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Knowledge, Attitudes and Practice Regarding COVID-19 amongst Nursing Students at Minia University

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ABSTRACT

Background: COVID-19 pandemic still a worldwide challenge. Medical and nursing personnel are on the front ranks of the COVID-19 pandemic. They are infected because they come into contact with and are exposed to suspected and undiscovered cases on a regular basis. **Aim of this study**: This study aimed to assess knowledge, attitudes and practice regarding COVID-19 amongst nursing students at Minia University. **Methods and Subjects** Cross sectional descriptive research design was used; self-administered questionnaire developed by the researchers to collect data. **Results:** The study revealed that there was a strong positive, statistically significant correlation between knowledge, attitudes and practices among studies students. **Conclusion:** a powerful affirmative, statistically significant relationship between knowledge, attitudes and practices among studied students. **Recommendations:** Working on transferring knowledge into actual practices through various workshops, discussions, learning by modeling, and working on transferring knowledge into actual practices through various workshops, discussions, learning by modeling

Keywords: Covid 19, Knowledge, Attitude, Practices, and University students

Introduction

Eighty percent of countries worldwide have taken the COVID- 19 infection in a short time, created sufferings and challenges. In Egypt, there were over 800 confirmed cases by the beginning of April 2020, with more than 50 deaths and a significant trend toward an increase. The number of confirmed cases climbed dramatically over the course of about a month, reaching 31,115 on June 5, with the year 2020 approximately 1166 mortality cases, a spike that might root concern and panic in the public. (**Abdelhafiz AS, et al, 2020**)

COVID-19 has afflicted over 18 million individuals worldwide as of August 2020, with over 700,000 deaths reported worldwide and growing. In Egypt, from Jan 3 to 25 December 2020, there have been 128,993 confirmed cases of COVID-19 with 7,260 deaths. **(World Health Organization 2020)**

Egypt is the most populous region in the Middle East and North Africa (MENA) with a population of more than 100 million people. The potential for rapid spread associated COVID-19 and the risk of serious

illness in such high inhabitants can lead to very high population morbidity and mortality. Therefore, the comprehension of the personal knowledge and awareness of the COVID-19 disease is of great importance to limit the spread of the infection and recommend best practices and management approaches of the disease **(Mohamed Ali et al., 2020)**

The COVID-19 widespread is still a main community health concern around the world. Despite extensive research efforts around the world, effective therapy and vaccination possibilities have eluded researchers. As a result, efforts such as infection prevention practices, early virus diagnosis, and the finding of successful treatments could be valuable instruments in the disease's control. **(Lotfi M, et al, 2020)**

The coronavirus disease of 2019 (COVID-19) has been identified as one of the most dangerous pandemics and devastating illnesses in human history, with numerous morbidities and deaths occurring every day from its emergence in December 2019 and continuing to this day in June 2020. (**Wadood MA et al, 2020**).

Coronaviruses are a set of large, single stranded RNA viruses, with six of which identified to infect humans. These viruses affect mainly the human respiratory system causing symptoms that vary from common cold-like cough and fever to severe respiratory complications. **(Shereen MA et al, 2020)**

COVID-19 differs from its predecessor in that it is extremely transmissible and contagious, with a contagiousness rating of 2 times that of seasonal influenza [Liu Y, et al, 2020]. The virus propagated mostly from person to person by droplets of saliva or discharge from an infected person's nose, as well as direct touch, resulting in such a large number of sick persons (Cai J, et al, 2020).

Coronaviruses are responsible for common colds and other minor respiratory illnesses. Fever, dry cough, abnormal chest CT, and less common symptoms such as sputum production, headache, hemoptysis, and diarrhea are all possible indications of COVID-19 infection. The coronavirus associated with severe acute respiratory syndrome (COVID-19) is a highly contagious viral respiratory illness that causes pneumonia (Rothan & Byrareddy, 2020) and (WHO), 2020).

