

# Knowledge, attitude and practices (KAP) of rural population about COVID-19: a community-based study in Talkha District, Egypt

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**Abstract:** The World Health Organization declared COVID-19 as a worldwide pandemic. Knowledge, attitude, and practice (KAP) affect people's adherence to COVID-19 mitigation measures.

**Objectives:** this study aims to assess the KAP of rural population towards COVID-19.

**Methods:** A cross - sectional descriptive study was done on 784 persons from three villages in Talkha district, Egypt.

**Results:** The mean knowledge score was 12.8 (2.6); out of 17, Internet/social media (92.3%), and mass media (78.4%) are the main sources of knowledge. Good knowledge, positive attitude and good practices were reported by 62.8%; 48.9% and 58.8% of participants; respectively. Good knowledge was significantly higher among more educated and employed, housewives and students. More than three quarters of the participants considered COVID-19 as a fatal disease, and half of them considered that antibiotics are the treatment of choice. The majority of participants follow some preventive measures as hand washing, stay at home and are careful not to shake hands with others (96.7%, 88.6% and 87%; respectively). On the other hand more than half of them did not wear a mask when leaving homes.

**Conclusions:** Participants had a sufficient knowledge about COVID-19 and adequate practices towards its protective measures, but they had a negative attitude towards it. There is a need for targeted health education directed to vulnerable groups such as younger ages, men and low educated to increase public understating of the disease.

**Keywords:** COVID-19, Knowledge, Attitude, Practice, Talkha district.

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## 1. INTRODUCTION

COVID19 is an emerging respiratory infection caused by a novel coronavirus and was first described China [1]. Most of cases experience only mild illness however; it can cause severe fatal illness in some people. The elderly and people with chronic medical conditions (e.g. hypertension, cardiac diseases and diabetes) are more vulnerable [2].

Under-reporting is common in developing countries with inefficient healthcare systems [3]. Egypt's Ministry of Health, announced the first case in the country on 14 February 2020. Preventive measures were undertaken to monitor contacts of this case [4]. In late June there were 53,758 confirmed cases reported in Egypt [5].

Up till now, there are no effective treatments or vaccines against COVID-19, so the effective control measures include rigorous hand washing using water and soap or alcohol-based rinses, cough etiquette, and wearing facemasks [6]. Additionally, remaining at home, avoiding overcrowding, physical distancing, avoiding touching the nose, mouth or eye with unclean hands and regulation of international travel to and from endemic areas [7].

Awareness of the public about this new respiratory infection is vital for limiting its spread [8]. Adherence to preventive measures is influenced by their knowledge and attitude toward COVID-19[9]. Assessing awareness and knowledge about the disease provides an insight into the prevailing perceptions and practices and help to identify factors influencing adoption of healthy practices and behavior [10]. It also helps in identifying strength and weakness of the current prevention measures. This study aims to assess the knowledge, attitude and practice (KAP) of rural population in Talkha district towards COVID-19 during the epidemic.

## 2. SUBJECTS AND METHODS

### 2.1. Research Design:

This is a cross-sectional descriptive study with an analytic component.

### 2.2. Study Setting:

This study was carried out in three villages from Talkha district, Egypt, during May and June 2020. The total sample was distributed proportionally between the three villages according the total number of adult residents; 91, 521 and 173 form Orman, Met-Elkorama and Dar-Esalam villages; respectively. In each village a systematic random sample of houses (every fourth) was selected. From each house the adult subject who opened the door or replied to interviewer was included (that is one adult subject from each house).

### 2.3. Sample size:

Medcalc 15.8 program (<https://www.medcalc.org/>) [11] was used for sample size calculation. The primary outcome of interest is the per cent of population with good knowledge about COVID-19. A pilot study on 50 subjects revealed that 54% had good knowledge (more than the mean score); with alpha error of 5% and 5% precision then the sample size is 784 persons.

