KNOWLEDGE, PERCEPTION AND ATTITUDE OF NURSING STUDENTS AT SUEZ CANAL UNIVERSITY, EGYPT TOWARD COVID-19 PATIENTS

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Abstract: -

Background: Covid-19 infection has spread globally, posing a serious threat to many countries, especially those in developing countries. Due to a lack of capabilities and preparations, some governments decided to train medical and nursing internship students to raise awareness and encourage healthy actions in the face of the pandemic. The aim of this study was to assess nursing students' knowledge, perceptions, and attitudes toward covid-19 patients. Methods: A descriptive cross-sectional study was conducted on Nursing students of the 4th academic year and internship (N=302) at Suez Canal University in Egypt. Data was collected through a validated online self-administrated questionnaire. Results: The total mean score of the studied students' knowledge (24.24± 4.17) was fair while they had positive attitude (67.55± 6.87) and good perception (69.28± 7.69). There was a statistically significant correlation between students' knowledge and perception (r=.114, p=.048) and between their attitude and perception (r=.284, p=.000). Conclusions: The average score of nursing students' awareness of the COVID-19 pandemic was fair, according to the study. However, they had a positive attitude and perception. Most of them were concerned about infecting family members, losing their jobs if they were infected, and making medical mistakes when working with COVID-19 patients. Recommendation: On facing the second wave of COVID-19, nursing students may need the following: Training courses to strengthen their understanding, awareness, and attitude toward pandemic preparedness. Governmental/ institution guidelines to ensure that they are protected from legal liability are urgently needed.

Keywords: - *COVID-19 pandemic, Attitude, Knowledge, Perception, and Nursing students.*

I. INTRODUCTION

Coronavirus 2019 (COVID-19) is a novel coronavirus that causes respiratory disease. It was first discovered in Wuhan, China, in December 2019 [1]. Coronavirus-2 is a pathogen that causes extreme acute respiratory syndrome (SARS-CoV-2) [2]. COVID-19 was declared a global pandemic by the World Health Organization (WHO) on March 11, 2020 [3]. The coronavirus has infected 214 countries and territories across the world, resulting in more than 60 million confirmed cases and one million deaths. As of October 2020, Egypt had 113,000 confirmed cases and 6,500 deaths [4]. Fever, dry cough, weakness, myalgia, and dyspnea are the main clinical signs of COVID-19, which is a highly infectious disease. Just 18.5 percent of COVID-19 patients advance to the critical level, which includes acute respiratory distress syndrome, septic shock, difficult-to-treat metabolic acidosis, bleeding and coagulation issues are only a few of the complications that may occur [1, 5] COVID-19 is transmitted from person to person through droplets and direct contact, with an incubation period ranging from 2 to 14 days. [6]. Until now, no antiviral therapy or vaccine for COVID-19 has been expressly prescribed. As a result, the most effective means of preventing disease transmission is to take preventive steps [3].The treatment of patients with this highly infectious disease is the responsibility of healthcare workers (HCWs) of all categories and teams. HCWs pose significant occupational health threats because of their regular interaction with COVID-19 patients. Thousands of health-care staff have also been contaminated around the world [7].COVID-19 is still being fought all over the world. Individuals must follow these control measures to ensure ultimate performance, which is heavily influenced by their knowledge, attitudes, and perceptions (KAP) toward COVID-19 according to KAP theory [8, 9]. Lessons learned from the SARS epidemic, published in 2003, showed that knowledge and attitudes regarding communicable diseases are crucial for preventing the virus's spread through raising awareness [10].People's behaviors, beliefs, and knowledge about the virus all play a role in determining a society's willingness to adopt behavioral improvement approaches from health organizations. [11]. HCWs' lack of expertise and misunderstandings result in delayed diagnosis, disease transmission, and inadequate infection control [7],delay in infection control measures [12], and rapid spread of infection are common [13].With increasing COVID-19 infection rates around the world, Health-care systems all over the world have tended to close the gap by enlisting the assistance of final-year students and interns in the healthcare sector. Therefore, when working with COVID-19 patients, nursing students' experience, perceptions, and attitude about the disease process and care will guide their practice. Having said that, evaluating our nursing students' knowledge, perceptions, and attitudes toward covid-19 patients is critical.