Healthcare personnel play an important role in reducing morbidity and mortality, but they are also directly exposed to patients and the causal factors while doing so. During the early COVID-19 outbreak in China, the healthcare sector faced significant hurdles in preventing nosocomial infections and protecting healthcare workers (Wang D et al, 2019)

Medical and nursing students are the people who are most likely to come into touch with infected individuals. Various studies research on medical and nursing students during past pandemics have found that they suffered extreme levels of stress on the soul and worry, which could have negative consequences for their education and overall mental health (Cao W et al, 2020, Loh LC et al, 2020).

Due to a lack of adequate treatment and approved vaccines to prevent the spread of COVID-19, WHO recommends using primary preventive measures such as proper hand washing, appropriate distance , cough etiquette, and wearing face masks in crowded areas as the first line of defense in public, as well as implementing effective infection control procedures within various health care settings (Salman, M., et al, 2020, WHO, 2020).

Significance of the study

With the worsening situation during the COVID-19 pandemic, healthcare workers including nursing students are also thought to be at risk of getting infected so it is very important to assess the university student's knowledge, attitudes and practices about COVID-19 virus [**Liang H, et al, 2020**]. Because this can provide an idea about what information they have, their attitude and practices towards this emergency [**Peng QY, et al, 2020**].

To help in the eradication of COVID-19, it is crucial to examine the level of nursing student's awareness of COVID-19 at this critical period. Student's commitment to preventive measures is impacted by their knowledge, attitudes, and practices (KAP) towards the disease. (**Aisha A. et al, 2021)**

Aim of the study

This study aimed to assess knowledge, attitudes and practice regarding COVID-19 amongst nursing students at Minia University.

Materials and methods

Research design:

The current study used a cross-sectional descriptive research design.

Study population:

Undergraduate nursing students at faculty of nursing, Minia University. A convenience sampling technique from 2nd, 3rd, and 4th academic year who study woman health and obstetrics nursing, community health nursing, psychiatric nursing and medical & surgical nursing who may contact with patients anywhere through providing basic nursing procedure which may prone them to covid19 infection. While students from the first academic year was excluded because they start to study the basics of nursing and not contacted with patients because they didn't start to practice the profession yet through this academic year.

Sample size:

In quantitative research, accurate sample size calculation provides reasonable confidence and can be concluded without bias. According to the sample calculation by the Raosoft program, it indicated that with confidence interval ranges at 5 % and 95% confidence level. The sample was 200 students from different academic level except first year.

Data collection tools

Data was collected using a structured questionnaire sheet developed by the researcher based on a literature review, which was divided into two parts: the first part included socio demographic characteristics of the studied subject, and the second part assessed knowledge, attitude, and practices regarding necessary precautions regarding covid 19. The following are the details of the tool parts: -

Part I: Socio demographics data

It includes socio-demographic data: such as student age / years, Gender, Academic years, Residence and work.

Part II: Assessment Knowledge

This part was a questionnaire sheet developed by the authors to assess student knowledge regarding Covid 19, it contains (30) MCQ questions about (definition, risk factor, Incubation period of COVID 19, mode of transmission, complications, treatment and management…. etc).

Part III Practice assessment:

This part used to assess practice toward covid, it contain 12 questions done and not done (done =1, and not done =0) , Do you practicing social distancing, Do you practicing hand washing frequently, Do you avoid shaking hands, My family practiced social distancing

frequently….etc) about practice two answer done 1 and not done 0 . score of less 50 considered as un satisfactory and more than 50 satisfactory.

Part IV: Attitude assessment:

Attitude contain five questions answered agree one score and not agree zero. Less than 50 negative attitude and more than 50 positive attitudes.

Validity & Reliability:

The sheet was revised by five-panel experts from obstetrics and gynecological nursing professors, community health and psychiatric nursing, who reviewed the tools for accuracy, relevance, inclusiveness, understanding, applicability and simplicity. The Alpha Cronbach test was used to determine the consistency of the instruments' internal consistency. The score on the knowledge sheet was 0.870. For the assessment of knowledge, attitudes, and practice of COVID-19, it was 0.852, indicating that the sheets were highly reliable.