### 2.4. Tools for Data Collection:

The authors developed self-reported Arabic questionnaire was according to guidelines of the Centers for Disease Control and Prevention (CDC) [12]. An interview completed questionnaire was used to collect the sociodemographic data, the source of information about coronavirus, as well as KAP of participants regarding COVID-19 as the following:

- The demographic data of the study participants; including age, sex, occupation, marital status, and education, and the sources of knowledge which the participants received about COVID-19 including health team, the media, Internet and social media, family and relatives.
- Participants' knowledge of COVID-19 was assessed using 17 items scale covering methods of transmission, symptoms, treatment, risk groups, prevention and control, using "Yes", "No", and "Do not know" response. Questions were given one point for correct response and zero point for incorrect answers or do not know answer. The maximum score was 17.
- Participants' attitude towards COVID-19 was positive and negative attitude were coded as 1 and 0; respectively. The total scores ranged from 0 to 5, with high scores indicating positive attitudes.
- Participants' practices were assessed using 7 questions related to practices and behavior towards COVID-19. Respondents were asked to respond "yes" or "no" to each item with a score of one or zero; respectively. The total score ranged from 0 to 7, with a high score indicating better practice.
- The mean score was used to define the cut-off points of each scale. The content validity of the three scales was tested by a jury of 10 experts in Public health and community health nursing. The content validity index per item ranged from 70% to 100%.

**2.5. Ethical considerations:**

The study proposal was approved by the Research Ethics Committee, Faculty of Nursing –Port Said University. Also, an ethical approval was obtained from the participants before answering the survey.

**2.6. Data Analysis:**

Data were analyzed using SPSS program version 23. Categorical variables were presented as number and percent. Chi-square was used to test for significance difference between groups.

Crude odds ratio (COR) and their 95% confidence intervals (95%CI) were calculated. Factors significantly associated with KAP were entered into a multivariate logistic regression model using Wald stepwise forward method. Adjusted OR (AOR) and their 95% CI were calculated.

P≤0.05 was considered statistically significant.

**3. RESULTS**

Table (1) shows the correct answers of knowledge related to COVID-19, the majority of the study sample have sufficient knowledge about isolation period for the infected person, the preventive measures which may prevent infection (as avoid crowded places), and mode of transmission COVID-19 ( 96%, 95.2% and 95% ) ; respectively. More than three quarters of the participants thought that the disease is dangerous and fatal, and half of them considered that antibiotics are the first line treatment for this disease. Nearly all the participants (99.6%) are worried about the infection of their family members, more than two third of them (68.4%) are influenced by negative news about COVID-19, and more than three quarters of the participants considered that the disease caused embarrassment or insult for the person and his relatives. The majority of participants follow some preventive measures as hand washing, stay at home and do not leave it unless absolutely necessary, and be careful not to shake hands with others (96.7%, 88.6%, and 87%) respectively. On the other hand more than half of them did not wear a mask when leaving home.

**Table (2)** shows that two-thirds of the study sample have good knowledge related to COVID-19 (62.8%), 65.3% of them were females, and 69.2% were highly educated. The main sources of information about COVID-19 are internet/social media (92.3%), mass media (78.4%), health care workers (64.3%) and family/friends (51.4%) (Data not shown in tables).

**Table 3** shows that good knowledge is associated with higher likelihood of positive attitude between with COR of 1.8. Also **table (4)** shows high education, being single and positive attitude are independent predictors of good practice (AOR=2.4, 0.6 and 1.7; respectively).

