

Patients' knowledge and adherence regarding the preventive measures of COVID-19 at Assiut Chest Hospital (Suggested Nursing Brochure)

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Abstract

Background: COVID-19 is an international public health challenge; so, it is crucial to improve patients' knowledge and adherence to the preventive measures of COVID-19 to lower the chance of its transmission. **Aims:** to assess patient's knowledge and adherence to the preventive measures of COVID-19 at Assiut Chest Hospital and Suggested Nursing Brochure. **Research design:** A descriptive design was utilize. **Setting:** Emergency unit and departments at Assiut Chest Hospital. **Sample:** 220 patients admitted to Assiut Chest Hospital with COVID-19. **Tools:** An interview Questionnaire and Adherence to preventive measures. **Results** (82.3%) of the studied patients had poor knowledge about COVID-19, while (94.5%) had inadequate adherence to the preventive measures of COVID-19. **Conclusion:** It was concluded that COVID-19 patients had poor knowledge and inadequate adherence to the preventive measures of COVID-19. **Recommendations:** providing a simplified illustrated and comprehensive Arabic brochure containing an information about COVID-19 and its preventive measures.

Keywords: Adherence, COVID-19 & knowledge.

Introduction

COVID-19 transmitted by (SARS-CoV-2). The reported symptoms range from mild to severe, and in some cases which could be fatal. Fever, cough, myalgia or fatigue, pneumonia, and complicated dyspnea are the most frequently reported symptoms, while headache, diarrhea, hemoptysis, runny nose, and phlegm producing cough are less frequently reported symptoms. (Adhikari et al., 2020).

COVID-19 which is mainly transmitted through infected respiratory droplets in direct, indirect, or close contact with those who have the virus. Once respiratory particles are inhaled or deposited on the nasal, conjunctival, or oral mucosa, the virus targets and infects cells at these sites. About five days after infection, the patient becomes infected and could transmit the virus easily through exhalation to potentially infect others (Emrani et al., 2021).

Since the start of the pandemic, several international control measures had been instituted to stop the spreading of the disease. Such measures include avoiding travel from and to infected countries, strict quarantine measures, lockdown of the most countries, applying social distance measures, frequent perform of the personal hygiene, wearing a face mask, cleaning/disinfect surfaces, avoiding close contact with people who are likely to be ill or infected. The main strategy for reducing virus transmission among the public is to adhere to these preventive measures.

Adherence could influence the public by raising their knowledge about the disease (Ali et al., 2021).

Nurses were and will remain the pioneers in enhancing the best practices and clinical safety during patient management. Nurses' ability and effectiveness improve more during times of adversity, such as wars, disaster and even in contagious disease pandemics, as during COVID-19 pandemics. Nurses also play an important role in educating the public, particularly to prevent contagious diseases and, to limit the dissemination of false information regarding the disease outbreaks. (Buheji & Buhaid, 2020)

Significance of the study

COVID-19 pandemic caused a large number of deaths and become a major threat to human life around the world (WHO, 2020a). In Assiut Chest Hospital through year 2020, it was found that, the flow rate of COVID-19 positive cases was around 500 people. Also, during the researcher's work at Assiut Chest Hospital it has been observed that many patients admitted to the hospital haven't enough knowledge about the preventive measures of the disease. As a result, this study was conducted to collect data that will help in assessing patients' level of knowledge and adherence to the preventive measures toward COVID-19, to develop nursing brochure which provide those group of patients with the needed knowledge about COVID-19.

Aim of the study:

The aims of the study were to assess patient's knowledge and adherence to the preventive measures of COVID-19 at Assiut Chest Hospital and suggest nursing brochure.

Research question:

What are the patients' knowledge and level of adherence regarding the preventive measures of COVID-19?

Patients & Method

Research design: Descriptive research design was utilized.

Setting: This study was carried out in the emergency unit and departments (1males include 34 bed and 2 females include 56 bed) at Assiut Chest Hospital.

Sample: Adults patients (220) from two sexes (male & female) admitted to Assiut Chest Hospital with COVID-19. Age ranged from 18 to 65 years old.

Sample size: The sample size was calculated by using the following equation according to **Steven Thompson (2012):**

$$n = \frac{N \times p(1-p)}{\left[N - 1 \times \left(d^2 \div z^2 \right) \right] + p(1-p)}$$

N=total patient population size (500) who assessed at Assiut chest Hospital through year 2020.

Z = confidence levels is 0.95 and it is equal to 1.96

D= The error ratio which equal 0.05

p= The property availability ratio and neutral = 0.5

Tools of data collection:

To collect the relevant data for this study, two tools were used.