Pilot study :

It was carried out on 10% of the overall sample examined (20 students). To assess the applicability and clarity of the instruments, evaluate the feasibility of fieldwork, and identify any potential difficulties that the investigator could encounter and impede the collection of data. Important improvements have been made based on the findings of the pilot study, such as (removing certain questions and adding others) to endorse their content or for clearer and more specific purposes. In the basic sample, the trial sample was excluded from the total sample.

Ethical administrative Concern :

To conduct the study, all formal permits were secured from convenient authorities. The student was informed about the study's significance and purpose. Told that their contribution was voluntary and their right to quit at any time, that data confidentiality was achieved, and that the data obtained was solely utilized for the purpose of the present study

Procedure: -

Informed consent was obtained from ethical committee of faculty of nursing and oral consent take from the student's part in the research. Statistical analysis the data obtained was tabulated using the SPSS version and statistically analyzed (20). When p-value 0.05, and high significance when p-value 0.001 and no statistically significant difference when p-value > 0.05 is considered, statistical significance difference was considered. Statistical tests were used, including an independent t-test and a Chi-square test .

Results

Table I: Socio demographic characteristics of the studied students. (n=200).

Characteristics of the students	No	%
Age		
Less than 20	23	11.5
20 and more	177	88.5
Gender		
Male	93	46.5
Female	107	53.5
Academic years		
2nd y	69	34.5
3rd y	67	33.5
4th y	64	32.0
Work		
Clinical place	65	32.5
Private hospital	63	
Work at home	30	31.5
Doesn't work	42	15.0
		21.0
Residence		
Urban area	77	38.5
Rural area	76	38.
Semi urban	47	23.5

Table 1 shows that 88.5% of the studied students having the age of 20 and more while 11.5% only less 20 years .Regarding to the gender 53.5% of them were female while 46.5% were male, (34.5%) of study

students in the second grade of faculty education, (33.5%) of them in third grade and (32%) on grade four. Related to work place 32.5% of them work in clinical, 31.5% in private hospital, 15% at home but only 21% doesn't work. Regarding the residence 38.5% of the students from urban area while 38. % from rural and 23.5% of them live in semi urban area.

Table (2): Number and Percentage Distribution of the Studied students regarding their Knowledge about COVID 19 (n= 200)

Items	No	%
1. Incubation period of COVID 19 is 5–14 days		
True	141	70.5
False	32	16.0
Don't know	25	12.5
Others	2	1.0
2. COVID 19 is transmitted by infected persons		
True	135	67.5
False	46	23.0
Don't know	17	8.5
Others	2	1.0
3. COVID 19 is transmitted by droplets in air		
True	132	66.0
False	36	18.0
Don't know	26	13.0
Others	6	3.0
4. COVID 19 is transmitted by droplets on surfaces		
True	128	64.0
False	41	20.5
Don't know	20	10.0
Others	11	5.5
5. COVID 19 is transmitted by cough and sneeze		
True	139	69.5
False	34	17.0
Don't know	19	9.5
Others	8	4.0
6. COVID 19 is transmitted by exhalation		
True	130	65.0
False	47	23.5
Don't know	17	8.5
Others	6	3.0
7. COVID 19 has upper respiratory and lower respiratory symptoms		
True	134	67.0
False	34	17.0
Don't know	27	13.5
Others	5	2.5
8.COVID 19 can be prevented by Vaccine		
True	114	57
False	52	26
Don't know	34	17
Others		
9.COVID 19 can be prevented by washing hands for 20 seconds		
True	120	60.0
False	42	21.0
Don't know	31	15.5
Others	7	3.5
10.COVID 19 can be prevented by wearing mask		
True	125	62.5
False	38	19.0
Don't know	31	15.5
Others	6	3.0
11. COVID 19 can be prevented by having good immune system		
True	121	60.5
False	49	24.5
Don't know	26	13.0
Others	4	2.0
12.COVID 19 can be prevented by balanced nutrition		
True	125	62.5
False	43	21.5
Don't know	27	13.5
Others	5	2.5

