

## Nursing students' knowledge assessment regarding COVID-19

Ebtesam Mohamed Mohamed<sup>1</sup>, Prof. Dr.Hanaa Abdel Hakiem Ahmed<sup>2</sup>, Dr.Wafaa Khalil Ibrahim<sup>3</sup> and Dr.Ragaa Abd Allah Ahmed<sup>4</sup>

<sup>1</sup>B. Cs in Community Health Nursing Faculty of Nursing, Sohag University

<sup>2</sup>Professor of Community Health Nursing, Faculty of Nursing, Ain Shams University.

<sup>3</sup>Assistant professor. Community Health Nursing Faculty of Nursing, Ain Shams University.

<sup>4</sup>Lecturer of Community Health Nursing, Faculty of Nursing,- Sohag University.

Corresponding author email: [ebtesammohamed1993@gmail.com](mailto:ebtesammohamed1993@gmail.com)

Phone number: [002-01157464155](tel:002-01157464155)

### Abstract

**Background:** The COVID-19 is known as the foremost threat to humankind since the Second World War, and the most important global health catastrophe of the century. **Aim:** the aim of this study was assessment of knowledge of nursing students regarding COVID-19. **Design:** Cross-sectional descriptive study A descriptive study design was used. **Sample:** A stratified simple random sample of 334 nursing students. **Setting:** Sohag faculty of nursing. **Tools:** An electronic questionnaire was used it included two parts, **Part I:** Demographic data of the nursing students; this part is composed of 5 questions covering: name, gender, residence and academic level/year. (Q1-Q5). **Part II:** Assessment of nursing students' knowledge regarding COVID-19(Q6-Q17): it included information about concept of COVID-19, modes of transmission, clinical symptoms, risk groups, vaccine and treatment. **Results:** 91.6% of them reported that COVID-19 can be transmitted through close contact, eating wild and drinking. 69.2% of them were unable to differentiate between COVID-19 and common cold signs and symptoms. Total satisfactory knowledge of nursing students regarding COVID-19 was 64%. **Conclusion:** More than one-third of nursing students had unsatisfactory knowledge about COVID-19. **Recommendation:** posters about difference between clinical symptoms of COVID-19 and common cold should be placed at placed at university.

**Key words:** COVID-19, Knowledge, Nursing student

### Introduction

Coronaviruses are a broad family of viruses that can cause illness varying from the common cold to more serious condition. Their surfaces have spikes like crown from which it takes their names. (Casella et al., 2022)

The COVID-19 was identified in China. This virus hasn't been discovered in people before. COVID-19 defined as a special type of human attacking virus which damages human lung and respiratory system. (Rudrapa.etal,2020). Furthermore, COVID-19 defined as a type of viral pneumonia which caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV2). (Dousari et al.,2020)

COVID-19 is spread by contacting contaminated surfaces or by inhaling respiratory droplets. It takes two to

fourteen days for it to begin to develop. (NCIRD, 2020).

People at a different age are affected by the COVID-19, although some groups are more vulnerable than others, such as those who are pregnant, elderly, male gender, have spent a long time in the hospital and smokers. (Rahman & Jahan, 2020).

Fever, coughing, exhaustion, muscle discomfort, dyspnea, headache, and diarrhoea are the most typical signs and symptoms. (Wolff et al., 2021 & Huang et al 2020a).

A CT scan and the polymerase chain reaction (PCR) as well as D-dimer were used to diagnose COVID-19 infection.

Currently, a variety of vaccines have become accessible for human use, including: Pfizer-BioNTech, Moderna, Johnson & Johnson, Oxford-AstraZeneca,

Novavax, Sinopharm, and Sinovac. (*WHO, 2021*)

By following basic precautions, including as constantly washing hands, avoiding touching face, and keeping distance, COVID-19 can be avoided. (*WHO, 2020*)

A community health nurse plays an important role in prevention of COVID-19 through level of prevention such as primary prevention, secondary prevention and tertiary prevention. (*Simon, 2020*)

### **Primary prevention**

Primary prevention takes place before COVID-19 infection has occurred. (*Kisling & Joe, 2021*). The role of community focus on maintaining and improving the general health of families, applying health promotion which includes: Health education programs, Immunization, Physical and nutritional fitness activities, follow measures designed to promote positive general health as development of good health habits and hygiene, proper nutrition, proper attitude towards COVID-19, and prompt utilization of available health and medical facilities. (*Institute for Work and Health, 2015*)

### **Secondary prevention**

The goal of secondary prevention is to provide assessment of family members which facilitate early diagnosis and treatment to minimize their disabling or long-term effects. The community health nurse should develop a trusting relationship which important for the family and nurse to work to gather. (*Stanhope&Lancaster, 2014*).

