The Egyptian Journal of Hospital Medicine (July 2024) Vol. 96, Page 3293-3298

Assessment of the Awareness and Perception of Ismailia City Residents about COVID-19 Infection

Walaa Salman Abd-EL-Hameed, Hend Mikhail Salama Mikhail, Almass Fathi Hassan Taie, Reem Samy Awad Hassan*

Department of Family Medicine, Faculty of Medicine, Suez Canal University, Ismalia, Egypt.

***Corresponding author:** Reem Samy Awad Hassan, **Mobile:** reemsamy101@gmail.com, **Email:** +20 1152503610

ABSTRACT

Background: COVID-19, resulting from the SARS-CoV-2 virus, is a significant public health calamity posing significant medical, social, economic, and political challenges in recent decades. **Objectives**: To assess COVID-19 knowledge, attitude and preventive practices among Ismailia residents, in addition to estimate the occurrence of COVID -19 social stigmatization. **Participants and methods:** This analytic cross section research has been performed on 412 Ismailia residents; their age ≥ 18 years with access to the internet. An online self-explanatory questionnaire was distributed through WhatsApp groups and social media. This research has been performed between October 2022 and March 2023.

Results: About half of the sample had a fair level of knowledge regarding COVID-19. More than 72% of the sample had negative attitude regarding COVID-19. Almost all of the participants have poor preventive practices against COVID-19. Meanwhile, there was a low level of stigma among 68% of participants. It was found that good knowledge was significantly associated with female gender and higher socioeconomic status. Positive attitude was significantly associated with higher age and male gender. Participants with intermediate to good practice was significantly associated with female gender. High level of stigma was significantly related to male gender and low socioeconomic status**.**

Conclusion: Ismailia residents had a proper knowledge of COVID-19 infection but had a negative attitude and poor preventive practices against it. Stigma was mild in more than two thirds of participants.

Keywords: Attitude, COVID-19, Knowledge, Perception, Practice, Stigma.

INTRODUCTION

COVID-19, resulting from the SARS-CoV-2 virus, is a significant public health calamity in the past decade and has presented significant medical, social, economic, and political difficulties [1,2]. The primary outbreak of pneumonia was because of the new corona virus, then a huge spread has happened in the country and worldwide due to the massive rise in numerous infected persons [3,4].

So, to limit the virus' spread, efforts are directing towards preventive measures as: social distancing, raising awareness, encouraging hygienic practices in common daily routines, and sanitary lockdown. Additionally, this pandemic has had a psychological impact on individuals, as evidenced by symptoms of depression, sadness, and anxiety [5,6]. Stigma is a result of the human fear that results from the anxiety surrounding a disease with an unknown cause, that has the potential to impact both individuals and society through outbreaks. In numerous countries, the rapid global rise in the number of individuals infected with the COVID-19 virus has caused public fear and concern [7,8].

A few people harbored negative attitudes and beliefs toward suspected or infected individuals, as they believed that they were risk factors for COVID-19 disease. A lack of understanding regarding the new corona virus illness, its mode of transmission, efficient therapies, and preventive strategies might result in a rise in negative stigma or discriminatory behaviors [9,10].

The aim of this work was to reduce COVID-19 morbidity and mortality through increasing the public's awareness and perception through assessing COVID-19 knowledge, attitude and preventive practices among Ismailia residents, also to estimate the occurrence of COVID -19 social stigmatization.

PARTICIPANTS AND METHODS

This analytic cross section study was conducted on 412 Ismailia residents; their age ≥ eighteen years with access to internet, who were willing to participate in the study. Those with severe physical, mental or visual impairment were excluded.

Sample size was calculated twice. The first calculation was according to prevalence of awareness about COVID19 (58%), based on one proportion equation = 374 [11].

The second calculation was according to prevalence of persons having stigma to persons having COVID-19 (64%), depended on one proportion equation = 354 [12].

The largest sample size was obtained from calculation based on of awareness about COVID19, so it was taken.