Table 2: Shows that 70.5% of study subject have true knowledge about the incubation period of coved 19 but 16.0 and 12.5% of them respectively has false knowledge about the incubation period or don't know about incubation period. Regarding to the COVID 19 mode of transmission by infected persons, 67.5% of the studied students have true knowledge; while 23% has false knowledge and only 8.5% don't know. Related to COVID 19 is transmitted by droplets on surfaces 67.5% of them answer true while 20.5 answered false and 10.0 % don't know. Regarding to the COVID 19 is transmitted by cough and sneeze 69.5% answer true but 17.0% give false answer and 9.5% don't know. In relation to that COVID 19 is transmitted by exhalation 65.0% of students know true answer but 23.5 % of them give false answer. Regarding; COVID 19 has upper respiratory and lower respiratory symptoms, 67.0% of subject has true answer and 17% don't know the answer. Also, table revealed that 57% of students report that COVID 19 can be prevented by vaccine while 26% give false answers and 17% don't know that the COVID 19 can be prevented by balanced nutrition (62.5%) of the students had true answer while (21.5) answer false and 13.5 % don't know.

Table (3): Con, Number and Percentage Distribution of the Studied students regarding their Knowledge about cov19 (n= 200)

Items	No	%
13. COVID 19 can be prevented by Vaccine		
True	114	57.0
False	52	26.0
Don't know	34	17.0
14. COVID-2019 has no effective treatment at this time,		

Items	No	%
however early symptomatic and supportive care can help most patients recover.		
True	132	66.0
False	32	16.0
Don't know	36	18.0
15. COVID 19 patient needs ventilator to survive		
True	127	63.5
False	38	19.0
Don't know	35	17.5
16. Vitamin C is important in COVID 19 treatment		
True	138	69.0
False	28	14.0
Don't know	34	17.0
17. To avoid infection by the COVID-19 virus, doctors and nursing personnel must take particular care.		
True	115	57.5
False	45	22.5
Don't know	40	20.0
18. People who come into touch with someone who has been infected with the COVID-19 virus should be isolated as soon as possible.		
True	127	63.5
False	37	18.5
Don't know	3 6	18.0
19. Isolation and treatment of COVID-virus infected people are efficient approaches to stop the virus from spreading.		
True	125	62.5
False	45	22.5
Don't know	30	15.0
20. When a person has COVID-2019, even if they don't have a fever, they can spread the virus to others.		
True	106	53.0
False	56	28.0
Don't know	38	18.0
21. Ordinary residents can protect themselves from infection by the COVID-19 virus by wearing generic medical masks.		
True	120	60.0
False	43	21.5
Don't know	37	18.5

Table (3): clarifies that 57% of students report that COVID 19 can be prevented by vaccine while 26% give false answers but17% don't know. Regarding no effective cure 66%of students know true answer but 17% don't know it. Related to COVID 19 patient need ventilator to survive 63.5% know answer but 17.5% don't know that vit c prevent coved. In relation to take necessary extra precaution for medical staff; 57% of students know true necessary extra precaution, while 22% of theme answered false and 20% don't know it. Regarding person with COVID 19 can transmit the virus when fever not present 53% give true answers and 28% give false answers and 23% don't know. Regarding ordinary resident wear medical mask 60% answered true and 21.5% answered false and 18% don't know.