**Table 1: Number and percent of study population with correct knowledge, positive attitude and practices related to COVID-19.**

Item	N (%)
<b>Knowledge: (correct answers)</b>	
1- The main symptoms of COVID-19 are fatigue, fever, dry cough and myalgia. (T)	611 (77.9)
2- Runny nose, stuffy nose and sneezing are not common in subjects infected with the COVID-19 virus. (T)	509 (64.9)
3- Currently is no effective treatment for COVID-2019, but early supportive and symptomatic treatment help patients recover from the disease. (T)	685 (87.4)
4- Some patients with COVID-2019 will develop to severe cases such as elderly, those with chronic diseases and the obese. (T)	655 (83.5)
5- The infection by the COVID-19 virus could result from contact with wild animal. (F)	471 (60.1)
6- Patients of COVID-2019 cannot transmit the infection to others in absence fever. (F)	516 (65.8)
7- The COVID-19 virus is transmitted by respiratory droplets of infected people. (T)	717 (91.5)
8- The general public can wear medical facemasks to prevent the infection by the virus. (T)	585 (74.6)
9-. Children and young adults cannot catch infection by the virus. (F)	683 (87.1)
10- To prevent the infection by the virus, people should avoid crowded places such as train stations and public transportations.(T)	746 (95.2)

11- The effective way to reduce spread of the virus is to isolate and treat the infected. (T)	745 (95.0)
12- Contacts of a person infected with the COVID-19 virus should be isolated in for an observation period of 14 days.(T)	753 (96.0)
13- Hand washing with soap and water help in prevention of transmission of the virus.(T)	737 (94.0)
14- People with chronic diseases such as diabetes, hypertension and cancer are more likely to catch infection.(T)	684 (87.2)
15-Antibiotics is the first line treatment for this disease. (F)	440 (56.1)
16-Healthcare providers are at a higher risk of catching infection (T)	733 (93.5)
17-COVID-19 is a fatal disease (F)	165 (21.0)
<b>Attitude: (response)</b>	
1- Do you believe that COVID-19 will be successfully controlled?	531 (67.7)
2- Are you influenced by negative news about COVID-19?	536 (68.4)
3- Do you think that the disease causes embarrassment or insult to the infected person or his relatives?	176 (22.4)
4-Are you worried that a family member may catch infection?	781 (99.6)
5-I have no objection to caring for a patient with corona while taking the necessary precautions.	497 (63.4)
<b>Practices: (response)</b>	
1- You gone to crowded places during the past few days (Wrong)	546 (69.6)
2- Commit to stay at home and do not leave it unless absolutely necessary (Correct)	695 (88.6)
3- You worn facemasks when leaving home in past few days (Correct)	371 (47.3)
4-Eat vegetables and fruits continuously (Correct)	679 (86.6)
5-Wash my hands frequently with soap and water (Correct)	758 (96.7)
6- Be careful not to shake hands with others (Correct)	682 (87.0)
7- Leave a sufficient distance (not less than two meters) between me and my co-workers and public places (Correct)	606 (77.3)

**Table 2: Univariate and logistic regression analysis of factors associated with good knowledge.**

	Total	Good knowledge	COR(95%CI)	AOR(95%CI)
Overall	784	492(62.8)		
Age: less than 30 years	373	226(60.6)	1(r)	
30 &more	411	266(64.7)	1.2(0.9-1.6)	
Sex: Male	259	149(57.5)	1(r)	
Female	525	343(65.3)	1.4(1.03-1.9)*	
Education: <2ry	62	27(43.5)	1(r)	1(r)
2ry	205	107(52.2)	1.4(0.8-2.5)	1.3(0.7-2.4)
>2ry	517	358(69.2)	2.9(1.7-5.0)***	2.8(1.6-4.9)***
Marital status: Married	530	350(66.0)	1(r)	
Single	215	124(57.7)	0.7(0.5-1.0)	
Others	39	18(46.2)	0.4(0.2-0.9)**	
Occupation: Farmers/manual workers	175	85(48.6)	1(r)	1(r)
Employee	283	200(70.7)	4.8(3.4-6.9)***	2.5(1.7-3.7)***
Housewife	168	118(70.2)	4.7(3.1-7.2)***	2.7(1.7-4.2)***
Students	158	89(56.3)	2.6(1.7-3.9)**	1.3(0.8-2.1)