Sample size was evaluated regarding the following formula [13]:

$$n = \left[\frac{Z_{\alpha/2}}{E}\right]^2 * P(1-P)$$

n= sample size

$\mathbf{Z}_{\alpha/2}$ = 1.96

P = the prevalence of individuals having moderate level of awareness about COVID-19=58% [11]

E = the margin of error= 5%

Received:18/3/2024
Accepted:15/5/2024

So, sample size was 374 participants with 10% drop-out, the total sample size was 412 participants.

Tools: an online self-explanatory questionnaire was distributed through WhatsApp groups and social media. This research has been performed between October 2022 and March 2023. The tool was created using Google Forms and disseminated on a variety of social media platforms. It was divided into the following categories:

First, eight socio-demographic questions covered socio-demographic characteristics.

Second, El-Gilany score was used to measure socioeconomic dimension [14]**.** Total score: Out of 84. This score is composed of seven domains. Socioeconomic status: to be categorized as high, middle, low, and very low based on the quartiles of the calculated score. The following are the four categories: High (66-84), Middle (44-65), Low (22-43), and Very Low (1-21).

Third, Almoayad's KAP questionnaire, which is composed of three sections [15]. First section**:** twelve questions related to COVID-19 knowledge. Second section**:** Seven questions concerning attitudes towards COVID-19. Third section**:** Seven questions concerning the practice of protective behaviors against COVID-19.

Finally, Almoayad's stigma questionnaire**:** seven questions concerning public attitudes towards stigma [16]**.**

The reliability of the Arabic version instrument has been tested utilizing Cronbach Alpha and the values were 0.6, 0.63 and 0.67 for the knowledge, attitude and practice sections respectively [10]. While the stigma R-value was above 0.4 and Cronbach Alpha was 0.73 indicating good reliability of the instrument, it is acceptable internal consistency [16]**.**

Ethical considerations:

All the procedures of the research were approved by the Family Medicine Department and the Investigation Ethics Committee of Faculty of Medicine, Suez Canal University. A written informed consent was taken from each participant. The purpose of this study was to perform research on humans in compliance with the Declaration of Helsinki, the code of ethics of the World Medical Association. The researcher's phone number and communication methods were provided.

Data management and statistical analysis:

Statistical analysis has been performed using SPSS 25 program. Qualitative data was presented by number and percentage; quantitative data was presented by mean, standard deviation. Tests of significant was done (chi square for qualitative, ANOVA test and Kruskal Wallis test for quantitative Parametric and non-parametric respectively) and level of significance was set at p equal to or below 0.05.

RESULTS

The average age of the subjects was 34.18 ± 11.615 years with range between 18 to 65 years. Females represented 65% of the participants whereas males formed 35%. More than one half of the subjects' level of education was a university or postgraduate degree. The majority of the participants (68%) get their source of information from the Ministry of Health reports about COVID-19 infection. The moderate socioeconomic status was occupied by approximately two-thirds of the participants (66.7%).

About half of the sample had a fair level of knowledge regarding COVID-19. More than 72% of the sample had negative attitude regarding COVID-19. Almost all of the participants have poor preventive practice against COVID-19. Meanwhile, there was low level of stigma among (68%) of participants as shown in table (1).

Table (1): Descriptive statistics of knowledge, attitude, practices, and stigma among the examined sample (n=412)

Variables	**N=412**
Knowledge domain, **mean** ± **standard deviation**	16.88±3.504
Poor Knowledge, n (%)	52 (12.6)
Fair Knowledge, n (%)	216 (52.4)
Good Knowledge, n (%)	144 (35)
Attitude domain, **mean** ± **SD**	24.15±5.326
Negative attitude, n (%)	298 (72.3)
Neutral attitude, n (%)	72 (17.5)
Positive attitude, n (%)	42 (10.2)
Practice domain, mean ± **SD**	25.97±3.645
Poor practice, n (%)	404 (98.1)
Fair practice, n (%)	8 (1.9)
Good practice, n (%)	0 (0)
Stigma domain, mean ± **SD**	16.52± 3.916
Low stigma, n (%)	280 (68)
Intermediate stigma, n (%)	122 (29.6)
High stigma, n (%)	10 (2.4)

Good knowledge was significantly related to female gender, **Chronic illness** and greater socioeconomic status (Table 2).

