of COVID-19 as announced by the World Health Organization.

Every community must be ready and prepared to lockdown in order to avoid the spike of the disease, as well as each member of the community either at the internal or external level must be ready to fight the disease. The community preparedness plan is adopted from all the entity of the worldwide general organizations who develop a reasonable plan based on the scientific and evidence based resources, such plans are directed to the authorities at workplace, universities, schools and the civil societies to act together to protect their community (Cirrincone et al., 2020). Managing epidemic scenarios are pre-prepared by the WHO and other organizations and ready to be tailored to each community in order to be easily used and provide the effective and efficient plan that enhance community engagement according to its identity and

household's characteristics (WHO, 2018 ; Nicola, Alsafi et al., 2020).

Media in general plays an active role to help the community to be ready and prepared to fight COVID-19, this role cannot be underestimated. A series of preparedness plans and sceneries are presented by the famous actors and famous people worldwide, it provides a sort of psychological preparation for the society to understand the importance of their role to pass through this bottle neck and protect themselves and their families from corona-phobia (Hussain, 2020 ; Dubey et al., 2020).

Today, self-quarantine become mandatory, since the COVID-19 pandemic is affecting all health care delivery systems negatively. Self-quarantine activities are also known as a 14-day self-isolation. The self-quarantine activities must be held by all arrivals coming from foreign countries, people who get infected or deal with those who are suspected to get the infection and those who develop symptoms (Nicola et al., 2020). Centers of Disease Control and Prevention (CDC) (2020) confirmed that self-quarantine and limiting face-to-face contact with others are the best way to reduce the spread of COVID-19. Certain measures and guidelines are to be followed during self-quarantine including dealing with sick people, dealing with their hazardous wastes, and disinfecting home environment that needs to be well-defined.

Egypt authorities are upset to all those who have been affected by the outbreak, and the community as a whole is deeply grateful to the thousands of healthcare workers who are in the front lines helping their communities. Community health nurse is one of these teams. They play a vital role in raising the public awareness regarding the COVID-19 precautionary measures as well as the self-quarantine activities. So, the current study aimed to assess the community awareness, preparedness, precautionary measures and self-

quarantine activities related to COVID-19 pandemic in Egypt.

Significance of the study:

How quickly Covid-19 spreads and how many people die as a result depends on public behaviors. Michie et al. (2020). In response to public health emergencies, community health nurses should emphasize the importance of encouraging adaptive and protective behavior changes so that individuals, families, and communities can protect themselves. In order to comply with these measures, a thorough understanding of the factors affecting the adult's behavior must be developed as well as having to be taken into account with the health authority in establishing proper health programs in combatting this disease and preventing the outbreak. (WHO EMRO, 2017). Regardless of the extraordinary Egyptian national measures in combating the pandemic, the success or failure of these efforts is largely dependent on public behavior. (WHO, 2020) So that the current study will be conducted to find out level of the community awareness, preparedness, precautionary measures and self-quarantine activities related to COVID-19 pandemic in Egypt.

Aims of the study

The current study aimed to assess the community awareness, preparedness, precautionary measures and self-quarantine activities related to COVID-19 pandemic in Egypt

Specific objectives:

1. Assess the Egyptian community awareness related to COVID-19 pandemic.
2. Evaluate the Egyptian community preparedness related to COVID-19 pandemic.
3. Identify the precautionary measures followed by the Egyptian community related to COVID-19 pandemic.
4. Assess the self-quarantine activities adopted by the Egyptian community related to COVID-19 pandemic.

Research Questions

1. What is the level of the Egyptian community awareness related to COVID-19 pandemic?
2. Is the Egyptian community prepared to meet the COVID-19 pandemic?
3. What are the precautionary measures followed by the Egyptian community to fight COVID-19 pandemic?
4. What are the self-quarantine activities followed by the Egyptian community to fight COVID-19 pandemic?

Subjects and Method

Materials

Study Design:

A descriptive research design was used.

Study Setting:

The study was conducted among Egyptian subjects using an online survey method. Egypt is located on the northeast corner of the African continent. It is bordered by Libya to the west, Sudan to the south, the Red Sea to the east, and the Mediterranean Sea to the north. Egypt has the largest, most densely settled population among the Arab countries. The total area of the country covers approximately one million square kilometers. Administratively, Egypt is divided into 27 governorates. The four Urban Governorates (Cairo, Alexandria, Port Said, and Suez) have no rural population. Each of the other 23 governorates is subdivided into urban and rural areas. Nine of these governorates are located in the Nile Delta (Lower Egypt), nine are located in the Nile Valley (Upper Egypt), and the remaining five Frontier Governorates are located on the eastern and western boundaries of Egypt (**Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt], and ICF International, 2015**).