Community health nurse provide psychological support for family members and advise them to try to get information about at specific times during the day from health professionals, authorized news channels and website related to healthcare system. lack of information can be addressed by counseling and education. (*Halter, 2014*).

Community health nurse assesse family members for signs and symptoms that may be related to COVID-19 infection like fever, cough, fatigue, anorexia, dyspnea, and myalgia, and loss of taste or smell and quickly moving them into isolation, and teach them breathing techniques, proper

ventilation, and warmness of room and positioning. (*Huang, et al., 2020b*).

Community health nurse should provide nursing care according to the severity of diseases, and monitor the disease progression, if the patients are critically ill, they have to make a referral to hospitals. Moreover, community health nurse perform regularly health checkup of family especially high risk groups like smokers, obese, elderly and pregnant women because they are risk for developing complications or worsening condition. (*Shu-Ching, et al.,2020*)

### **Tertiary prevention**

Tertiary prevention means disability limitation and rehabilitation. COVID-19 is a multisystem illness with considerable long-term physical, psychological, cognitive, social and vocational sequelae in survivors. It is likely that, after COVID-19, the majority of patients will need pulmonary rehabilitation. (*Sivan et al., 2020*)

When Community health nurse performing pulmonary rehabilitation helping client to gain strength, reduce symptoms of anxiety or depression, and making easier to manage routine activities, work, and outings or social activities. (*Shenoy &Paul, 2021*)

### **Significance of the study**

The COVID 19 is a new public health crisis threatening the world and is now called severe acute respiratory syndrome corona virus 2 (SARS CoV.2). There were 2022, 634 million confirmed cases and 6.6 million deaths have been reported globally. Egypt is the fifth country in Africa, with 515,431 confirmed cases and 24,798 deaths. (*WHO, 2022*), and over 40% of students at one large public university showed signs of having had a COVID-19 infection between March 2020 and February 2021, but many of them were asymptomatic. (*Baggett, 2022*)

There are not enough studies focused on exploring the knowledge and precautionary measures followed by communities living this pandemic. Nursing students are apart from community, members from families

and corner stone of hospitals. So, this study is an attempt to assess nursing student's knowledge regarding COVID-19 and precautionary measures which they follow to limit spread of COVID-19 because of Adherence to preventive measures is affected by knowledge. Moreover, exploring the knowledge is very important due to the large amount of misconceptions and false information that are circulating on social media in regard to transmission of the disease and methods of acquisition (Chan et al., 2020 & Geldsetzer, 2020).

### **Aim of the study**

The aim of this study was assessment of nursing students' knowledge regarding COVID-19

### **Research Question**

1. What is the Knowledge level of nursing students regarding COVID-19?

### **Subjects and methods**

#### **I-Technical Design**

The technical design included research design, setting, subject and tools of data collection.

#### **Research design**

Cross-sectional descriptive design

#### **Research Setting**

Faculty of nursing, Sohag university. **Sohag city:** It is the capital of Sohag governorate. In 2022, total population of Sohag city; is (209,419). Total area of Sohag city is (217) km<sup>2</sup>; it represents about (1.97%) of the total governorate area (Worldometer's RTS algorithm, 2022).

#### **Research Subject**

##### **Sample and sampling technique:**

A stratified simple random sample was used in this study. The sample was equal 334 nursing students. The sample was equal 334 nursing students. The total number of nursing student at first, second, third, fourth and internship year at Faculty of Nursing, Sohag University was 1423 nursing students, every academic year categorized as a group (strata). Sample size for first year, second year, third, fourth and internship was 104, 75, 50, 62, 43 respectively. Each nursing student from strata had an equal chance to be selected in the study.

### **Tools of data collection**

**An electronic questionnaire for nursing students:** The information was gathered using an electronic questionnaire that the investigator created after examining the relevant literature and was written in clear Arabic language. It included assessment knowledge of nursing students' regarding COVID-19. The electronic questionnaire took about 10-15 minutes to be completed by the nursing students.

(<https://forms.gle/N15ZDsC9nsBpB32NA>)

which opened for 17 days (24h a day) from 6 to 23/10/2021 because the responses reached to the desired sample of nursing students (334 responses), and rang of responses/day were (8-25 response).

#### **Scoring system**

Correct answers were predetermined according to literature review. The complete correct answer (2), incomplete answer (1), and the incorrect answer score (zero), the total knowledge satisfaction categorized into two categories; satisfactory level for 60% or more of the total correct answers and unsatisfactory level for less than 60% of the total correct answers.

#### **Validity and Reliability**

The tool was submitted to jury of five experts of nursing staff to assess the content validity, needed modifications

### **II -Operational Design**

The operational design included preparatory phase, validity, pilot study and field work.

#### **Preparatory phase**

It involved reviewing the recent, past, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to design the study tools for collection of data.