Table (2): Relation between knowledge domain and socio-demographic data of the examined population

Variables	Knowledge domain			P-value
	Poor (n= 52)	Fair (n=216)	Good (n=144)	
Age, mean± SD	35.08±12.146	34.51±11.763	33.35±11.223	0.542[a]
Gender, n (%)				
Male	26 (50)	82 (38)	36 (25)	**0.002*[b]**
Female	26 (50)	134 (62)	108 (75)	
Chronic illness, n (%)				
Absent	40 (76.9)	194 (89.8)	124 (86.1)	0.044*[b]
Present	12 (23.1)	22 (10.2)	20 (13.9)	
Previous COVID infection, n (%)				
Absent	38 (73.1)	122 (56.5)	80 (55.6)	0.067[b]
Present	14 (26.9)	94 (43.5)	64 (44.4)	
SES, n (%)				
Low	14 (26.9)	42 (19.4)	14 (9.7)	
Moderate	38 (73.1)	144 (66.7)	94 (65.3)	**<0.001*[b]**
High	0 (0)	30 (13.9)	36 (25)	
Source of information, n (%)				
Ministry of health	42 (80.8)	144 (66.7)	94 (65.3)	
Social media	10 (19.2)	67 (31)	46 (31.9)	0.275[b]
WHO	0 (0)	5 (2.3)	4 (2.8)	

[a]p-values are based on Kruskal Wallis test, [b]p-values are based on chi-square test. SES: socioeconomic status

Participants with positive attitude were significantly related to higher male gender and age. Also, there was a significant association among Ministry of Health as a source of information and positive attitude (Table 3).

Table (3): Correlation among attitude domain and socio-demographic data of the subjects (n=412)

Variables	Attitude domain			P-value
	Negative (n= 298)	Fair (n=72)	Positive (n=42)	
Age, mean± SD	32.00±11.33	36.08±11.67	39.19±11.98	**0.022*[a]** p1=0.019 p2=0.005 p3=0.342
Gender, n (%)				
Male	86 (28.9)	34 (47.2)	24 (57.1)	**<0.001*[b]**
Female	212 (71.1)	38 (52.8)	18 (42.9)	
Chronic illness, n (%)				
Absent	260 (87.2)	62 (86.1)	36 (85.7)	0.940[b]
Present	38 (12.8)	10 (13.9)	6 (14.3)	
Previous COVID infection, n (%)				
Absent	176 (59.1)	40 (55.6)	24 (57.1)	0.854[b]
Present	122 (40.9)	32 (44.4)	18 (42.9)	
SES, n (%)				
Low	54 (18.1)	12 (16.7)	4 (9.5)	
Moderate	188 (63.1)	54 (75)	34 (81)	0.052[b]
High	56 (18.8)	6 (8.3)	4 (9.5)	
Source of information, n (%)				
Ministry of health	210 (70.5)	38 (52.8)	32 (76.2)	**0.004*[c]**
Social media	81 (27.2)	34 (47.2)	8 (19)	
WHO	7 (2.3)	0 (0)	2 (4.8)	

[a]p-values are based on Kruskal Wallis test, [b]p-values are based on chi-square test, [c] p-values are based on Fisher exact test. P1: Group 1 vs Group 2 p2: Group 1 vs Group 3 p3: Group 2 vs Group 3.

Participants with intermediate to good practice was significantly related to female gender (Table 4).

Table (4): Association among practice domain and socio-demographic data of the examined sample

Variables	Practice domain		P-value
	Poor (n= 404)	Intermediate/ good (n=8)	
Age, mean± SD	34.29±11.66	28.50±6.61	0.163[a]
Gender, n (%)			
Male	144 (35.6)	0 (0)	**0. 0.03*** [c]
Female	260 (64.4)	8 (100)	
Chronic illness, n (%)			
Absent	350 (86.6)	8 (100)	0.604 [c]
Present	54 (13.4)	0 (0)	
Previous COVID infection, n (%)			
Absent	236 (58.4)	4 (50)	0.633 [b]
Present	168 (41.6)	4 (50)	
SES, n (%)			
Low	70 (17.3)	0 (0)	
Moderate	268 (66.3)	8 (100)	0.134 [c]
High	66 (16.3)	0 (0)	
Source of information, n (%)			
Ministry of health	272 (67.3)	8 (100)	
Social media	123 (30.4)	0 (0)	0.146[c]
WHO	9 (2.2)	0 (0)	

[a]p-values are based on Kruskal Wallis test, [b]p-values are based on chi-square test, [c] p-values are based on Fisher exact test.