Study Subjects:

Sample size was calculated using Denial equation with level of significance (α) equals 0.05 and the power ($1-\beta$) equals 0.80 (Danial, 1999). The equation resulted in estimated 597 subjects needed for this study,

and in order to avoid the errors, a total number of 640 subjects were included in this study. All individuals above 18 years old who can read, write and are able to answer an online survey were included in the study with no exclusion criteria.

Tools of the study:

In order to collect the necessary data for the study, the following tool was used:

Community Awareness, Preparedness, Precautionary Measures and Self-Quarantine Activities Related to COVID-19 Pandemic Assessment Survey:

This tool was developed by the researchers after reviewing relevant recent literature (Tripathi, et al., 2020; WHO, 2020) to collect the required data from the Egyptian community. It includes the following parts:

Part I: Socio-demographic characteristics of the studied subjects: It includes the following data: Age, sex, occupation, educational level, family income, place of residence, family type and number of family members.

Part II: Awareness of the Egyptian community regarding COVID-19: This part will include 20 questions to assess the Egyptian community knowledge regarding COVID-19 such as definition of Covid-19, mode of transmission, signs and symptoms, etc. The total awareness score was calculated and transferred to percentage and classified into:

1. Poor awareness level scores are less than 50 % of scores.
2. Fair awareness level scores are ranged from 50 to less than 75% of scores.
3. Good awareness level scores are equal to or greater than 75% of scores (Alahdal et al., 2020; Tripathi, et al., 2020).

Part III: Egyptian community preparedness assessment: This part will help to get a quick view on the subject's preparedness to fight COVID-19 such as stocking up enough food, medicine and necessities to last during the pandemic duration prior to Movement restrictions, searching for the nearest healthcare/hospital location and phone number to seek medical assistance in case fall sick with symptoms of COVID-19, etc. A four-point Likert scale was used to assess the preparedness measures ranged from 3 (Always done) to 0 (Never done). The total precautionary measures score was calculated and transferred to percentage and classified into:

1. Poor preparedness level scores are less than 50 % of scores.
2. Fair preparedness level scores are ranged from 50 to less than 75% of scores.
3. Good preparedness level scores are equal to or greater than 75% of scores (Alahdal et al., 2020; Tripathi, et al., 2020).

Part IV: The precautionary measures followed by the Egyptian community to fight COVID-19 pandemic: This part will help to identify the subject's precautionary measures to fight COVID-19 such as carrying own hand sanitizer wherever going outdoors, complying with proper hand washing, wearing a face mask when outdoors, avoid touching my face, nose, eyes to protect self from the COVID-19 virus, etc. A four-point Likert scale was used to assess the precautionary measures ranged from 3 (Always done) to 0 (Never done). The total precautionary measures score was calculated and transferred to percentage and classified into:

1. Poor measures level scores are less than 50 % of scores.
2. Fair measures level scores are ranged from 50 to less than 75% of scores.
3. Good measures level scores are equal to or greater than 75% of scores (Alahdal et al., 2020; Tripathi, et al., 2020).

Part V: The self-quarantine activities followed by the Egyptian community to fight COVID-19 pandemic: This part will help to identify the subject's self-quarantine activities to fight COVID-19 such as spending quality time at home by caring for family members, obeying religion, virtually making benefits of online media to catch up with friends/colleagues/neighbors, etc. A four-point Likert scale was used to assess the self-quarantine activities ranged from 3 (Always done) to 0 (Never done). The total self-quarantine activities score was calculated and transferred to percentage and classified into:

1. Poor self-quarantine activities level scores are less than 50 % of scores.

2. Fair self-quarantine activities level scores are ranged from 50 to less than 75% of scores.

3. Good self-quarantine activities level scores are equal to or greater than 75% of scores (Alahdal et al., 2020; Tripathi, et al., 2020).

Finally, the total safety practices score was include the summation of the total scores allowed for the preparedness domain, precautionary measures domain and self-quarantine activities domain. The total practice score was calculated and transferred to percentage and classified into:

1. Poor level scores are less than 50 % of scores.

2. Fair level scores are ranged from 50 to less than 75% of scores.

3. Good level scores are equal to or greater than 75% of scores (Alahdal et al., 2020; Tripathi, et al., 2020).

Methods:

1. Approval letter from the ethical committee of the Faculty of Nursing, University of Alexandria was obtained to conduct the study.