II. METHODOLOGY

2.1. Study design and setting: A descriptive cross-sectional research was conducted in the faculty in nursing at Suez Canal University in Egypt.

2.2. Study subjects: Both fourth-year nursing students (184 students) and internship students (159 students) were included in the total number of students (N=343). The total number of students participating in the study was (N=302) after the pilot students and those who declined to participate were omitted. These individuals were selected because they had a good professional background that qualified them to work with patients in clinical fieldwork.

2.3. Study instrument: A validated online self-administered questionnaire was used to collect data. It was divided into four parts as follows: The sociodemographic data were mentioned in the first part (5 items). The knowledge of the target students was evaluated in the second segment (37 items). It was inspired by [3, 14-17]. The score was 1 for a correct answer and zero for an incorrect answer, and don't know added together to give a complete score ranging from zero to 37 with zero being the lowest score and 37 being the highest. Knowledge was rated as ≤ 13= poor knowledge; 14-23= fair knowledge; and 24-37 = good knowledge. The attitude of the target students was evaluated in the third segment (16 items). It was adapted from [3, 14, 17]. The items were graded on a five-point Likert scale, with responses ranging from 5 to 1 for strongly agree, agree, uncertain, disagree, and strongly disagree. The minimum score for this segment is 16, and the maximum score is 80, attitude was rated as a positive > 52 and a negative ≤ 52. The perception of the target students was evaluated in the fourth segment (22 items). It was inspired by ([3, 14, 15]. The items were graded on a four-point Likert scale, with responses ranging from 4 to 1 for strongly agree, agree, disagree and strongly disagree responses, respectively. Perception was scored as a positive >58 and a negative ≤ 58 in this segment, with a minimum score of 22 and a maximum score of 88.

2.4. Validity and reliability of the instrument: An initial phase was determined by a panel of seven experts who reviewed the questionnaires for clarification, validity, applicability, and comprehensiveness. Then, with 10 % research participants, a pilot study was performed on 34 of them. Following the pilot, the necessary changes were implemented, and the individual was eliminated from the entire study. Cronbach's alpha was used to assess the tool's reliability. Internal consistency was (0.864), suggesting that it was good.

2.5. Data collection process: It began on July 15, 2020, and ended on August 30, 2020, using a Google form. The link to the questionnaire was circulated to students via Facebook and WhatsApp student groups (internship and 4th academic year). They were asked to fill out the questionnaire and answer the questions and submit the form. As a result, data was automatically obtained.

2.6. Statistical analysis: The data was arranged, coded, tabulated, and analyzed using SPSS program version 20 according to the type of the data and the aim of the study. The sociodemographic data, level of awareness, attitude, and

perception were all described using frequency, percentage, mean and standard deviation. Pearson Correlation was applied. Significance level values considered at p<0.05.

2.7. Ethical consideration: After signing up for the website, the student read the participant information sheet (informed consent), which included the following information: the questionnaire is anonymous, a brief idea about the study and the aim of work, the potential benefits, the probable inconvenience (resulting from answering the questions and his/her rights to not to respond to some questions), protection of data confidentiality, his/her participation is entirely voluntary. By pressing enter, they are agreeing to take part in the study. The research proposal was revised and approved by the research ethics committee of Faculty of Nursing at Suez Canal University.