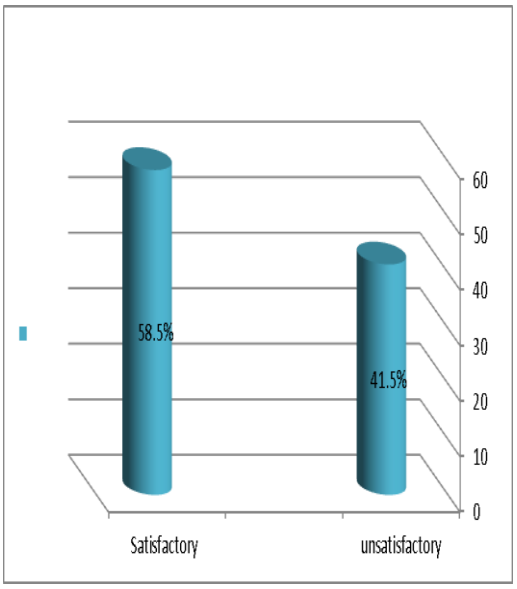

Figure (1): Distribution of Studied Students according to Total Knowledge Scores

In the general Figure (1) shows that 58.5% have satisfactory knowledge about COVID 19 and 41.5% have unsatisfactory knowledge

Table (4): Number and Percentage Distribution of the Studied students regarding their Attitude about COVID 19 (n= 200)

Items	Agree		Disagree	
Attitude	**NO**	**%**	**NO**	**%**
1. Hand washing is important in controlling the spread of COVID-19	175	87.5	25	12.5
2. Wearing masks is important in controlling the spread of COVID-19	161	80.5	39	19.5
3. Isolation of suspected cases would prevent the spread of the virus	157	78.5	29	14.5
4. Social distancing would prevent the spread of the virus	158	79.0	42	21.0
5. COVID-19 seems a dangerous disease	171	85.5	29	14.5

Table (4): shows that 87.5% of students agree that hand washing is important in controlling the spread of COVID 19, while 12.5% only disagree. Regarding wearing mask 80.5% of students agree wearing mask prevent spread of infection, but 78.5% of students agree isolation of suspected cases would spread the virus, while 14.5% don't agree. Regarding social distance 79.0% of students agree social distance prevent spread the virus, lastly 85.5%agree the COVID 19 is dangerous virus and disease.

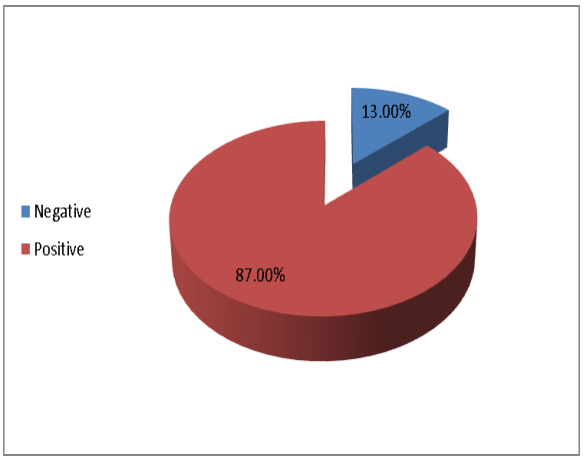

Figure (2): Distribution of Studied Students according to total attitudes Scores

Figure (2) shows that 87% have positive attitudes about COVID 19 and 13% have negative attitudes.

Table (5): Number and Percentage Distribution of the Studied students regarding their practices and precautions about COVID 19 (n= 200)

Items'	Done		Not done	
Practice and precaution	NO	%	NO	%
1. Do you practicing social distancing	152	76.0	48	24
2. Do you practicing hand washing frequently	164	82.0	36	18.0
3. Do you avoid shaking hands	128	64.0	72	36.0
4. My family practiced social distancing frequently	129	64.5	71	35.5
5. My family practiced hand washing frequently	151	75.5	49	24.5
6. My family used face masks frequently	147	73.5	53	26.5
7. Did the outbreak of the COVID-19 virus make you increase the frequency of washing hands	139	69.5	61	30.5
8. Did the outbreak of the COVID-19 virus make you use hand sanitizer more frequently؟	139	69.5	61	30.5
9. Did the outbreak of the COVID-19 virus make you use personal protective equipment (mask) more often than you used to؟	148	74.0	52	26
10.Did you carry hand sanitizer with you during the outbreak	149	74.5	51	25.5
11. Do you know that COVID-19 is a virus؟	166	83.0	34	17.0
12. Did you maintain social distance during the outbreak?	151	75.5	49	24.5