Tool (I): An interview Questionnaire:

This tool was developed by the researcher based on the national and international literature to assess patients' level of knowledge regarding COVID-19 (**Abdel Wahed et al., 2020, Akalu et al., 2020 & WHO, 2020_b**). It included three parts:

Part 1: Socio-demographic data: It was developed by the researcher to collect data about the studied patients' characteristics as (age, gender, marital status, level of education, income, occupation, residence, living situations and patients' habits).

Part 2: Medical data: It included questions about signs and symptoms, presence of comorbidities and diagnostic tests.

Part 3: Patients' knowledge about COVID-19: It included questions about the following items:

A- COVID-19 overview: This part was developed to assess patients' general knowledge about COVID-19 as causes, signs and symptoms, mode of transmission, incubation period, and diagnosis..... etc.

B- Preventive measures: It was developed to assess patients' knowledge about the preventive measures toward COVID-19.

C-Home isolation: It was developed to assess patients' knowledge about home isolation.

Scoring system:

The total number of questions was 38, 1 grade awarded for the correct answer and zero for the incorrect one. Total knowledge score categorized into 3 categories poor if <50%, fair if 50% to75% and good if ≥75% (**Eladle et al., 2019**).

Tool II: Adherence to the preventive measures:

It consisted of 10 statements based on the WHO (2020) and national guidelines on COVID-19 prevention. It was adopted by the researcher to assess the degree of adherence to the preventive measures of COVID-19 among the studied patients.

Scoring system:

The total score is ranging from 0 to 10, each element was scored 1 if the patient answered yes adhered to the measure and zero otherwise. The total adherence score was determined as the following (**Ditekemena et al., 2021**).

- Inadequately adhere <6
- Moderately adhere 6–8
- Adequately adhere >8–10

Methods:**Ethical approval:**

Permission to conduct this study was granted by the ethical committee (number 296) of the Faculty of Nursing, Assiut University. During the application of the research, there was no risk expected to occur among the studied patients, the study adhered to the ethical principles standard of the clinical research, after explaining the nature and purpose of the study, oral consent was obtained from the patients who were willing to participate in the study, confidentiality and anonymity were assured, patients had the right to refuse to participate and or withdraw from the study at any time without any rational and privacy of the studied patient was considered during data collection.

Procedure

The study proceeded through the following phases:

I: Preparatory phase

It includes reviewing of the current related literature in the various aspects of the review using textbooks, articles, different studies, internet and journals in order to develop the study data collection tools.

Validity and reliability:

Face validity was tested by five academic experts (2 from medical staff and 3 from the Medical Surgical Nursing staff) who examined the tools for clarity, relevancy, comprehensiveness, understanding and applicability. Minor modifications were done, and minor correction was carried out accordingly. Test

reliability of the proposed tools were ascertained with Cronbach's alpha =0.89.

Pilot study:

A pilot study was conducted on 10% of the study sample (22 Patients) to test clarity and feasibility of the developed tools. Also, it provided to estimate the time needed to fill in the tools. There was no modification, so the pilot study sample added to all the study sample.

II: Field work

- Once permission was granted the researcher-initiated data collection.
- Data were collected in the morning and afternoon shift.
- Data were collected after a result of PCR, only patients with positive PCR who included in the study
- The studied patients were visited to initiate line of communication and explain nature and purpose of the study.
- Verbal consent was obtained from the studied sample to participate in the study on a voluntary basis.
- Data were collected through face-to-face interviews. The researcher used appropriate

personal protective equipment (PPE) during obtain data to avoid transmission of the disease.

- Each patients interviewed individually to fill out the study tools (tool I & tool II).
- The tools were filled in within 30 to 45 minutes depending on patients' response to questions. Then, each patient was given a copy of the suggested nursing brochure, which contain information about COVID-19, preventive measures and home isolation.
- The collection of data lasted through the period from June to September 2021.

Statistical Analysis:

The statistical Package for (SPSS) version (20) was used to analyze data.

Numerical data were expressed as means and SD. Quantitative data were expressed as frequency and percentage. For quantitative data, comparison between two variables were done using t-test, and comparison between more than two variables used ANOVA test. Relations between different numerical variables were tested using Chi-square and Pearson correlation. Probability (P-value) less than 0.05 were considered significant and less than 0.01 were considered highly significant.