III. RESULTS:

Table 1. Socio-demographic data of the studied students (N=302)

Socio-demographic data	Frequency(n)	Percentage (%)
Number of students:		
4th year	166	55
Internship	136	45
Sex:		
Male	83	27.5
Female	219	72.5
Place of residence:		
Rural	134	44.4
Urban	168	55.6
Marital status:		
Single	258	85.4
Married	44	14.6

Figure 1. Distribution of nursing students regarding COVID-19 training courses(N=302)
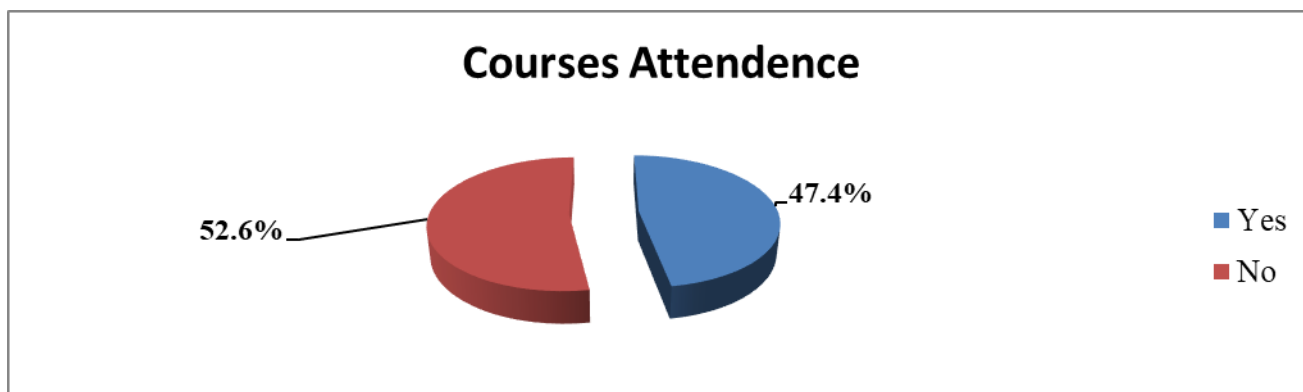
Table 2. Nursing students' knowledge about Covid-19 (N=302)