High level of stigma was significantly associated with male gender and low socioeconomic status (Table 5).

Table (5): Association between level of stigma domain and socio-demographic data of the subjects

Variables	level of stigma domain			P-value
	Low (n= 280)	Intermediate (n=122)	High (n=10)	
Age, mean± SD	33.50±11.202	35.97±12.228	31.20±13.815	0.105[a]
Gender, n (%)				
Male	88 (31.4)	50 (41)	6 (60)	**0.044*** [b]
Female	192 (68.6)	72 (59)	4 (40)	
Chronic illness, n (%)				
Absent	250 (89.3)	100 (82)	8 (80)	0.929[b]
Present	30 (10.7)	22 (18)	2 (20)	
Previous COVID infection, n (%)				
Absent	154 (55)	80 (65.6)	6 (60)	0.141[c]
Present	126 (45)	42 (34.4)	4 (40)	
SES, n (%)				
Low	38 (13.6)	26 (21.3)	6 (60)	**<0.001*** [b]
Moderate	194 (69.3)	80 (65.6)	2 (20)	
High	48 (17.1)	16 (13.1)	2 (20)	
Source of information, n (%)				
Ministry of health	192 (68.6)	80 (65.6)	8 (80)	
Social media	82 (29.3)	39 (32)	2 (20)	0.889 [c]
WHO	6 (2.1)	3 (2.5)	0 (0)	

[a]p-values are based on Kruskal Wallis test, [b]p-values are based on chi-square test, [c] p-values are based on Fisher exact test.

DISCUSSION

The average age of the subjects was 34.18 ± 11.615 years varying between 18 and 65 years. Females represented 65% of the participants whereas male formed 35%. The majority of the participants get their source of information from the Ministry of Health reports (68%).

In general, half of the sample had a fair level of knowledge regarding COVID-19. More than 72% of the sample had negative attitude regarding COVID-19. Almost all of the participants had poor preventive practice against COVID-19. Meanwhile, there was low level of stigma among (68%) of participants.

Alahdal *et al*., in a Saudi study revealed that 58% of participants had moderate awareness, 95% had high attitude and 81% had adequate practice according to COVID-19 **(11).** This difference may be caused by the large sample size of their study (1767 participants) that represents the population better, also, the higher socioeconomic level and luxurious life of Riyadh residents. This also explains the divergence with **Almoayad *et al*.** study, as 77% of participants had good knowledge, 27% had negative attitude and 36% had poor practices (15).

This study revealed that good knowledge was significantly related to female gender (p=0.002) and greater socioeconomic status (p<0.001)**.**

Zhong *et al*. study found that high socioeconomic status in a particular woman related to having good knowledge about COVID-19 **(17).**

Participants with positive attitude had significantly greater age comparing with those with negative attitude (p=0.022). Moreover, positive attitude was significantly related to male gender (p<0.002).

The COVID-19 epidemic has resulted in a higher prevalence of poor knowledge, negative attitudes, and improper preventive practices among vulnerable populations of Chinese society, including older adults and rural individuals at the grassroots level, as a result of restricted access to online health information resources and the internet, as discovered by **Zhong *et al*. (17).**

There was a significant relationship between Ministry of Health as a source of information and positive attitude.

Similarly, **Almoayad *et al*. (15)** obtained the same finding. This indicates the importance and the deep impact of this source in general population.

The results found that having intermediate to good practice was significantly related to female gender (p=0.002), which is the same finding in **Almoayad *et al*. (15)**.

Current study showed that there was low level of stigma within (68%) of subjects and intermediate level among (29.6%) while high level only among (2.4%), high level of stigma was associated with male participants (p=0.044) and low socioeconomic status (p=0.001).

Almoayad *et al*. (16) revealed that low stigma has been detected within thirty percent of the participants, intermediate level in 49%, and high stigma level within twenty-one percent of the study sample. Also, they found that stigmatization was greater within subjects with lower education levels compared to those with greater education levels (35% Vs. 18% respectively)**.** The difference between them and the current study may be due to the timing as their study was performed in May 2020; early during the pandemic, while this study questionnaire was put on social media platforms in October 2022.