Table (5): shows the practice and precaution of studied students about COVID 19. It was observed that 24.0% of students don't leave social distance in crowded place , regarding frequent hand washing 82% of theme done but 18% not done , related to hands shack 64% done and 36.0% not done , concerning student family 64.5% practice social space while 35.5% of them don't done .About face mask 73.5% of their family wearing mask but 26.5% not done. Concerning uses of hand sanitizer frequently 69.5 % done while 30.5% not done also 74% done wearing mask to prevent outbreak but 25.0%of them don't wearing mask; 74.5%of students carry hand sanitizer during outbreak. In relation to social distance during outbreak 75.5%done while 24.5% not done.

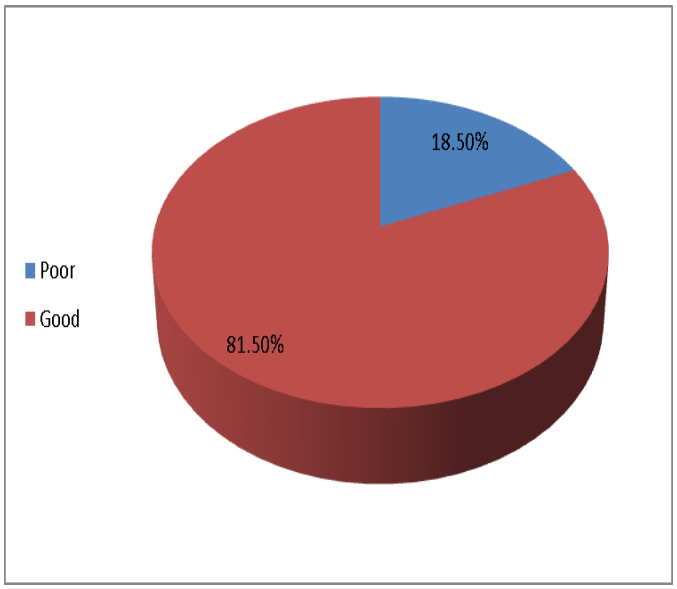

Figure (3): Distribution of Study Students according to Total Practices Scores

Figure (3) shows that 81.5% have good practices score about COVID 19 and 18.5% have poor practices score.

Table (6): Relationship between Total Attitudes Scores of Students with Their Demographic Characteristics.

Variables	Good		Poor		Chi	P
	N	%	N	%		
Level of Education -2nd year - - 3 rd year - - 4th year.	49 56 58	24.5 28.0 29.0	20 11 6	10.0 5.5 3.0	44.8	0.005**
Age -less than 20 years. -more than 20	9 142	4.5 71.0	14 35	7.0 17.5	16.77	0.1
Place of Residence: - Urban. - Rural. -semi urban	61 62 40	30.5 31.0 20.0	16 14 7	8.0 7.0 3.5	21.3	0.6

Table (6): illustrate that highly significant relation between attitude of study students and level of education, p.v= (0.001**).Also statically significant relation between attitude and residence, p,v=(0.02*)

Table (7) Correlations between knowledge, attitudes and practices of study students about Covid- 19

Variables	Knowledge	Attitudes	Practices
Knowledge			
- **r.value**	-	.427**	.307**
- **P.value**	-	.000	.000
Attitudes			
- **r.value**	.427**	-	.495**
- **P.value**	.000	-	.000
Practices			
- **r.value**	.307**	.495**	-
- **P.value**	.000	.000	-

Table (7) shows that correlations between knowledge, attitudes and practices of study students, have highest strong positive statistically significant correlation.