| Knowledge Items	True		False		I do not know	
	No.	%	No.	%	No.	%
Clinical presentations:						
Mean± SD 6.41±1.31						
1. Fever, weakness, dry cough, and myalgia are the most common COVID-19 symptoms.	287*	95.0	6	2.0	9	3.0
2. COVID-19 is characterized by body aches, breathing difficulties, and diarrhea.	234*	77.5	46	15.2	22	7.3
3. Stuffy noses, runny noses, and sneezing are less common in people infected with the COVID-19 virus than they are in people who have a common cold.	155*	51.3	85	28.1	62	20.5
4. COVID-19 has no successful treatment at this time, but early symptomatic and supportive treatment will help most patients recover.	259*	85.8	14	4.6	29	9.6
5. COVID-19 does not affect everyone in the same way.	249*	82.5	28	9.3	25	8.3
6. The elderly is more vulnerable to the virus.	285*	94.4	4	1.3	13	4.3
7. Patients with chronic illnesses are more vulnerable to the virus.	288*	95.4	13	4.3	1	.3
8. Obese individuals are more vulnerable to the virus.	180*	59.6	69	22.8	53	17.5
Transmission routes:						
Mean± SD 4.07±1.58						
9. The COVID-19 virus may be contracted by eating or touching wild animals.	133	44.0	97*	32.1	72	23.8
10. Animals kept as pets in the home will spread COVID-19 virus.	136	45.0	103*	34.1	63	20.9
11. When a fever is not present, people infected with COVID-19 cannot infect anyone.	68	22.5	210*	69.5	24	7.9
12. The COVID-19 virus spreads by infected people's respiratory droplets.	289*	95.7	10	3.3	3	1.0
13. The COVID-19 virus is transmitted by infected people touching objects.	273*	90.4	18	6.0	11	3.6
14. Touching coins and banknotes spreads the COVID-19 virus.	273	90.4	20*	6.6	9	3.0
15. The COVID-19 virus is transmitted by feces (e.g. in public toilets)	123	40.7	123*	40.7	56	18.5
16. The COVID-19 virus is transmitted by importing products from other countries.	235	77.8	30*	9.9	37	12.3
17. The COVID-19 virus is spread through the air.	191	63.2	86*	28.5	25	8.3
Prevention and control:						
Mean± SD 13.75±2.87						
18. To avoid contamination by the COVID-19 virus, ordinary people must wear face masks.	291*	96.4	7	2.3	4	1.3
19. Children may not need to take any precautions to avoid being infected with the COVID-19 virus.	69	22.8	222*	73.5	11	3.6
20. Young adults do not need to take any precautions to avoid being infected with the COVID-19 virus.	53	17.5	238*	78.8	11	3.6
21. Individuals should avoid crowded areas to avoid being infected with COVID-19.	284*	94.0	11	3.6	7	2.3
22. Isolation of people infected with the COVID-19 virus is an efficient way to stop the virus from spreading.	265*	87.7	13	4.3	24	7.9
23. People who come into contact with a COVID-19 virus-infected person should be quarantined for 14 days.	272*	90.1	17	5.6	13	4.3
24. Individuals who have recently travelled should be isolated for 14 days.	285*	94.4	10	3.3	7	2.3
25. For at least 15 seconds, people must rub their hands with soap and water.	248	82.1	42*	13.9	12	4.0
26. For soiled hands, the use of an alcohol-based hand sanitizer containing at least 60% alcohol is the recommended form of hand hygiene.	198	65.6	86*	28.5	18	6.0
27. People must keep around 2 meters between themselves and someone who is experiencing symptoms.	237*	78.5	42	13.9	23	7.6
28. Touching one's pupils, nose, or mouth is forbidden.	291*	96.4	6	2.0	5	1.7
29. Antibiotics are used to prevent the transmission of viruses.	96	31.8	187*	61.9	19	6.3
30. Antibiotics are the first line of defence against the disease.	116	38.4	152*	50.3	34	11.3
31. Vitamin C and E intake reduces the risk of infection.	263*	87.1	18	6.0	21	7.0
32. Currently, there is a vaccine that is effective against the virus.	82	27.2	171*	56.6	49	16.2
33. For isolation of a patient with confirmed or suspected COVID-19 virus, an airborne infection isolation room without exhaust is recommended.	204*	67.5	36	11.9	62	20.5
34. The easiest way to treat a mild infection is to donate plasma from a patient who has recovered from COVID-19 virus infection.	240	79.5	35*	11.6	27	8.9
35. The weight of the donor with COVID-19 virus-infected plasma should be greater than 50 kg.	163*	54.0	26	8.6	113	37.4
36. Plasma donation from a COVID-19 virus-infected patient must be collected 14 days after the second negative swab.	212*	70.2	25	8.3	25	21.5
37. When a patient with a COVID-19 infection arrives, rapid triage is critical for infection control.	254*	84.1	8	2.6	40	13.2
Mean ± SD **24.24±4.17 Total** Knowledge:						

*correct answer

Table 3. Students' Attitude toward Covid-19 (N=302)