Results

Table (1): Frequency distribution of studied patients' socio-demographic characteristics (n=220)

Socio- demographic Characteristics	N.	%
Age (means ±SD)	47.93±10.89	
Sex		
Male	97	44.1
Female	123	55.9
Marital status		
Single	19	8.6
Married	173	78.6
Divorced	3	1.4
Widow	25	11.4
Level of education		
Illiterate	108	49.1
Read and write	38	17.3
Primary school	9	4.1
Secondary school	19	8.6
High education	46	20.9
Occupation		
Physician	2	.9
Nurses	10	4.5
Teacher	8	3.6
Engineer	3	1.4
Student	1	.5
Farmer	17	7.7
Not working	119	54.1
Other job	60	27.3

Socio- demographic Characteristics	N.	%
Residence		
Rural	150	68.2
Urban	70	31.8
Living situation		
Live alone	6	2.7
Live with family	214	97.3
Income		
No income	2	.9
Less than 2000 EGP	81	36.8
More than 2000EGP	137	62.3
Patients' habits		
Smoking	57	25.9
Alcohol	0	0.0
Drug abused	0	0.0

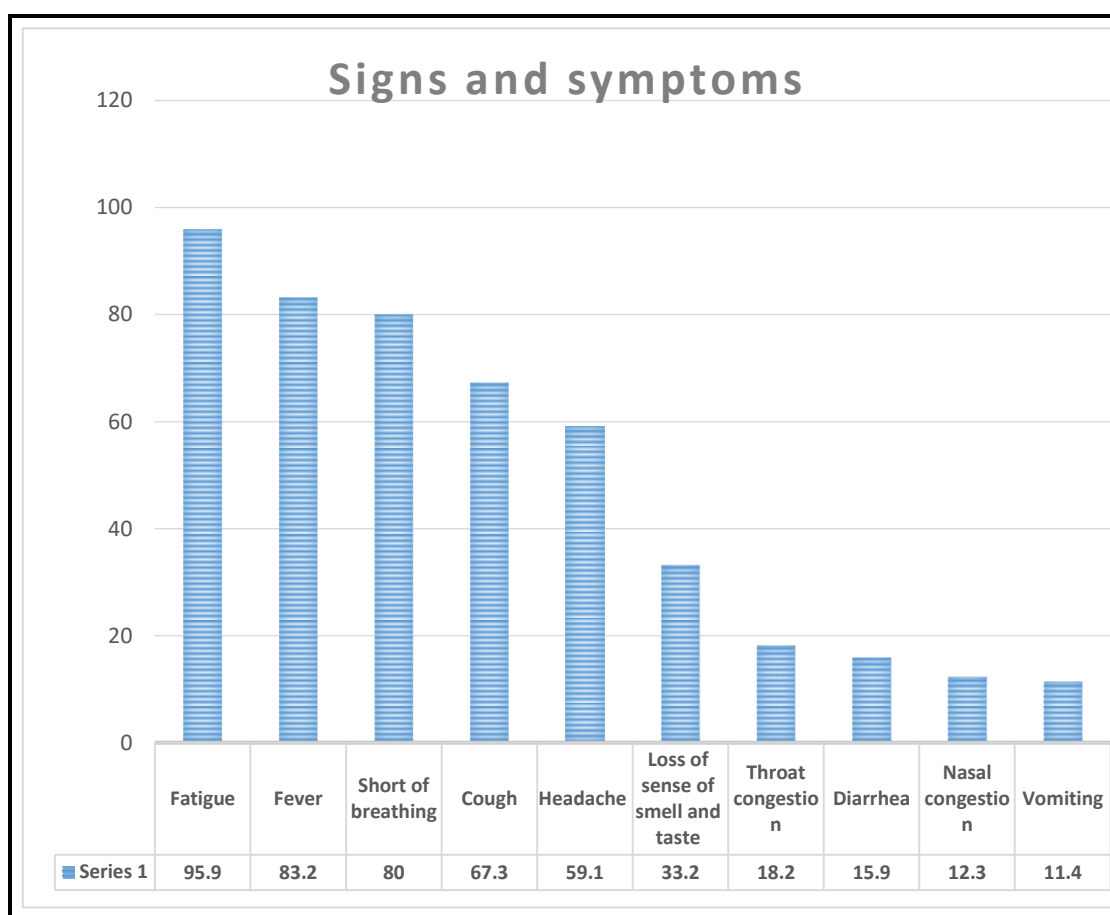


Figure (1): Frequency distribution of COVID-19 signs and symptoms among the studied patients (n=220).