CONCLUSION

Ismailia residents had a proper knowledge of COVID-19 but had a negative attitude and poor preventive practices, potentially affecting future pandemics. Knowledge was associated with female gender and higher socioeconomic status. Most participants depended on MOH reports as a source of information. Stigma related to COVID-19 infection was mild from the Egyptian perspective as mild stigma was present in 68% of the participants.

DECLARATIONS

- **Funding:** No fund
- **Availability of data and material:** Available
- **Conflicts of interest:** No conflicts of interest.
- **Competing interests:** None

REFERENCES

1. **Wang M, Flessa S (2020):** Modelling Covid-19 under uncertainty: what can we expect? The European Journal of Health Economics, 21(5):665-8.
2. **Acter T, Uddin N, Das J *et al* (2020).** Evolution of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as coronavirus disease 2019 (COVID-19) pandemic: A global health emergency. *Science of the Total Environment*, *730*: 138996.
3. **Guan W, Ni Z, Hu Y *et al.* (2020):** Clinical characteristics of coronavirus disease 2019 in China. New England journal of medicine, 382(18):1708-20.
4. **Fu L, Wang B, Yuan T*et al*. (2020).** Clinical characteristics of coronavirus disease 2019 (COVID-19) in China: a systematic review and meta-analysis. *Journal of Infection*, *80*(6): 656-665.
5. **Serafini G, Parmigiani B, Amerio A *et al.* (2020):** The psychological impact of COVID-19 on the mental health in the general population. QJM., 113(8):531–7.
6. **Cullen W, Gulati G, Kelly B (2020).** Mental health in the COVID-19 pandemic. *QJM: An International Journal of Medicine*, *113*(5): 311-312.
7. **Lin C (2020):** Social reaction toward the 2019 novel coronavirus (COVID-19). Asian Journal of Social Health and Behavior, 3(1):1-2.

8. **Pereira L, Pereira C, Murata R *et al.* (2020).** Biological and social aspects of Coronavirus Disease 2019 (COVID-19) related to oral health. *Brazilian Oral Research*, *34*: e041.
9. **Duan W, Bu H, Chen Z (2020):** COVID-19-related stigma profiles and risk factors among people who are at high risk of contagion. Social Science & Medicine, 266:113425. doi: 10.1016/j.socscimed.2020.113425.
10. **Bisenius S, Treml J, Hanschmidt F, Kersting A (2023).** Stigmatization profiles and psychological distress in people at high risk of infection with COVID-19–A study conducted in Germany from March to August 2021. *Plos one*, *18*(5): e0285788.
11. **Alahdal H, Basingab F, Alotaibi R (2020)**: An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. Journal of infection and public health, 13(10):1446-52.
12. **Abuhammad S, Alzoubi K, Khabour O (2021):** Fear of COVID-19 and stigmatization towards infected people among Jordanian people. International Journal of Clinical Practice, 75(4): e13899. doi: 10.1111/ijcp.13899.
13. **Dawson B, Trapp R (2020):** Research Questions About Relationships Among Variables." Basic & Clinical Biostatistics, 5e Ed. Susan E. White. McGraw-Hill Education. https://accesspharmacy.mhmedical.com/content.aspx?bookid=2724&sectionid=227194929.
14. **El-Gilany A, El-Wehady A, El-Wasify M (2012):** Updating and validation of the socioeconomic status scale for health research in Egypt. Eastern Mediterranean health journal, 18(9):962-8.
15. **Almoayad F, Bin-Amer L, Mahboub S *et al*. (2021):** Preventive practices against COVID-19 among residents of Riyadh, Saudi Arabia. The Journal of Infection in Developing Countries, 15(06):780-6.
16. **Almoayad F, Mahboub S, Amer L *et al*. (2021):** Stigmatisation of COVID-19 in Riyadh, Saudi Arabia: a cross-sectional study. Sultan Qaboos University Medical Journal, 21(4): 525–531.
17. **Zhong B, Luo W, Li H *et al*. (2020):** Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. International journal of biological sciences, 16(10): 1745–1752.