Attitude Items	Strongly agree		Agree		Not sure		Disagree		Strongly disagree	
	No.	%	No.	%	No.	%	No.	%	No.	%
1. With a handshake, I welcome all my friends and co-workers.	54	17.9	79	26.2	60	19.9	70	23.2	39	12.9
2. I still offer a hug to my friends and co-workers.	47	15.6	74	24.5	74	24.5	56	18.5	51	16.9
3. I wash my hands on a regular basis and for enough time.	188	62.3	89	29.5	19	6.3	4	1.3	2	.7
4. To protect myself from infection, I normally wear a facemask.	207	68.5	78	25.8	15	5.0	2	.7	0	.00
5. If I discover that I have come into contact with a virus-infected human, I will report it to the appropriate authorities.	165	54.6	104	34.4	31	10.3	2	.7	0	.00
6. I will alert the health authorities if I encounter any of the disease's symptoms.	184	60.9	90	29.8	26	8.6	2	.7	0	.00
7. I can isolate myself if I have a fever and cough.	185	61.3	100	33.1	13	4.3	4	1.3	0	.00
8. If I am found to have met a virus-infected individual, I accept to be quarantined at home for a period of time before the disease has been confirmed.	179	59.3	102	33.8	17	5.6	4	1.3	0	.00
9. If it is discovered that I have come into touch with a virus-infected person, I accept to be quarantined in an isolation hospital for a period before it is confirmed that I am free of the disease.	169	56.0	90	29.8	26	8.6	15	5.0	2	.7
10. I am willing to participate in a virus detection lab test if one is available.	160	53.0	113	37.4	23	7.6	6	2.0	0	.00
11. I am willing to get a vaccine for the virus if one is available.	165	54.6	111	36.8	24	7.9	0	.00	2	.7
12. Normally, I keep up with the latest information on the virus's spread in my region.	145	48.0	104	34.4	41	13.6	10	3.3	2	.7
13. Normally, I keep up with the latest information on the virus's global spread.	144	47.7	93	30.8	54	17.9	11	3.6	0	.00
14. I can attend a lecture about the virus if one is kept near me.	130	43.0	100	33.1	60	19.9	12	4.0	0	.00
15. If disease information is circulated in the form of flyers or brochures, I will read them and follow the instructions.	140	46.4	129	42.7	29	9.6	4	1.3	0	.00
16. If cost-effective safety measures and equipment are available, I will purchase them.	168	55.6	89	29.5	41	13.6	4	1.3	0	.00
Mean± SD			67.55± 6.87						Total score of the attitude items:	

Table 4. Students' perception about Covid-19 (N=302)

Perception items	Strongly agree		Agree		Disagree		Strongly disagree	
	No.	%	No.	%	No.	%	No.	%
1. The COVID-19 virus is extremely harmful.	196	64.9	93	30.8	11	3.6	2	.7
2. The COVID-19 virus is a deadly virus.	159	52.6	110	36.4	31	10.3	2	.7
3. The flu vaccine would be adequate to protect against COVID-19.	47	15.6	69	22.8	153	50.7	33	10.9
4. Symptoms of COVID-19 will appear in 2-14 days.	145	48.0	140	46.4	14	4.6	3	1.0
5. I am worried about acquiring the COVID-19 virus, which might infect me or a family member.	163	54.0	121	40.1	14	4.6	4	1.3
6. If I am asked to be isolated for a period of time, I think my income will be maintained during that time.	113	37.4	137	45.4	44	14.6	8	2.6
7. If I am asked to be isolated for a period of time, I should be paid during that time.	125	41.4	136	45.0	35	11.6	6	2.0
8. Virus infection is associated with stigma.	67	22.2	117	38.7	102	33.8	16	5.3
9. I believe the media coverage of this disease is sufficient.	73	24.2	156	51.7	63	20.9	10	3.3
10. I believe this virus was created as a biological weapon.	112	37.1	139	46.0	46	15.2	5	1.7
11. COVID-19 transmission can be prevented by washing hands with soap and water.	179	59.3	105	34.8	18	6.0	0	.00
12. Wearing face masks in public places, I believe, will aid in the prevention of COVID-19 transmission.	128	42.4	123	40.7	41	13.6	10	3.3
13. Working places and retail areas, in my opinion, should be disinfected at least once a day.	135	44.7	135	44.7	32	10.6	0	.00
14. I believe that consuming well-cooked and treated meat is healthy throughout the outbreak.	154	51.0	120	39.7	26	8.6	2	.7
15. People who are sick should inform their doctors about any recent travel they've done.	128	42.4	144	47.7	26	8.6	4	1.3
16. Finally, COVID-19 will be brought under power.	78	25.8	157	52.0	56	18.5	11	3.6
17. To stop the virus from spreading, social isolation is needed.	154	51.0	122	40.4	24	7.9	2	.7
18. During these times, I believe it is safe to travel across/within the country.	82	27.2	72	23.8	117	38.7	31	10.3
19. Patients who have been deemed cured of corona virus infection do not interact with others.	110	36.4	113	37.4	75	24.8	4	1.3
20. Patients who have recovered from infection with the COVID-19 virus should donate their plasma.	124	41.1	138	45.7	34	11.3	6	2.0
21. As a student, I would be concerned about malpractice if I am called to care for a COVID19 patient.	118	39.1	146	48.3	34	11.3	4	1.3
22. As a student, I am afraid of making a medical mistake when caring for a COVID 19 patient.	123	40.7	141	46.7	32	10.6	6	2.0
Mean± SD			69.28± 7.69				Total score of the perception items:	