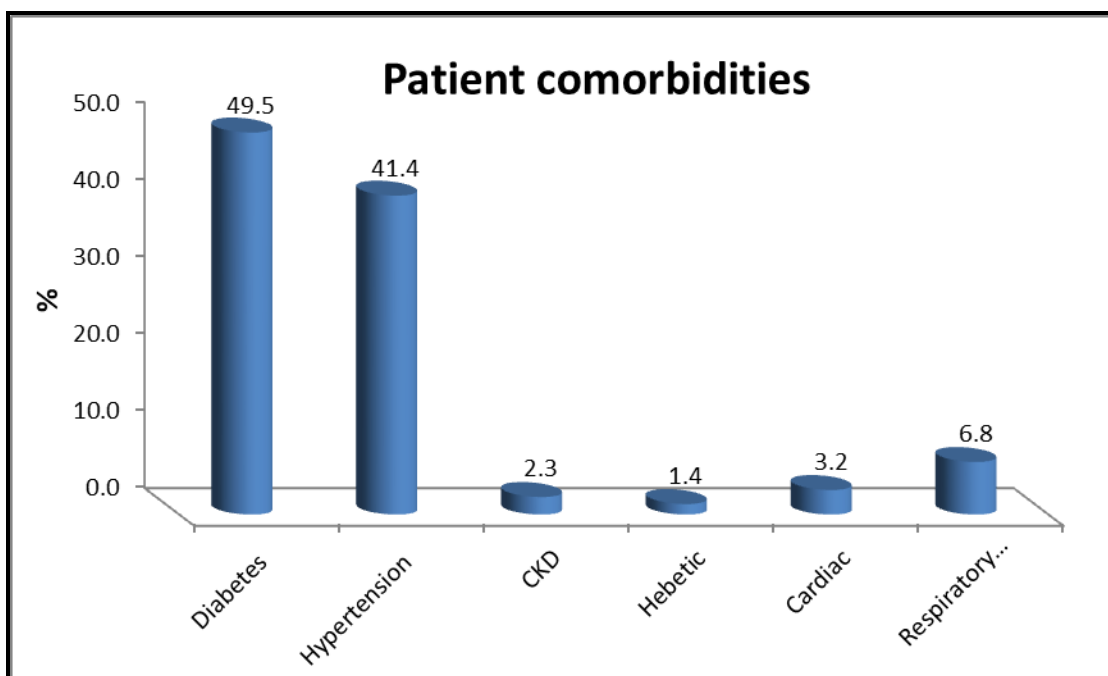


Figure (2): Frequency distribution of comorbidities among the studied patients (n=220).