#### **Ethical Considerations**

Before included the students in the study, formal permission was obtained from them, and a concise explanation was provided. They made sure that all collected

data was private and solely used for research.

### Pilot Study

To assess the questionnaire clarity, applicability of the tools, a pilot study involving 10% (35) of the subjects (334 nursing students), and there were no modifications.

### Field Work

The data were collected over period 11 weeks from the beginning of October to end of December 2021.

### III-Administrative design

Official letter permission for carrying out the study was obtained from the Dean of Sohag Faculty of Nursing.

### IV-Statistical design

Data collected from the studied sample was revised, coded and entered using computerized data entry and statistical analysis were fulfilled using the statistical package for social sciences (SPSS 26) version, Alpha Cronbach Reliability Analysis test was used.

### Results

**Table (1): Distribution of nursing students according to their demographic characteristics (n = 334).**

Items	N	%
<b>Age</b>		
18 < 22 Y	257	<b>76.9</b>
22-24 Y	77	23.1
<b>Mean ±SD</b>	<b>20.11±4.23</b>	
<b>Gender</b>		
Male	180	<b>53.9</b>
Female	154	46.1
<b>Residence</b>		
Rural	226	<b>67.7</b>
Urban	108	32.3
<b>Academic year</b>		
1 <sup>st</sup> year	104	<b>31.1</b>
2 <sup>nd</sup> year	75	22.5
3 <sup>rd</sup> year	46	<b>13.8</b>
4 <sup>th</sup> year	62	18.6
5 <sup>th</sup> year	47	14.1

### Results

**Table (1):** Illustrates that, 76.9% of nursing students had age ranged from 18 - 22 years. 53.9% of them were male. Concerning place of residence 67.7% of nursing students' were livings in rural area. As regard Academic year 31.1% of nursing students at first academic year.

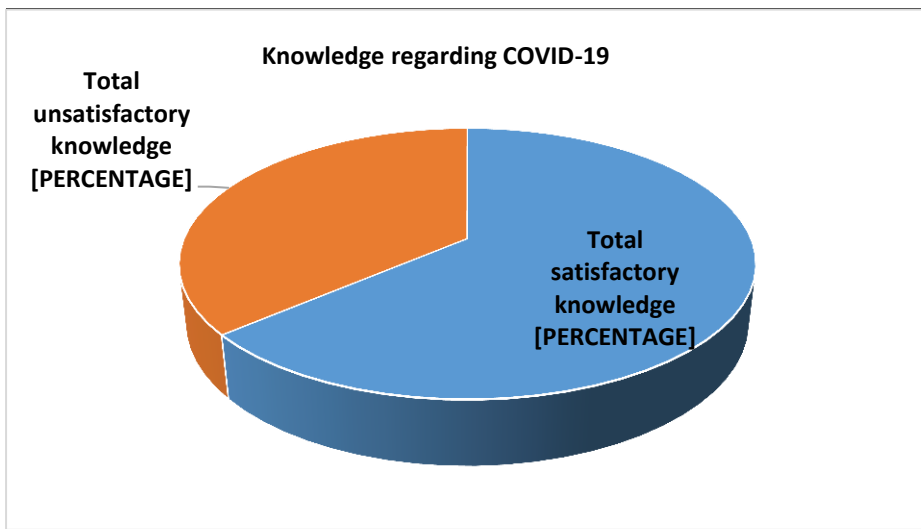
**Table (2):** Shows that (77.8%) of studied students have correct answer regarding COVID-19 definition, 70% had incomplete correct answers about mode of transmission, 70% of them had incorrect answers about clinical symptoms, 74.6% and 70.1 of them respectively answered correctly about risk groups, and COVID-19 vaccine and 100% of them had incomplete correct answers about COVID-19 treatment.

**Figure (1):** Demonstrates that the total satisfactory level of nursing students' knowledge regarding COVID-19 was 64%, and unsatisfactory was 36%.

**Table (2): Distribution of the nursing students according to their knowledge regarding COVID-19 (n= 334)**

Items	Answers					
	Incorrect		Incomplete correct		Complete correct	
	%	N	%	N	%	N
<b>Definition</b>	22.2	74	-	-	<b>77.8</b>	260
<b>Mode of transmission</b>	32	108	<b>70</b>	233	51.7	173
<b>Clinical symptoms</b>	<b>70</b>	232	47.9	159	41.5	138
<b>Risk groups</b>	7	25	36.2	121	<b>74.6</b>	249
<b>Vaccine</b>	30	100	-	-	<b>70.1</b>	234
<b>Treatment</b>	-	-	<b>100</b>	334	-	-

Not mutually exclusive complete (nursing students choose more than one answer)

**Figure (1): Total knowledge score of studied nursing students.**

### Discussion

It is true that corona viruses have existed in the past, but COVID-19 is a brand-new virus that spreads more quickly by inhaling droplets. (*Van Doremalen et al., 2020*). This study was designed to assess knowledge of nursing students regarding COVID-19.