Figure (2): Scatterplot graph representing the correlation between attitude and perception of the studied nursing students about COVID-19 care.
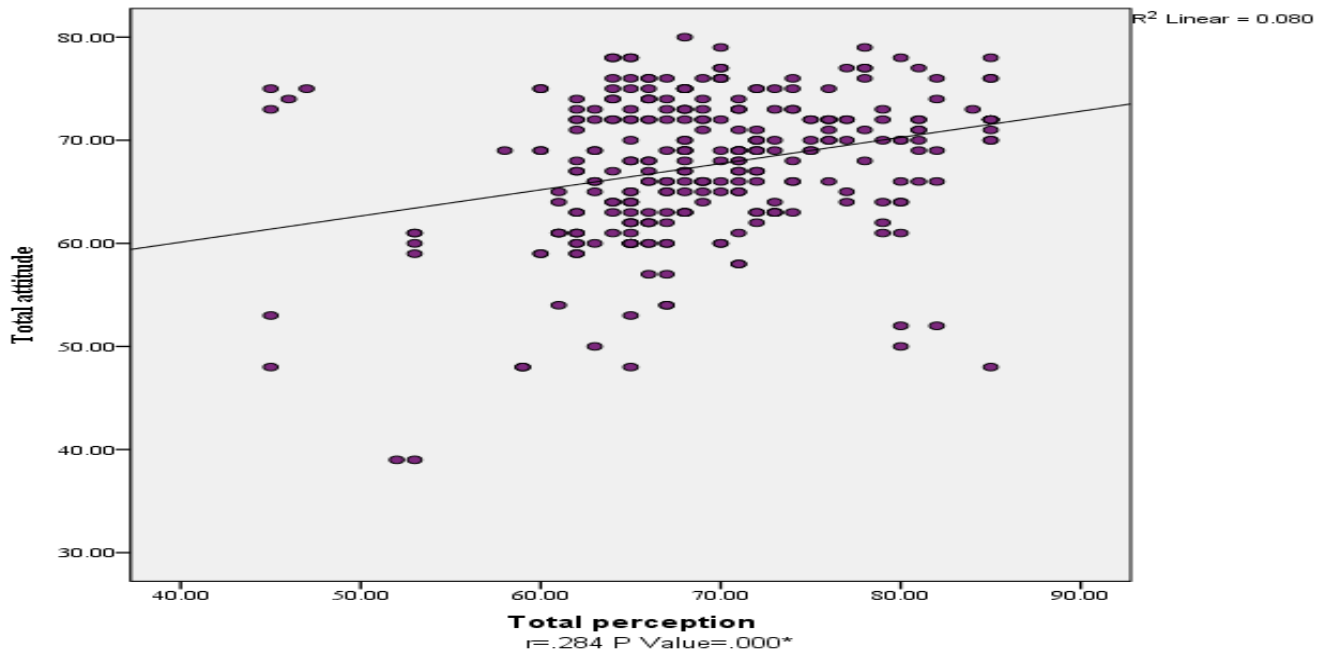
Table 5. The correlation between knowledge, attitude, and perception of the studied nursing students (N=302)

	Pearson Correlation (r test)	Sig. (2-tailed)	Pearson Correlation (r test)	Sig. (2-tailed)
Knowledge	.108	.061	.114	.048*

Table 1: Shows that more than two-thirds of them (72.5%) were females, with about half of them (55.6%) living in urban areas. In terms of marital status, most of them (85.4%) were single.