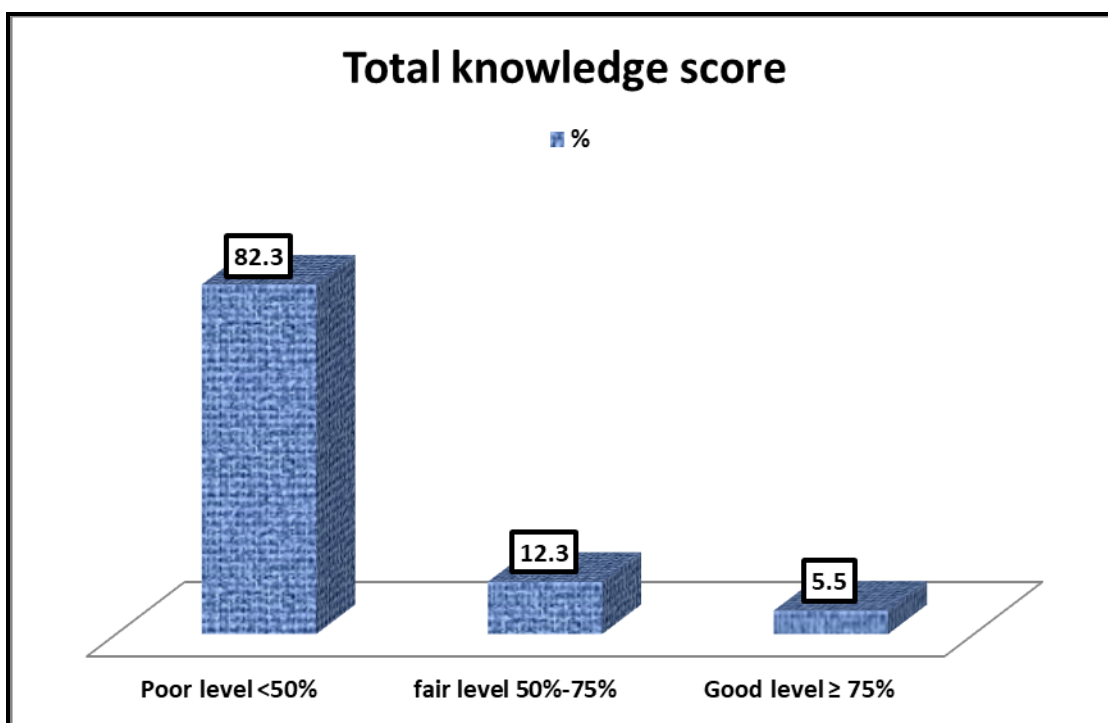


Figure (3): Frequency distribution of studied patients according to their level of knowledge about COVID-19 (n=220).

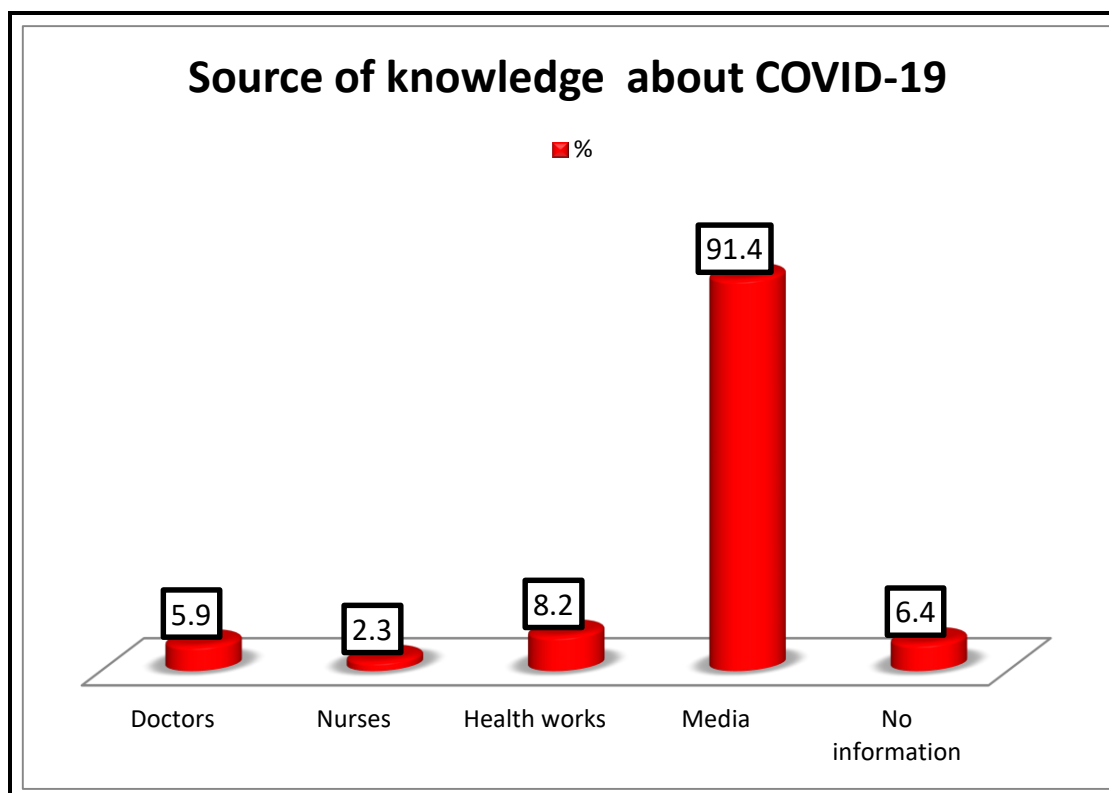


Figure (4): Percentage distribution of studied patients regarding their source of knowledge about COVID-19 (n = 220).

Table (2): Frequency distribution of the studied patients according to their adherence to the preventive measures of COVID-19 (n=220).