\*,\*\*&\*\*\* Significant difference at P≤0.05, 0.01 & 0.001; respectively

COR=crude odds ratio, AOR=Adjusted odds ratio, CI=Confidence interval

**Table 3: Univariate analysis of factors associated with positive attitude.**

	Total	Positive attitude	COR(95%CI)
Overall	784	383(48.9)	
Age: less than 30 years	373	176(47.7)	1(r)
30 &more	411	207(50.9)	1.1(0.9-1.5)
Sex: Male	259	125(48.3)	1(r)
Female	525	258(49.1)	1.0(0.8-1.4)
Education: <2ry	62	29(46.8)	1(r)
2ry	205	104(50.7)	1.2(0.7-2.1)
>2ry	517	250(48.4)	1.1(0.6-1.8)
Marital status: Married	530	264(49.8)	1(r)
Single	215	104(48.4)	0.9(0.7-1.3)
Others	39	15(38.5)	0.6(0.3-1.2)
Occupation: Farmers/manual workers	175	82(46.9)	1(r)
Employee	283	140(49.5)	1.1(0.8-1.6)
Housewife	168	89(53.0)	1.3(0.8-2.0)
Students	158	72(45.6)	0.9(0.61.5-)
Knowledge: Poor	292	115(39.4)	1(r)
Good	492	268(54.5)	1.8(1.4-2.5) ***

\*\*\* Significant difference at P≤0.001

COR=crude odds ratio, AOR=Adjusted odds ratio, CI=Confidence interval

N.B. Multivariate logistic regression was not done as there is only one significant association (good knowledge).

**Table 4: Univariate and logistic regression analysis of factors associated with good practice.**

	Total	Good practice	COR(95%CI)	AOR(95%CI)
Overall	784	461(58.8)		
Age: less than 30 years	373	221(59.2)	1(r)	
30 &more	411	240(58.4)	0.97(0.7-1.3)	
Sex: Male	259	152(58.7)	1(r)	
Female	525	309(58.9)	1.0(0.7-1.4)	
Education: <2ry	62	26(41.9)	1(r)	1(r)
2ry	205	112(54.6)	1.7(1.01-3.0)*	1.7(0.9-3.0)
>2ry	517	323(62.5)	2.3(1.4-3.9)**	2.4(1.4-4.1)**
Marital status: Married	530	328(61.9)	1(r)	1(r)
Single	215	111(51.6)	0.7(0.5-0.9)**	0.6(0.5-0.9)**
Others	39	22(56.4)	0.8(0.4-1.5)	0.8(0.4-1.4)
Occupation: Farmers/manual workers	175	107(61.1)	1(r)	
Employee	283	161(56.9)	0.8(0.6-1.2)	
Housewife	168	106(63.1)	1.1(0.7-1.7)	
Students	158	87(55.1)	0.8(0.5-1.2)	
Knowledge: Poor	292	159(54.5)	1(r)	
Good	492	302(61.4)	1.3(1.0-1.8)	
Attitude: Negative	401	211(52.6)	1(r)	1(r)
Positive	383	250(65.3)	1.7(1.3-2.3)***	1.7(1.2-2.3)***

\*,\*\* &\*\*\* Significant difference at P≤0.05, 0.01 & 0.001; respectively

COR=crude odds ratio, AOR=Adjusted odds ratio, CI=Confidence interval

#### 4. DISCUSSION

COVID-19 is an emerging infection with a significant impendence to public health [13]. Preventive measures are essential for reducing infection and controlling its spread. Adherence of public to preventive and control measures is affected by their KAP towards the infection and the disease.

In general, participants of this study had good general knowledge about the disease, the isolation period for the infected person, the preventive measures which may prevent infection, and mode of transmission of COVID-19. This is consistent with the results of an Egyptian study [14]. This result may be due to the characteristics of the sample, as 69.2% were highly educated, and because of the serious situation of the epidemic this population would actively search for knowledge of this infectious disease. It may also be due to this survey was conducted during the COVID-19 pandemic. In that time, people may have gained awareness and knowledge through the national mass media health education campaign, Also the widespread use social media could contributed to this good knowledge. The positive association found between knowledge and participants' education supports this possible interpretation.