Concerning the characteristics of studied students (**Table 1**)

result of study showed that more than three-quarters of nursing students had age ranged between 18-22 years, from the researcher point of view this result may be due to the nursing student enter the college

at the age of 18 years old and the highest number of nursing student were at 1<sup>st</sup> and 2<sup>nd</sup> academic year. These result agree with *Shaheen et al., (2021)* who studied Knowledge and Attitude of Undergraduate Nursing Students Toward COVID 19 and their Correlation with Stress and Hope Level, in Egypt, that study illustrated that more than two thirds of students (70%) were less than 22 years old.

**As regard COVID-19 definition (Table 2).** The results of the study illustrated that more than three-quarter had correct answers about COVID-19

definition, from the researcher opinion this may be due to COVID-19 defined as a new strain of coronavirus during the awareness campaigns and on the internet, which was the first source of nursing students' information. These findings are supported by *Bennardo et al., (2020)* who conducted their study on dental students, in Italy, and reported that (76.4%) of students were aware about the COVID-19 definition.

#### **Concerning modes of transmission of COVID-19 at the same table**

More than two third had incomplete correct answers about mode of transmission, from the researcher point of view this result may be due to the novelty of the virus. This result agreed with *Olaimat et al., 2020* study "Knowledge and information sources about COVID-19 among university students in Jordan, which reported that students had correct answers ranged

#### **Concerning risk groups for COVID-19 at the same table**

Nearly three quarter of nursing students answered correctly about risk groups, from the researcher opinion this may be due to Egyptian Ministry of Health has conducted specified education programs which payed more attention for COVID-19 risk groups including elderly. This result agrees with *Joshi et al., (2020)*, study 'Knowledge and awareness among nursing students regarding the COVID-19' which reported that (87.47%) of participants were aware about high risk age group for COVID-19.

**Concerning COVID-19 vaccine** at the same table, the current study referred to less than three-quarter of nursing students know that Sinovac is the Egyptian COVID-19 vaccine. This may be due to COVID-19 is a pandemic and novel virus has no vaccine when it appeared this made all the people all over the world including nursing students keep in touch with updated information about vaccine, furthermore most of nursing students vaccinated against

from (64.9 to 94.7%) regarding mode of transmission.

#### **Concerning clinical symptoms of COVID-19 at the same table**

More than two third of nursing students had incorrect answer about clinical symptoms, from the investigator point of view this results may be due to COVID-19 causes no symptoms at all or even death depending on individual immune system, and its symptoms are similar to common cold as both are respiratory diseases, however congestion, runny nose, and sneezing are less common during COVID-19 infection. This result disagreed with This result was consistent with *Ikhlag et al. (2020)* study "Awareness and Attitude of Undergraduate Medical Students towards 2019-novel Corona virus." And found that (91.9%) of participants have correct answers about COVID-19 signs and symptoms

COVID-19 so they know types of COVID-19 vaccine.

The finding agrees with the *Saied et al., (2021)*, who studied "vaccine hesitancy: Beliefs and barriers associated with COVID-19 vaccination among Egyptian medical students" and reported that the (95%) of the participant students have knowledge about COVID-19 vaccine.

**Concerning COVID-19 treatment** at the same table, there are different types of medication can be used to treat COVID-19 according to its stage and its complications these medications include antiviral, immunosuppressive and antibacterial medication. The present study revealed slightly more than three-quarters of nursing students reported that antiviral medications used to treat COVID-19 infection which considered incomplete correct answer, from the researcher point of view this could be due to the nature of nursing curriculum doesn't emphasize on medical treatment of diseases also could be explained by the novelty of

COVID-19 virus and there isn't approved medication to treat it. This finding similar to the study of *Perwitasari et al., 2021* "The knowledge of COVID-19 treatments, behaviors, and attitudes of providing the information on COVID-19 treatments: Perspectives of pharmacy students" which showed that more than (70%) of students reported that antiviral medications used to treat COVID-19 infection.

As regard total knowledge of nursing students regarding COVID-19 (figure1)

According to the study finding that slightly more than three fifth of nursing students had satisfactory knowledge about COVID-19. This finding agrees with *Reuben et al. (2021)*, who studied " Knowledge, Attitudes and Practices Towards COVID-19" in Nigeria, which revealed that (99.7%) of participants had satisfactory knowledge about COVID-19.

### Conclusion

The findings of the current study concluded that slightly About two-thirds of nursing students had a satisfactory knowledge regarding COVID-19.

### Recommendation

Posters about difference between clinical symptoms of COVID-19 and common cold should be placed at placed at university.

### Financial support

- No funding was received

### Conflict of interest

- Arranged alphabetic

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