Statements	Yes		No	
	N.	%	N.	%
1. Regular handwashing	211	95.9	9	4.1
2. Handwashing/disinfecting right after coughing or sneezing	153	69.5	67	30.5
3. Stay at home in the case of influenza symptoms	136	61.8	84	38.2
4. Coughing or sneezing in the crease of the elbow, or covering mouth/nose with a disposable handkerchief	119	54.1	101	45.9
5. Use of alcohol-based hand sanitizer	69	31.4	151	68.6
6. Use of face mask	61	27.7	159	72.3
7. Disinfect phone	21	9.5	199	90.5
8. Physical distancing 1.5–2 m	20	9.1	200	90.9
9. Avoid touching mouth, eyes and nose	14	6.4	206	93.6
10. Temperature measurement	5	2.3	215	97.7

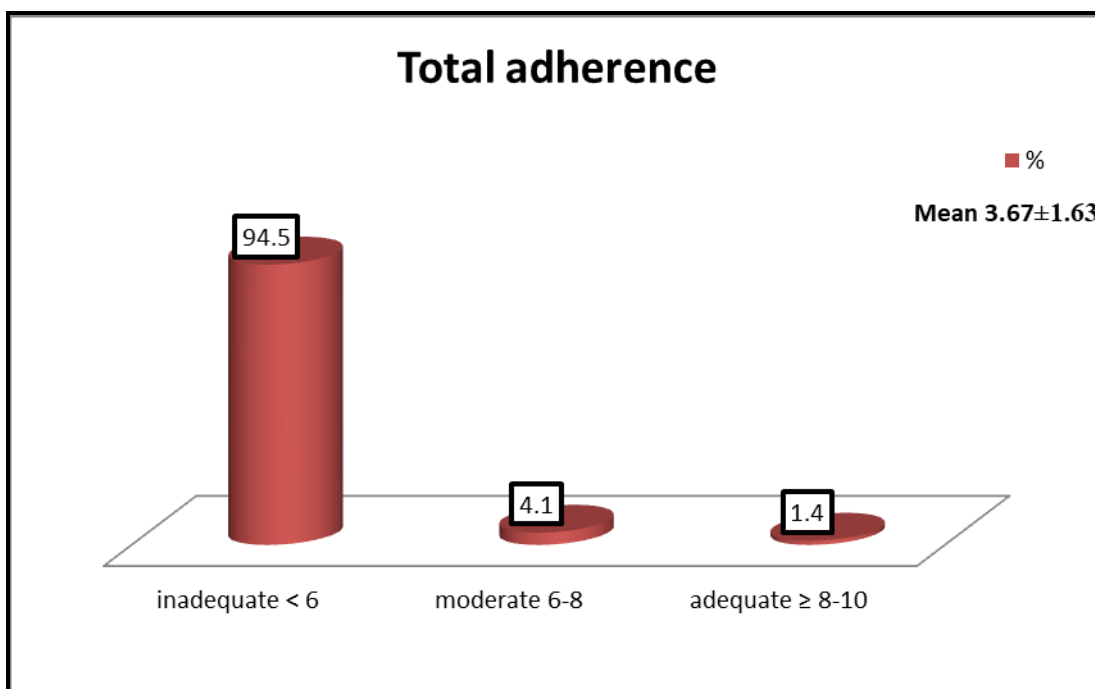


Figure (5): Frequency distribution of the studied patients according to their level of adherence to the preventive measures of COVID-19 (n=220).