2. Tool I (online survey) was developed by the researchers after reviewing of the recent literature.

3. The online survey was including a cover page to clarify the purpose of the study in order to gain the cooperation of the study participants during data collection (filling the survey).

4. The content validity of the study tool was tested by a group of (5) experts in the field and their opinions and their suggestions was taken into consideration.

5. The reliability of the tool was tested using Cronbach alpha that denote the tool is 82% reliable with $r(0.82)$.

6. A pilot study was carried out on 65 subjects to test the clarity, feasibility and applicability of the survey. The necessary modification was done. These subjects were excluded from the total study subjects

7. Data was collected through the online responses of the subjects which is planned to be for three months after sharing the link of the survey to the public from May 2020 to July 2020.

Statistical analysis

- The row data and participant responses were collected through goggle form into excel sheet.

- The collected data was coded and transferred into specially designed formats to be suitable for computer feeding. International Business Machine - Statistical Package for Social Sciences (IBM-SPSS version 25) was utilized for both data presentation and statistical analysis of the results.

- Categorical data were expressed in the form of frequencies and percentages. Numeric data were expressed in the form of mean and standard deviation (SD).

- Chi-square test and Fisher's Exact test were used to test the significance of results of qualitative variables.

- The level of significance selected for this study was P value equal to or less than 0.05.

Ethical considerations

- Written online consent was obtained from every participant included in the study after explanation of its aims and assured them

that the collected data was used only for the study purpose. The subject's response means their approval to be included in the research.

- Dealing with the study subjects respectively regardless of their age, sex, religious and their socioeconomic status.

- Confidentiality and anonymity of individual's response was ensured by statement in the cover page of the online survey, and a code number was used instead of the names as well.

- Participation was on a voluntary basis.

- The study subjects have the right to withdrawal at any time.

- The researchers will credit the study subjects and everyone who assisted in the study in the research acknowledgment statement.

Results:

Table (1) showed the distribution of the studied subjects according to their sociodemographic data, the majority (81.6%) of the study subjects were female. Around three quarters (70.9%) of them aged between 20 to less than 40 years compared to the minorities (2.8%) who aged 60 years and more. The majority (87.2%) of them live in big city (Cairo, Giza, and Alexandria). Seventy percent of them had higher level of education, compared to only 1.3% who had only basic education. Less than ten percent (9.4%) were non-working. Regarding number of family members, more than two fifths of them had 3-4 and 5 members and more (42.5% and 49.4% respectively). Slightly more than half (51.9%) of them have children less than 13 years of age and just one third (33.4%) have elderly member in their family.

Figure (1) portrayed the study subjects' main source of information regarding COVID-19, more than half of them reported that they always get the information through professional web sites (WHO and MOH), followed by more than one third who always get their information through printed material as flyers, social media, and health teams (36.6%, 34.7%, and 34.4% respectively), and lastly, around one tenth (11.3%) of them

reported that they always get their information through their family, relatives and friends.

Table (2) presented the distribution of the studied subjects according to their awareness regarding COVID-19. Slightly less than eighty percent (79.4%) of the study subjects had good awareness about COVID-19 definition with a mean score of 85.3 ± 30.9 points. Only slightly more than half the study subjects had good awareness about the disease's mode of transmission and signs and symptoms (53.8% and 52.5% respectively) with a mean score of 60.9 ± 17.2 and 73.9 ± 29.3 points respectively. Regarding preventive measures, it is clearly noted that, around two thirds (63.1%) of them were fairly aware and just one third (34.7%) of them were good aware by the COVID-19 preventive measures with a mean score of 71.9 ± 11.4 points. Finally, the total awareness score of the study subjects denoted that around two thirds (64.7%) of them were fairly aware and just one third (32.8%) of them had good awareness about the COVID-19 with a mean score of 70.1 ± 10.7 points.