DISCUSSION

The world as a whole faces dangers from time to time, and the only way out is through science, with technology playing a key role. Advanced countries use scientific methods and studies to combat hazards, but this time the situation was far more severe and urgent than some people believe. It's the new Corona virus that's causing global alarm. Only social isolation, hand washing, and face masks are available as preventative strategies. (**Maheshwari, S. et al, 2020)**

This study aimed to assess knowledge, attitudes and practice regarding COVID-19 amongst Nursing Students in Minia University.

It was hypothesized that nursing students had low knowledge level, negative attitude and unsatisfactory practice regarding Covid 19.

It's worth mentioning that the present study findings revealed that near three quadrant, more than two thirds of studied subject consecutively had true knowledge about the incubation period of COVID 19 and mode of infection transmission. Regarding details of transmission mode nearly more than two third of them give a true answer about specific ways of transmission while the remaining percent either didn't know or give false information. COVID-19 spreads through droplets from an infected person's nose or mouth, touching infected surfaces, and touching infected objects, according to a similar study conducted by (Fakhri, N. et.al 2021). The majority of participants correctly identified COVID-19's incubation period (up to 14 days). COVID-19 is caused by a virus, according to almost all of the participants. (Fakhri and colleagues, 2021).

(**Njingu, et.al 2021)** in their study reported that overall mean knowledge score about COVID-19 was 13.12, implying a knowledge test accuracy rate of 62.48 percent. Other prior studies revealed similar results. (**Ghaderi, et.al 2021, Saadeh, et.al 2021**). The same was showed in the present study where there is more than half of studied subject have satisfactory knowledge about COVID-19 and 41.5% have unsatisfactory knowledge. What about the rest who did not know or reported wrong information about the methods of infection? This may be due to several factors, including obtaining information from unreliable sources indeed, the results of the current study indicated that most of students get information through multiple resources followed by mass media. Surely unauthenticated data can be easily accessed in real time and an increase in social media rumors. In this epidemic circumstance, generate a new kind of terror.

In the present study it can be noticed that more than two third of the study subject aware that COVID 19 can be prevented by washing hands for 20 seconds, wearing mask, by having good immune system, and getting well balanced nutrition. While nearly one third of the studied subject either don't know or having false knowledge. Likely explanations may be due to many reasons, for example; the evoking of danger and negative messages to the brain may make other acts recklessly without thinking about the consequences. Moreover, anxiety with which a person faces

uncertainty may be linked to impulsive behavior. This could also be due to the previous habit of not paying attention to washing hands constantly, especially with the fast-paced lifestyle, which may make some people rush to finish tasks quickly without looking at the quality of performance such as washing hands constantly and its importance This makes people confirm what was mentioned by **(Akalu, et al, 2020)** community should invest and collaborate on COVID 19-related actions at the national and continental levels to produce more effective strategy. "

In the present study; it is worth noting that almost half of the sample believes that vaccination is not required as a means of prevention COVID 19. Knowledge regarding risk factors in persons it was found that near two thirds of the subjects give a true answer while the remaining subjects either don't know or have false knowledge. Here, it is interesting to talk about the fears of many people regarding vaccinations, and this may be due to several reasons, including: being affected by rumors about vaccinations, such as that it is the cause of deaths or threatened life condition , or the belief of some that the whole issue is a conspiracy to destroy humanity, or because some know that vaccination was recently produced and therefore is under trial for a period of time to prove its effectiveness and some may decide to wait and observe what will happens and then decide to take or not. Vaccine apprehension offers significant obstacles to reaching population immunity coverage. High COVID19 vaccination acceptance rates and medical students' coverage as future health care professionals are required. **(Saied, S. M et.al 2021** conducted study to investigate the amount of COVID19 vaccine apprehension and the reasons and barriers that may influence vaccination decision-making. The majority of the students thought the COVID19 vaccine was important, near half of students were hesitant to get it, and an equal amount (6%) either accepted or declined it. The majority of students were concerned about the vaccine's side effects and ineffectiveness. Deficient data regarding the vaccine's adverse effects (possible 74.17 percent and unknown 56.31 percent) and insufficient information about the vaccine itself were the most confirmed barriers to COVID19 vaccination (72.76 percent) study concluded that Egypt's government, health authority decision makers, medical professionals, and universities must collaborate and make efforts to eliminate vaccination reluctance and improve knowledge, thereby enhancing COVID19 vaccine acceptability.