More than three quarters (79%) of the participants considered that COVID-19 as a dangerous and fatal disease, although the reported case fatality rate (CFR) of this virus is lower than that of MERS and SARS. According to the WHO, above 80% of patients with COVID-19 have a "mild disease and will recover because its reported fatality is 2% [15]. This finding agrees with the results of an Indian study, in which more than half of the participants (51.9%) strongly agreed that COVID-19 is a fatal condition [16]. However, a finding of concern is that the majority of participants (92.3%) derived their knowledge about COVID-19 from internet/social media, 78.4% from mass media, and only 64.3% asked health care workers. Unverified information or misinformation, can spread quickly and misguide population. Health authorities and scientists have warned that widespread misinformation about COVID-19 is a serious concern causing corono-phobia worldwide [17].

Currently there is no effective treatment or vaccine against COVID-19 [18]. However, half of the participants considered that antibiotics are the first line treatment for this disease. A greater attention should be given to mass media, to improve public knowledge on the COVID pandemic, through awareness-raising programs to avoid the spread of rumors.

Significant independent predictors of good knowledge in this study are age, sex and education. This finding is supported by previous studies that have found that these characteristics of the respondents are more knowledgeable about emerging infectious diseases [19, 20]. This finding suggests that more efforts should be done, to target young, low-educated men to improve their knowledge about COVID-19.

In this study, about half of participants showed a negative general attitude toward COVID-19. This finding is in contrast with a recent study conducted in Saudi Arabia, which participants showed a positive optimistic attitude toward COVID-19 [21]. Nearly all the participants (99.6%) are worried about the infection of themselves, and their family members. Also a significant number of participants (85.0%) in the Indian study were afraid of getting infected themselves or infecting those who are vulnerable/ high-risk groups or infecting family/friends [16]. So the need of psychological support, and more information about the disease also become the need of hour as reflected in other studies [22,23].

On the other hand, more than two-thirds of the participants (68.4%) are influenced by negative news about COVID-19, and more than three quarters of them considered that the disease caused embarrassment or insult for the person and his relatives. This may be due to the effectiveness of the message in the different media platforms (Facebook, twitter, Instagram, and others) which may spread misinformation about COVID-19. Also the stigma of COVID-19 does not involve these negative feelings towards patients. Stigma towards COVID-19 is due to the fear of its fatality and a relatively rapid spread.

The study shows that the good knowledge translates into good practices during the COVID-19 outbreak. The majorities of participants follow some preventive measures as hand washing, stay at home and do not leave it unless absolutely necessary, and be careful not to shake hands with others. This is consistent with the results of recent studies in Bangladeshi, and china, which almost all participants wash their hands frequently, avoided crowded places, and avoided shaking hands [24, 25].

On the other hand more than half of the participants did not wear a facemask when leaving home. This finding is contrast with the Chinese study as the majority wears facemasks during going out [25]. Recently, the CDC recommended wearing cloth face coverings for the public, especially in localities with community transmission [26]. On the other hand, WHO recommends using facemasks only in presence of respiratory symptoms or caring for person with symptoms [27].

## 5. CONCLUSIONS AND RECOMMENDATIONS

In general, educated rural population of this study had good knowledge about COVID-19, and a appropriate practices towards using protective measures, which is important to limit the spread of the disease. This knowledge is mainly acquired through social media, which has its own pros and cons. However, knowledge was lower among young people, men, and less educated. This may necessitate targeting these groups for health education to raise their awareness, improve their practices and develop a positive attitude toward any pandemic disease.

### Limitations of the Study

This is a small-scale study in rural areas of a single district and its results are not necessarily applicable to the national level. Also about two-thirds of the participants are females as they are usually available at homes.

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