Table (3) presented the distribution of the studied subjects according to their preparedness, precautionary measures, self-quarantine activities and total practices regarding COVID-19. Regarding COVID-19 preparedness measures, it is clearly noted that slightly more than one third (35.6%) of the study subjects were good prepared to fight the disease with a mean percent score of 64.6 ± 17.4 compared to slightly less than one fifth (19.1%) who are poorly prepared. Regarding COVID-19 precautionary measures it was noticed that around two fifths (64.4%) were good follow precautionary measures effectively compared to the minorities (4.7%) who poorly do with a mean percent score of 78.1 ± 15.7 . Furthermore, slightly more than half (56.6%) of them carry out self-quarantine activities safely compared to around one tenth (13.8%) who poorly do with a mean percent score of 72.7 ± 19.9 . Finally, the total practices of safety measures against COVID-19 presented in the table denoted that around two fifths of them were follow safety practices with fair to good scores

(49.7% and 44.4% respectively) with a mean percent score of 71.9 ± 12.5 .

Table (4) showed the association between the studied subjects total awareness scores and their preparedness, precautionary measures, self-quarantine activities and total practices scores regarding COVID-19. It is clearly noted that there is a statistically significant association between the study subject's preparedness and self-quarantine activities and their total awareness scores ($MC^P: < 0.001$ and $MC^P: 0.014$). Whereas there is no association noted between the study subjects' precautionary measures and total safety practices scores and their total awareness scores.

Table (5) presented the association between the studied subjects total awareness scores regarding COVID-19 and their sociodemographic data. There is a statistically significant association noted between the study subjects' level of education, occupation, and presence of elderly within the family and their total awareness scores ($MC^P: 0.028$, $MC^P: 0.005$, and $MC^P: 0.001$ respectively). Whereas there is no statistically significant association between the study subject's sex, age, place of residence, number of family members and the presence of children less than 13 years and their total awareness scores.

Table (6) presented the association between the studied subjects total safety practices scores regarding COVID-19 (which reflects the total of preparedness, precautionary and self-quarantine activities) and their sociodemographic data. There is a statistically significant association noted between the study subjects' sex, age, place of residence, level of education, occupation, number of family

members, presence of children less than 13 years and presence of elderly within the family and their total practices scores ($MC^P: < 0.001$, $MC^P: 0.023$, $MC^P: 0.059$, $MC^P: < 0.001$, $MC^P: < 0.001$, $MC^P: 0.007$, $MC^P: 0.049$, and $MC^P: 0.010$ respectively).

Table (7) portrayed the correlation matrix between total awareness percent scores of the studied subjects and their preparedness, precautionary measures, total self-quarantine activities, and total practices percent scores regarding COVID-19. There is a statistically significant weak positive correlation noted between the study subject's total awareness scores and their preparedness, precautionary measures and total safety practices scores ($r: .155$ ($P: 0.000$), $r: .178$ ($P: 0.000$), and $r: .142$ ($P: 0.000$) respectively), whereas there is no correlation between the study subject's total awareness and their self-quarantine activities. Furthermore, there is a statistically significant weak positive correlation noted between the study subject's total preparedness scores and their precautionary measures and self-quarantine scores ($r: .310$ ($P: 0.000$), and $r: .198$ ($P: 0.000$)), whereas there is a strong positive correlation observed between the study subject's total preparedness and their total safety practices scores ($r: .714$ ($P: 0.000$)).

Additionally, the correlation matrix showed that there is a statistically significant weak positive correlation between the study subject's total precautionary measures and their self-quarantine activities ($r: .307$ ($P: 0.000$)), whereas there is a strong positive correlation between the study subject's total precautionary measures and their total safety practices scores ($r: .759$ ($P: 0.000$)). Finally, there is a strong positive correlation between the study subject's total self-quarantine activities and their total safety practices scores ($r: .679$ ($P: 0.000$)).

Table (1) Distribution of The Studied Subjects According To Their Sociodemographic Data

Sociodemographic characteristics	No. (640)	%
Sex		
Male	118	18.4
Female	522	81.6
Age (Years)		
Less than 20	68	10.6
20 to less than 40	454	70.9
40 to less than 60	100	15.6
60 and more	18	2.8
Mean \pm SD	39 \pm 3.2	
Place of residence		
Big city (Cairo, Giza, Alexandria)	558	87.2
City in other governorates	82	12.9
Level of education		
Basic	8	1.3
Secondary	86	13.4
Higher	448	70.0
Post-graduate	98	15.3
Occupation		
Non-working (Retired-Housewife)	60	9.4
Student	248	38.8
Government employee	130	20.3
Private sector employee	128	20.0
Free work	74	11.6
No. of family member		
1-2	52	8.1
3-4	272	42.5
5 and more	316	49.4
Presence of children less than 13 years in the house		
No	308	48.1
Yes	332	51.9
Presence of elderly in the house		
No	426	66.6
Yes	214	33.4