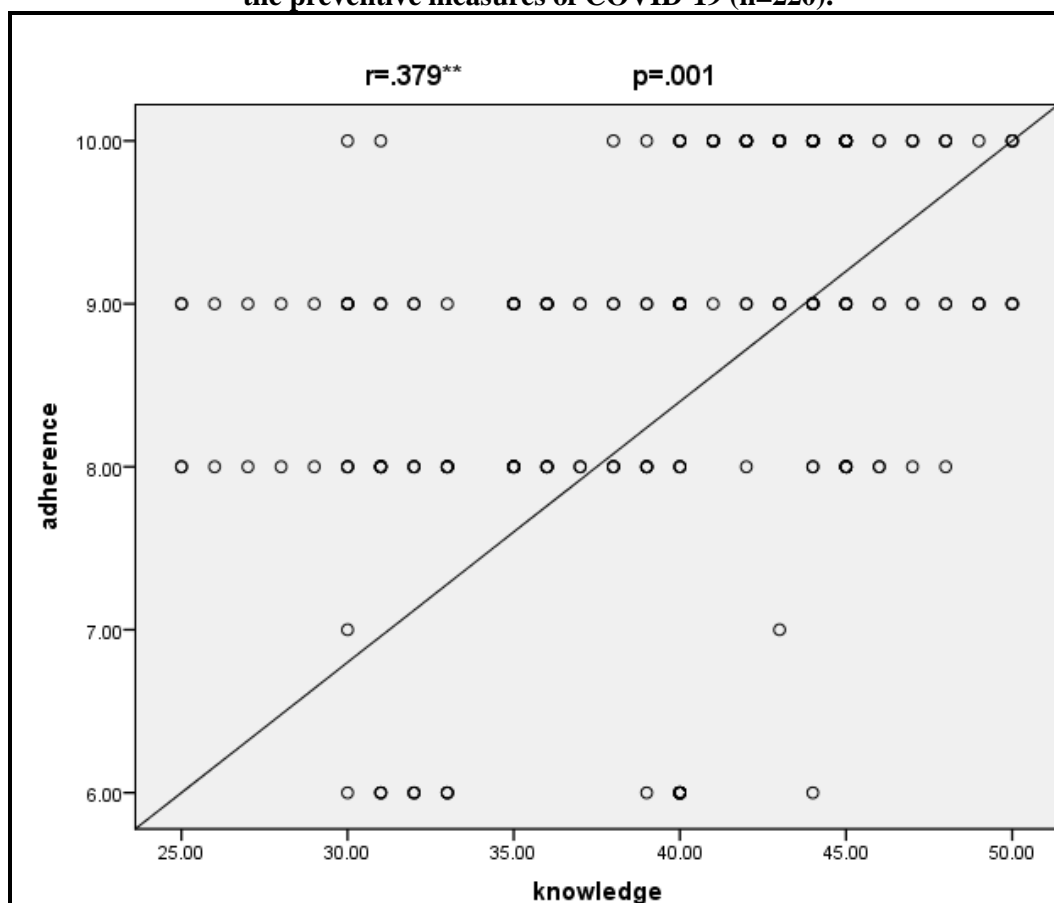


Figure (6): Correlation between patient’s knowledge about COVID-19 and their level of adherence to the preventive measures (n=220).

Table (1): Showed that the mean age of the studied patients was (47.93±10.89 years old) and the highest percentage of them were females (55.9%), married (78.6%), not working (54.1%) and from rural area (68.2%). Nearly half of the studied patients were illiterate (49.1%) while most of them (97.3%) were living with families. 62.3% of patients their monthly income was more than 2000 Egyptian pound for the family per month and quarter of them were smokers.

Figure (1): Illustrated that most of the studied patients complained from fatigue (95.9%), fever (83.2%), short of breathing (80.0%), cough (67.3%), headache (59.1%), and loss of sense of smell and taste (33.2%) respectively.

Figure (2): Showed that 49.5% of the studied patients had diabetes and 41.4% had hypertension.

Figure (3): Presented that 82.3% of patients had poor level of knowledge about COVID-19, while only 5.5% had good level of knowledge.

Figure (4): Presented that vast majority of the studied patients (91.4%) gain their knowledge about COVID-19 from Media (Newspapers-TV-Radio- Internet), while other source of knowledge like doctor, nurse, and health workers represent a minor source.

Table (2): Revealed that the highest percentage of patients adhered to the regular hand washing (95.9%), disinfecting after coughing or sneezing (69.5%), stay at home in the case of influenza symptoms (61.8%), and coughing or sneezing in the crease of the elbow, or covering mouth/nose (54.1%) moreover vast majority didn't adhere to temperature measurement (97.7%), avoid touching mouth, eyes and nose (93.6%) and (90.9%) Keep physical distant between each other.

Figure (5): Illustrated that 94.5% of the studied patients had inadequate adherence to the preventive measures of COVID-19, while only 1.4% had adequate level of adherence. The mean score of adherences was 3.67± 1.63.

Figure (6): Showed that there was a significant positive correlation between level of knowledge and level of adherence to the preventive measures about COVID-19 among the studied patients.

Discussion

COVID-19 has a significant impact on everyday life, lead to a socioeconomic crisis. Controlling the epidemic by preventing its spread to save millions of lives require multipronged strategies. The community's lack of knowledge about the illness, particularly among high-risk groups, which should blame for the rise of infection rates and the number of fatalities. As a result, for successful controlling and reducing the morbidity and mortality rates which caused by COVID-19 should demands on changing the behavior of the general public, which is influenced by people's level of knowledge and

perceptions, particularly among the high-risk groups (**Geldsetzer., 2020**) & (**Weiss & Murdoch, 2020**).

As a result, the current study was designed to assess patients' level of knowledge about COVID-19 and the preventive measures and as well to assess patients' level of adherence to the preventive measures towards COVID-19.

As regard to the studied patient's socio-demographic data, the current study finding reveal that the mean age of the studied patients was **47.93±10.89** years old and the highest percentage of the studied cases females, married, illiterate, not working, rural residence, living with their families and non-smokers. These findings supported by **Huynh et al. (2020)** who found that the mean age of patients was **51.5 ± 10.6** years old and more than half of them being female.