The current study's findings revealed a severe misunderstanding among the participants regarding the following: "a person with COVID-2019 cannot spread the virus to others if a fever is not present." Isolation and treatment of patients infected with the COVID-19 virus are ineffective in preventing the virus's transmission (37.5 percent). People who come into contact with someone infected with the COVID-19 virus should not be isolated in a safe environment almost away (36 percent).Subjects of the current study having either false knowledge or doesn't know in relation to the following items: necessity for medical and nursing staff to take extra precautions to prevent the infection by the COVID-19 virus, ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus (40.5%, 40%respectively). This finding is similar to the study conducted by **(Dzomo, et.al 2021**) which revealed that only near one fifth of students got both questions right. Nonetheless, the research participants were more knowledgeable about specific components of the pandemic, including as prevention and contagion. Only 28.03% of the questions were answered correctly.

Regarding Practice and precaution, it was noted that a proportion equivalent to two-thirds takes into account this precaution and follow it, but the rest of the subject do not follow the precautions. In another word study revealed that more than three quadrants have good practices score about COVID-19 and 18.5% have poor practices score. Is this related to misinformation they have? What If this group errs, is this certainly explains the percentage of infections and deaths that occur in the health field, especially that more than three quadrants of them work in clinical place, private hospital or at home? Likely explanations may be due to many reasons among of theme that evoking danger and negative messages to the brain may make other acts recklessly without thinking about the consequences. Similar finding was found by **(Ahmed, et.al 2021)** whereby the vast majority of health-care professionals have sufficient understanding and awareness of COVID-19. However, other parts of health care providers' practice were found to be lacking, such as following CDC guidelines during patient care, obtaining verified knowledge of COVID-19, disinfection process, and the usage of N-95 masks. Contradicted to the current study finding (**Rabbani, U., & Al Saigul, A. M. 2021)** stated that the health care worker used appropriate infection control techniques in general.

Perhaps the difference in the results of these studies is due to the strategy that the entire country followed to limit the spread of the epidemic, as Saudi Arabia is considered one of the best countries that managed the Corona crisis with efficient plan. Also, the economic capabilities of the country enabled it to provide the necessary requirements for precautionary measures. Certainly, students' practices affected by their attitudes, and knowledge which in the current study there is a substantial effect on knowledge and attitude on students' practice.

Study revealed that there is a strong positive statistically significant correlation between knowledge, attitudes and practices among studied students. So, it is clear that nearly appropriate knowledge and positive attitude about preventive measures of Corona Virus affecting practice. This mean that good information and attitude have transformed into effective behaviors. This will have an impact on the virus's combat because the action is mostly dependent on community engagement and behavioral changes.

Conclusion

This study concluded that there is a strong positive, statistically significant correlation between knowledge, attitudes and practices among studied sample. More than half of the sample has satisfactory knowledge level about COVID 19 while more than two fifths have unsatisfactory knowledge level.

Recommendations:

- Preparing a program for nursing students to correct misinformation reflected in the current study. Infrastructure, under-resourced health systems, pervasive illiteracy, and sociocultural behaviors should all be included in the stated program.
- Establishing different awareness programs among medical staff, nursing staff and health workers. These programs focused on covering weak points regrading effective ways of disease prevention.
- Working on transferring knowledge into actual practices through various workshops, discussions, learning by modeling
- Increase the public awareness about the COVID

Suggestions for future research

- Further studies should be conducted in other universities, to explore the KAP in different universities and among medical staff in different health care institutes.

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