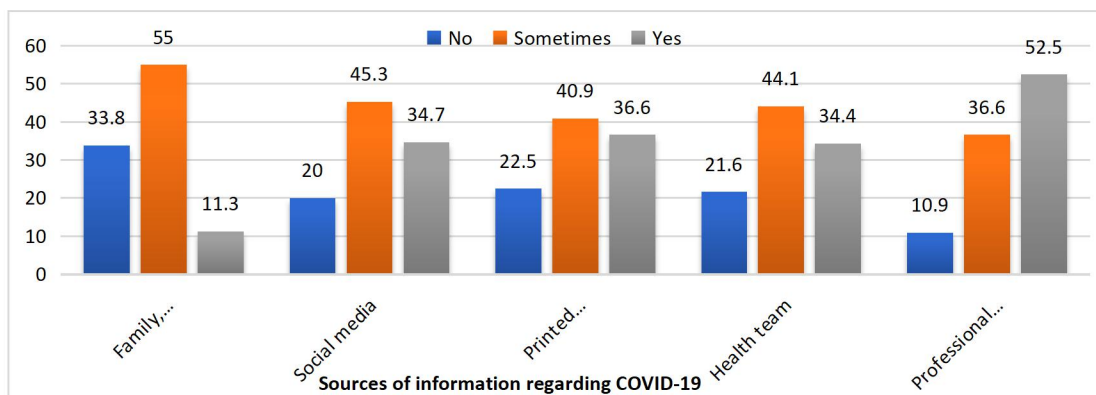


Figure (1) Main source of information regarding COVID-19

Table (2) Distribution of The Studied Subjects According To Their Awareness Regarding COVID-19

COVID-19 Awareness domains	No. (640)	%
Definition of the disease		
Poor	56	8.8
Fair	76	11.9
Good	508	79.4
Mean±SD		85.3±30.9
Min-Max		0-100
Mode of transmission of the disease		
Poor	66	10.3
Fair	230	35.9
Good	344	53.8
Mean%±SD		60.9±17.2
Min-Max		0-100
Sign and Symptoms of the disease		
Poor	30	4.7
Fair	274	42.8
Good	336	52.5
Mean%±SD		73.9±29.3
Min-Max		0-100
Prevention of the disease		
Poor	14	2.2
Fair	404	63.1
Good	222	34.7
Mean%±SD		71.9±11.4
Min-Max		36.4-100
Total Awareness of COVID-19		
Poor	16	2.5
Fair	414	64.7
Good	210	32.8
Mean%±SD		70.1±10.7
Min-Max		33.3-94.4

Table (3) Distribution of The Studied Subjects According To Their Preparedness, Precautionary Measures, Self-Quarantine Activities and Total Practices Regarding COVID-19

Safety Practices	No. (640)	%
Domain 1: Preparedness Measures	No.	%
Poor	122	19.1
Fair	290	45.3
Good	228	35.6
Mean%±SD		64.6±17.4
Min-Max		20-100
Domain 2: Precautionary Measures		
Poor	30	4.7
Fair	198	30.9
Good	412	64.4
Mean%±SD		78.1±15.7
Min-Max		18-100
Domain3: Self-Quarantine Activities		
Poor	88	13.8
Fair	190	29.7
Good	362	56.6
Mean%±SD		72.7±19.9
Min-Max		12-100
Total Safety Practice (Sum of the three domains)		
Poor	38	5.9
Fair	318	49.7
Good	284	44.4
Mean%±SD		71.9±12.5
Min-Max		31-100

Table (4) Association Between The Studied Subjects Total Awareness Scores and Their Preparedness, Precautionary Measures, Self-Quarantine Activities and Total Safety Practices Scores Regarding COVID-19