Figure 1: Illustrates that more than half (52.6%) of the studied students didn't attend training courses regarding COVID-19.

Table 2: Reveals that the overall mean score of their knowledge was (24.24± 4.17), suggesting that the participants had a fair knowledge. The mean score for clinical presentations was (6.41±1.31), suggesting that they're well in the issue. The mean score for transmission routes was (4.07±1.58), indicating that they had a fair understanding of it. Furthermore, the mean score for prevention and control was (13.75±2.87), indicating that they had some experience with these topics. Most of the students (95.4%) gave the correct answer to the question "The virus is more harmful in patients with chronic diseases". The majority (95.7 %) of them correctly answered the question "The COVID-19 virus spreads by infected individuals' respiratory droplets". For the item "Ordinary people must wear face masks to avoid infection by the COVID-19 virus", and "People must avoid touching their eyes, nose, and mouth", the correct response was mostly (96.4%) found.

Table 3: Reveals that the overall mean score of the students' attitude was (67.55 ± 6.87), suggesting that the participants had a positive attitude. Also, nearly two-thirds of them (68.5%) strongly agreed that "I usually put on a facemask to protect myself from infection risk".

Table 4: Clarifies that the student's perception overall mean score was (69.28± 7.69), suggesting that they had a good perception. Also, nearly two-thirds of them (64.9 %) strongly agree that "the COVID-19 virus is dangerous".

Figure (2): Illustrates that there was a positive statistically significant correlation between nursing students' attitude and their perception (r=.284, p=.000).

Table 5: Shows that there was a statistically positive association between the knowledge and perception of the studied students (r=.114, p=.048).

IV. DISCUSSION:

Egypt is one of the Middle East's and Africa's most highly populated nations [18]. This raises the chances of the Corona virus spreading and the complications that can result in death because of the significant proportion of the elderly population that suffers from chronic diseases [19]. When it comes to coping with and preventing illness, health care providers are the first line of defence. As a result, it is clear that health professionals must have adequate knowledge of the disease, as well as how to cope with and manage it.

In the current research, about half of the nursing students had completed the COVID-19 training courses. This outcome may be attributed to the faculty's preparedness strategy for coping with the epidemic, which involves offering preparation courses for internship students to cope with the pandemic. However, some students did not complete it because they were in a remote area with limited internet access. A significant number of fourth-year students took a free online course on covid-19. Similarly, Abdelhafiz et al., announced that more than half of the hospital staff had undergone COVID-19 training [20].

Knowledge about COVID-19:

In this research, we found that nursing students had a fair knowledge about the COVID-19 pandemic. This may be attributed to the participants' nursing backgrounds in coping with infectious diseases, as well as the fact that about half of them had attended COVID-19 training courses. In the same way, several studies concluded that the majority of their participants were aware of COVID-19 [17, 21-23].

In the current research, the students had a good understanding of the clinical presentation of COVID-19 infection. The participants in the study were aware of the disease's clinical symptoms and that the virus is more dangerous in the elderly and those with chronic illnesses. These findings support Baloran, assertion that fever is a key clinical symptom of COVID-19 infection, according to the majority of participants, and the infection is more dangerous in chronic disease [24]. Also, according to Huynh et al., the majority of the study participants are conscious that patients with chronic conditions are more vulnerable to infection and death [21].

In terms of mode of transmission, the nursing students in our research have a good understanding of how infections spread. This may be because of their medical background in infectious disease. According to Baloran; and Taghrir et al., more than two-thirds of the students were aware of disease transmission routes [24, 25].