Similarly, the present study was consistent with the study done by **Akalu et al. (2020)** who found over one-third of the study sample cannot read and write. On contrast **Honarvar et al. (2020)** found that the minority of the persons participated in the study were illiterates. Also, **Odetokun et al. (2020)** found that the majority of the respondents have a bachelor/master's degree.

As regards to symptoms of COVID-19 among the studied patients, this study explored that the majority of patients complained from fatigue, fever, short of breathing and cough. This may be caused by invasion of the virus to the respiratory tract which infect the respiratory mucosa that makes the respiratory symptoms cluster is the most common one.

This result was in an agreement with the finding of **Huang et al. (2020)** who reported that fever, cough, and myalgia or fatigue were the most common onset of symptoms among the study sample. Also, **Wang et al. (2020)** mentioned that fever, fatigue, dry cough, myalgia were the most common onset of symptoms for the illness.

Regarding patients' knowledge about COVID-19 this study clarified that the highest percentage of studied sample had poor level of knowledge about COVID-19. From the researcher opinion, this result may be due to that around half of the patients were illiterate and nearly two thirds were from a rural residence. This finding supported by **Haftom et al. (2020)** who reported that less than half of the studied sample were knowledgeable about the disease. Also, the results of the current study agreed with **Akalu et al. (2020)** finding, who reported that a high prevalence of poor knowledge about COVID-19 was among participants.

The current result disagreed with **Twinamasiko et al. (2021)** finding who showed that more than half of the respondents had adequate knowledge about COVID-19. This is possibly because of the difference in

background characteristics and level of understanding. Also, **Singh & Ahuja (2020)** found that more than half of the participants had good knowledge regarding COVID-19 and mentioned that the high correct rate about COVID-19 information may be due to the high availability of government which provided a lot of information about the virus since the outbreak began. Another reason of the high level of knowledge in these study was due to that the majority of participants were graduates.

Regarding sources of information about COVID-19 virus, the current study showed that vast majority of studied sample mentioned that mass media were the main source of information about COVID-19. They were more interested to update their knowledge about COVID-19 from TV and social media than other forms. Congruent with the present study **Ali et al. (2021)** stated that the internet, followed by social media, TV, friends, and family members were the main sources of COVID-19 information to the study participants.

As regards to patients' adherence to the preventive measures, the highest percentage of studied patient implement regular hand washing, disinfecting after coughing or sneezing and more than half stay at home in the case of influenza symptoms, and coughing or sneezing in the crease of the elbow, or covering mouth/nose. But the vast majority of patients had inadequate level of adherence regarding the rest of the preventive measures for COVID-19.

The present study result was in congruent with **Ditekemena et al. (2021)** who stated that more than three quarters of participants practiced regular handwashing. Also, they found that more than half of patients reported that they stay at home in the case of influenza symptoms and nearly two thirds of participants adhered to coughing or sneezing in the crease of the elbow while, more than one third of participant's covering mouth/nose during coughing using disposable handkerchief. Also, the results of the current study agreed with the finding of the studies which done by **Almutiri et al. (2020) & Amodan et al. (2020) & Faria de Moura Villela et al. (2021)**.

Constant with the current study results regarding level of adherence to the preventive measures of COVID-19 **Amodan et al. (2020)** stated that less than one third of the respondents in their study were implementing all the preventive measures. Also, **Ditekemena et al. (2021)** added that more than half of the respondents had poor adherence to the preventive measures. However, **Almutiri et al. (2020)** disagreed with the current study result and stated that nearly half of participants were adherent to the preventive measures.

Regarding correlation between levels of knowledge and level of adherence to preventive measures of

COVID-19, the current study showed that a significant positive correlation between levels of knowledge and level of adherence to the preventive measures of COVID-19. This result was in an agreement with the finding of **Ali et al. (2021)** who reported that a very high significant positive correlation was found between participants knowledge about COVID-19 and practice of universal safety precautions.

Conclusion:

Based on the findings of the current study, it is possible to conclude that patients with COVID-19 had poor knowledge and inadequate adherence regarding preventive measures of COVID-19.

Recommendations:

The following recommendations were made based on the findings of the current study:

- 1) Providing a simplified illustrated and comprehensive Arabic brochure containing information about COVID-19 and the preventive measures.
- 2) Increased patients' awareness about the importance of adherence to the preventive measures of COVID-19.
- 3) Replication of the same study on a larger probability sample at different geographical locations for data generalizability.

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