Practice domains	Awareness scores						Total		Test of significance
	Poor No.	%	Fair No.	%	Good No.	%	No.	%	
Domain 1: Preparedness Measures									
Poor	2	1.6%	96	78.7%	24	19.7%	122	100.0%	MC ^P :<0.001*
Fair	10	3.4%	160	55.2%	120	41.4%	290	100.0%	
Good	4	1.8%	158	69.3%	66	28.9%	228	100.0%	
Domain 2: Precautionary Measures									
Poor	0	0.0%	26	86.7%	4	13.3%	30	100.0%	MC ^P : 0.133
Fair	6	3.0%	126	63.6%	66	33.3%	198	100.0%	
Good	10	2.4%	262	63.6%	140	34.0%	412	100.0%	
Domain 3: Self-Quarantine Activities									
Poor	0	0.0%	46	52.3%	42	47.7%	88	100.0%	MC ^P :0.014*
Fair	4	2.1%	128	67.4%	58	30.5%	190	100.0%	
Good	12	3.3%	240	66.3%	110	30.4%	362	100.0%	
Total safety practice (Sum of the three domains)									
Poor	0	0.0%	26	68.4%	12	31.6%	38	100.0%	MC ^P :0.982
Fair	8	2.5%	206	64.8%	104	32.7%	318	100.0%	
Good	8	2.8%	182	64.1%	94	33.1%	284	100.0%	

MC^P: Monte Carlo test P value

*: Significant at P value ≤0.05

Table (5) Association Between The Studied Subjects Total Awareness Scores Regarding COVID-19 and Their Sociodemographic Data

Sociodemographic characteristics	Awareness scores						Total		Test of significance
	Poor No.	%	Fair No.	%	Good No.	%	No.	%	
Sex									
Male	4	3.4%	78	66.1%	36	30.5%	118	100.0%	MC ^P :0.653
Female	12	2.3%	336	64.4%	174	33.3%	522	100.0%	
Age (Years)									
Less than 20	0	0.0%	54	79.4%	14	20.6%	68	100.0%	MC ^P :0.115
20 to less than 40	14	3.1%	282	62.1%	158	34.8%	454	100.0%	
40 to less than 60	2	2.0%	68	68.0%	30	30.0%	100	100.0%	
60 and more	0	0.0%	10	55.6%	8	44.4%	18	100.0%	
Place of residence									
Big city (Cairo, Giza, Alexandria)	14	2.5%	360	64.5%	184	33.0%	558	100.0%	MC ^P :0.475
City in other governorates	2	2.4%	54	65.9%	26	31.7%	82	100.0%	
Level of education									
Basic	0	0.0%	8	100.0%	0	0.0%	8	100.0%	MC ^P :0.028*
Secondary	0	0.0%	64	74.4%	22	25.6%	86	100.0%	
Higher	12	2.7%	288	64.3%	148	33.0%	448	100.0%	
Post-graduate	4	4.1%	54	55.1%	40	40.8%	98	100.0%	
Occupation									
Non-working (Retired-Housewife)	4	6.7%	42	70.0%	14	23.3%	60	100.0%	MC ^P :0.005*
Student	4	1.6%	164	66.1%	80	32.3%	248	100.0%	
Employee in governmental institution	0	0.0%	86	66.2%	44	33.8%	130	100.0%	
Employee in private institution	6	4.7%	86	67.2%	36	28.1%	128	100.0%	
Free work	6	8.1%	24	32.4%	44	59.5%	74	100.0%	
No. of family members									
1-2	2	3.8%	34	65.4%	16	30.8%	52	100.0%	MC ^P :0.309
3-4	10	3.7%	168	61.8%	94	34.6%	272	100.0%	
5 and more	4	1.3%	212	67.1%	100	31.6%	316	100.0%	
Presence of children less than 13 years in the house									
No	8	2.6%	188	61.0%	112	36.4%	308	100.0%	MC ^P :0.181
Yes	8	2.4%	226	68.1%	98	29.5%	332	100.0%	
Presence of elderly in the house									
No	6	1.4%	264	62.0%	156	36.6%	426	100.0%	MC ^P :0.001*
Yes	10	4.7%	150	70.1%	54	25.2%	214	100.0%	

MC^P: Monte Carlo test P value

*: Significant at P value ≤0.05

Table (6) Association Between The Studied Subjects Total Safety Practice Scores Regarding COVID-19 and Their Sociodemographic Data