In this research, the investigated students have a good understanding of COVID-19 prevention and control, and the majority of them understood the value of wearing a facemask and avoiding crowded areas. Baloran, claimed in the same way that the majority of university students acknowledged the significance of remaining at home [24]. According to the study participants, COVID-19 infection can also be spread by social interaction with symptomatic or even asymptomatic people [2, 3, 26-29]

Attitude about COVID-19:

The students in this study had a positive attitude about the COVID-19 pandemic. This may be because they are conscious that the infectious disease can be managed by wearing PPE as well as taking precautionary measures. Similarly, the majority of respondents in several surveys had a positive view on the COVID-19 outbreak [30, 31].

Wearing a facemask was the most common positive attitude among the students studied. This may be attributed to the Egyptian government's strict policies aimed at controlling the pandemic. In the same way, Zhong, et al., found that during the pandemic, most respondents used a facemask before leaving the home [32].

The current study found that most of the students surveyed were likely to get the COVID-19 vaccine if it became available. This may be attributed to a higher infection rate among health-care providers and their families, as well as a higher mortality rate due to the lack of an effective vaccine. Similarly, Akan et al., stated that during the influenza A/H1N1epidemic, vaccination was one of the most pressing concerns among university students [33]. Baloran, reported that less than a quarter of respondents were reluctant to be vaccinated against coronavirus and this is due to apprehensions about protection and potential side effects that could compromise their wellbeing [24]. In the same context, Huynh, et al., reported that if the COVID-19 vaccine becomes available, the majority of healthcare workers will seek it out [21].

According to the results of this research, more than two-thirds of the students would be isolated at home or in the hospital if they develop a fever or cough. This may be due to their apprehensions about disease transmission across populations and the potential for the infection chain to be broken. Similarly, Huynh, et al., reported that nearly all respondents agree to be isolated in the event of an outbreak and to isolate any infected individuals [21].

Perception about COVID-19:

The perception of COVID 19 by the students in this study was positive. According to Taghrir, et al., the average perception score of Iranian medical students regarding COVID-19 was moderate [25].

Most of them acknowledged the value of an isolation duration for suspected diseases, as well as the importance of taking preventive steps such as hand washing, face masking, maintaining social distance, and sharing travel history are all encouraged. Similarly, Baloran, demonstrated that the students who were studied agreed that the most effective way to monitor the COVID-19 pandemic was by enhancing community quarantine, followed by handwashing and sanitizing, keeping a social distance, and wearing a facemask [24].

The majority of the students in this study were concerned about malpractice and medical error when caring for a COVID 19 patient, according to the findings. This may be due to their apprehensions about providing nursing care on their own, as well as the related liability and accountability. Similarly, Shi, et al., found that over two-thirds of health-care providers were ready to aid Patients with COVID-19 **[34]** and, according to Ma, et al., this proportion is lower than the ability of healthcare providers to treat H1N1 patients **[35].** However, Zhong, et al., demonstrated that this could be due to COVID-19 infection's higher infectivity and fatality rate **[32].** According to Taghrir, et al., medical students are concerned about being sick and contracting infection more easily than other students **[25].**

The nursing students' knowledge and perceptions of COVID-19 infection had a statistically significant positive association as well as the association between their attitude and perception. This may be because understanding is crucial in opening our minds to formulate an accurate perspective on the pandemic. In the same context, Zhong, et al., state that risk perception and knowledge was negatively correlated among the participants **[32].** However, Taghrir, et al., stated that there was a strong negative association between preventive behaviours and COVID-19 risk perception among Iranian medical students **[25].** Also, according to Saqlain, et al., there was a strong positive association between respondent knowledge and attitude **[31].**

V. **CONCLUSION:**

The average score of nursing students' knowledge of the COVID-19 pandemic was fair, according to the survey, and they had an optimistic attitude and a clear perception of the situation. Most of them were concerned about spreading the infection to their family members. salary reduction if they got infected and committed medical errors during dealing with COVID-19 patients.

VI. RECOMMENDATION:

Nursing students can require the following when dealing with COVID-19's next wave:

- Training courses to strengthen their understanding, awareness, and attitude toward pandemic preparedness.
- Guidelines set out by the government or an institution to ensure that they are safe from legal liability.

REFERNCES

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