Sociodemographic characteristics	Total safety practice scores						Total No. %		Test of significance
	Poor No.	%	Fair No.	%	Good No.	%			
Sex									
Male	16	13.6%	70	59.3%	32	27.1%	118	100.0%	MC ^P :<0.001*
Female	22	4.2%	248	47.5%	252	48.3%	522	100.0%	
Age (Years)									
Less than 20	0	0.0%	44	64.7%	24	35.3%	68	100.0%	MC ^P :0.023*
20 to less than 40	32	7.0%	226	49.8%	196	43.2%	454	100.0%	
40 to less than 60	6	6.0%	40	40.0%	54	54.0%	100	100.0%	
60 and more	0	0.0%	8	44.4%	10	55.6%	18	100.0%	
Place of residence									
Big city (Cairo, Giza, Alexandria)	30	5.4%	272	48.7%	256	45.9%	558	100.0%	MC ^P :0.059*
City in other governorates	8	9.8	46	56.1%	28	34.1	82	100.0%	
Level of education									
Basic	2	25.0%	2	25.0%	4	50.0%	8	100.0%	MC ^P :<0.001*:
Secondary	12	14.0%	46	53.5%	28	32.6%	86	100.0%	
Higher	22	4.9%	240	53.6%	186	41.5%	448	100.0%	
Post-graduate	2	2.0%	30	30.6%	66	67.3%	98	100.0%	
Occupation									
Non-working (Retired-Housewife)	0	0.0%	26	43.3%	34	56.7%	60	100.0%	MC ^P :<0.001*:
Student	16	6.5%	152	61.3%	80	32.3%	248	100.0%	
Employee in governmental institution	6	4.6%	48	36.9%	76	58.5%	130	100.0%	
Employee in private institution	10	7.8%	68	53.1%	50	39.1%	128	100.0%	
Free work	6	8.1%	24	32.4%	44	59.5%	74	100.0%	
No. of family member									
1-2	0	0.0%	20	38.5%	32	61.5%	52	100.0%	MC ^P :0.007*
3-4	12	4.4%	132	48.5%	128	47.1%	272	100.0%	
5 and more	26	8.2%	166	52.5%	124	39.2%	316	100.0%	
Presence of children less than 13 years in the house									
No	18	5.8%	168	54.5%	122	39.6%	308	100.0%	MC ^P :0.049*
Yes	20	6.0%	150	45.2%	162	48.8%	332	100.0%	
Presence of elderly in the house									
No	20	4.7%	228	53.5%	178	41.8%	426	100.0%	MC ^P :0.010*
Yes	18	8.4%	90	42.1%	106	49.5%	214	100.0%	

MC^P: Monte Carlo test P value

*: Significant at P value ≤0.05

Table (7) The Correlation Matrix Between Total Awareness Percent Scores of The Studied Subjects and Their Preparedness, Precautionary Measures, Total Self-Quarantine Activities, and Total Practices Percent Scores Regarding COVID-19

	Total awareness percent scores		Total preparedness measures percent scores		Total precautionary measures percent scores		Total Self-Quarantine Activities percent scores		Total Practices percent scores	
	R	P	R	P	r	P	r	P	r	P
Total Awareness percent scores			.155**	.000	.178**	.000	-.038	.332	.142**	.000
Total preparedness measures percent scores	.155**	.000			.310**	.000	.198**	.000	.714**	.000
Total precautionary measures percent scores	.178**	.000	.310**	.000			.307**	.000	.759**	.000
Total Self-Quarantine Activities percent scores	-.038	.332	.198**	.000	.307**	.000			.679**	.000
Total Practices percent scores	.142**	.000	.714**	.000	.759**	.000	.679**	.000		

r: Pearson Correlation

P: P value of Pearson Correlation

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

NB: r<0.2: no correlation. r: 0.2-0.4: weak correlation. r: 0.4-0.6: A moderate correlation r: 0.6-0.8: A strong correlation. r> 0.8: A perfect correlation

Discussion

During epidemiological disasters specifically diseases pandemics, lack of awareness about the emerging disease leads to the spread of chaos and panic among people. During such incidents, dissemination of appropriate information can guide the communities through such events, and increase epidemic preparedness and response (Alahdal et al., 2020). Community awareness, attitude and practice have been studied in different previous epidemics proving that better awareness of these infections besides positive attitudes and practices denoted help to control the spread of the disease (Shilpa et al., 2014).

Globally, the COVID-19 pandemic has affected most countries in different ways significantly with three common, defining characteristics including the spreading speed and scale of the infection in which the disease

showed quick and explosive spread with the potential to overwhelm even the most resilient health systems. In addition, disease severity; that an estimated one fifth of the cases are severe, and the risk of disease severity increase in elderly and in those with certain underlying health conditions. The third criteria is the societal and economic disruption including shocks to health and social care systems, and the control measures taken with its socio-economic consequences (WHO, 2020).

Since the declaration of the COVID-19 pandemic, a global fight started against the disease that necessitates people's adherence to preventive and control measures, which is mostly affected by their knowledge and preparedness about the disease (Tripathi, et al., 2020). Communities' awareness and attitudes toward communicable diseases are usually affected by the level of panic among the population, that could impact the preventive

measures taken to avoid the spread of the disease. So, the current study aimed to assess the community awareness, preparedness, precautionary measures and self-quarantine activities related to COVID-19 pandemic in Egypt. Multiple sociodemographic aspects of the population were explored to gain insight onto the population's information and practices that could be used to guide designing a specific awareness campaign and to determine whether people's knowledge differed based on their assessed sociodemographic characteristics.

The present study revealed that awareness of Covid-19 among the majority of the study subjects is fair contradicting the results of previous studies in Riyadh and Al-Jouf that presented good awareness level about the disease among their populations (Alahdal et al., 2020; Tripathi, et al., 2020).

Despite of the majority of the current study subjects had good awareness score about disease definition, and about half the study subjects had good awareness score related to clinical manifestations and mode of transmission, surprisingly, only about one third of the study subjects had good awareness score related to preventive measure. This result came in accordance with Al-Jouf study (2020) that highlighted low awareness scores among its' subjects regarding preventive measure, and another study done in Saudi Arabia that presented about half of the study subjects did not have enough information or an intention to get more knowledge about Covid-19 (Tripathi et al., 2020). Moreover, the current study results depicted significant correlation between population awareness and their educational level and occupation, these results supported the results of previous study in Egypt, China, USA and Nepal (Abdelhafiz et al., 2020; Wolf et al., 2020; Singh et al., 2020 ; Zhong et al., 2020) In addition, awareness level was significantly associated with presence of elderly in the house, it might be a result of the extensive warning messages by the media highlighting the negative impact of Covid-19 infection on elderly.

Despite the total practice score of almost half the study subjects was fair, a significant positive correlation was observed in this study between subject's awareness level and practice specifically preparedness measures and self-Quarantine Activities, similar results were reported by study in Uganda, 2020 (Nooh et al, 2020; Olum et al., 2020).

Significantly, a positive association was noted between the study subjects' sex, age, place of residence, level of education, occupation, number of family members, presence of children less than 13 years and presence of elderly within the family and their total practices scores. It was observed that female subjects had better practice than males, and practice was improved with higher educational level, those results came in accordance with the findings of a previous US study (Alsan et al., 2020), but contradicting the findings of Riyadh study (Alahdal et al., 2020) This could be explained by the nature of females that make them more assertive about hygienic practices. Not surprised when observed that the least score of practice was among students, that might be related to their age group which might elevated their confidence level that they can survive the infection, and they do not want to give up their social life. Also, better practice was observed in smaller families and the practice score decreased with increased number of children, and with children age more than 13 years old who are less dependent on their parents.

Conclusion

Based on the findings of the current study, it can be concluded that, the total awareness score of the study subjects denoted that around two thirds of them were fairly aware and just one third of them have good awareness by the COVID-19. Slightly more than one third of the study subjects have good preparedness level to fight the disease. Around two fifths have good level of following the precautionary measures effectively. Furthermore, slightly more than half of them

carry out self-quarantine activities safely. Finally, around two fifths of them were follow safety practices with fair to good scores. It is clearly noted that there is a statistically significant association between the study subject's preparedness and self-quarantine activities and their total awareness scores. There is a statistically significant association noted between the study subjects' level of education, occupation, and presence of elderly within the family and their total awareness scores. Lastly, there is a statistically significant association noted between the study subjects' sex, age, place of residence, level of education, occupation, number of family members, presence of children less than 13 years and presence of elderly within the family and their total practices scores.

Recommendations

Based on the previous findings the following are recommendations are suggested:

1- A well-planned and structured educational program should be undertaken to improve the level of awareness and contribute to better practice toward COVID-19 prevention and control.

2- Conduct community awareness campaigns based on the pre assessment of community needs and problems related to COVID-19 and using the issued WHO and MOH guidelines.

3- Disseminate protocol for self-quarantine activities, precautionary measures during COVID-19 pandemic among the public to be ready to deal with the problem.

4- Using mass media to broadcast all relevant, culturally acceptable healthy messages regarding COVID-19 pandemic.

5- Future studies could investigate the correlation between the level of awareness with the study subject's health state.

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Conflict of Interest

The authors declared that they have no conflict of interest.

Author Contribution

All two authors were part of the initial design of the research. They shared in collected and analyzed the data, wrote, and edited the final version of the text of the manuscript and formatted it and submitted it for publication.

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