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Knowledge, Attitudes, and Practices Regarding Infection Prevention towards COVID-19 Pandemic among Intensive Clinical Training Nursing Students at Al-Hussein bin Talal University

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Abstract

Corona Virus Disease 2019 (COVID-19) affects the world. Because of their direct contact with patients, health workers, especially nurses, play critical roles in the prevention of the COVID-19 outbreak through proper care and preventive procedures. Aim: To examine the knowledge, attitudes, and practices (KAP) of Intensive Clinical Training Nursing Students at Al-Hussein bin Talal University. Design: An exploratory research design (cross-sectional study design). Setting: Nursing department at Al-Hussein bin Talal University. Subjects: All available Intensive clinical training nursing students (100 students) who train in different hospitals. Tool: A self-administered structured questionnaire, includes; (1): Personal and demographic data (2): Student Nurses' Knowledge, (3): Students Nurses' Attitude and (4): Students Nurses' Practice to prevent COVID−19. Results: Majority of the studied students were female whose age 20 ≥ 30 years old. Most of them (92%) experienced less than 5 years. There was no statistically significant difference between total knowledge, practice and attitude levels and of the intensive clinical training nursing students and their demographic data but there was a statistically significant difference between years of experience and total practice and attitude (p= 0.005, p= 0.023) respectively. Conclusion: This study showed an incomplete knowledge and a high practice level and favorable attitude of participants toward infection control of COVID 19. Recommendations: Continuous provision of education program and training of all students on proper infection prevention measures are serious and substantial.

Keywords
Knowledge, Attitudes, Practices, Infection Prevention, COVID-19, Intensive Clinical Training Nursing Students

Coronavirus disease 2019 (COVID-19) has caused an unprecedented health crisis around the world, the coronavirus disease forced cancer care providers to face different

challenges in terms of prevention and treatment management due to specific precautions implemented for cancer patients [1]

The spread of SARS-CoV-2 from a Since the first report of COVID-19 in Wuhan in December 2019, has rapidly gone worldwide, thus mobilizing health care provider and nurses to take immediate measures to prevent the risk of further infection [2]

Nurses working in healthcare facilities are the most at risk as they are in close and prolonged contact with patients with a confirmed COVID-19, or who are symptomatic or highly vulnerable to infection. Moreover, they are responsible for their essential treatment and care [3]

Thus, student nurses should have current and accurate knowledge of COVID-19 so they can first know exactly how to receive, assess, and provide quality care and education for patients with a possible or confirmed case of COVID-19; they should also know the steps to take care of their own health and safety to avoid getting the infection [4]

Significance of the study

According to Jordan's Ministry of Health data, a total of 333855 cases were confirmed Since the initial spark of the COVID-19 outbreak and 4369 total deaths across the country as of Feb 7, 2021[5]

In Jordan, Cancer treatment is offered through public hospitals including the Ministry of Health (MOH), Royal Medical Services, university hospitals and King Hussein Cancer Center (KHCC). The total cancer numbers in Jordan for the year 2020 of new cases 11559, number of death 6190 and number of prevalent cases(5-years) 28608 according to international agency of cancer [6]

The Center for Disease Control and Prevention and the ministry of Jordan health have developed a base of recommendations needed of action during the Covid-19 pandemic for specific contexts cancer patients and identify and treat early cases of infection by SARS- Covid-19 to control the spread to other patients and health personnel [6].

This research is the one that is considered relevant at the time of its elaboration; however, some points could require modifications according to the evolution of knowledge and the epidemic.

Aim of the study

This study aimed to examine the knowledge, attitudes, and practices (KAP) of Intensive Clinical Training Nursing Students at Al-Hussein bin Talal University.

Research Question

What are the levels of the knowledge, attitudes, and practices (KAP) of Intensive Clinical Training Nursing Students at Al-Hussein bin Talal University?

Subjects and Methods

Research design

Exploratory research design (cross-sectional study design) has been used to achieve the aim of the study. The study period was from August to November 2021.

Setting of the study

The study was conducted in the nursing department at Al-Hussein bin Talal University.

Study Participants

The sample in this study was composed of all available Intensive clinical training course nursing students (100 students in their last semester) who have been trained in different hospitals and departments through their study years in the undergraduate program. So, in this study years of experience were considered students training years through their undergraduate study. Taking into account that some students entered the undergraduate program with diploma certificate and want to bridging their education to gain bachelor degree in nursing program, where some of them works in hospital during their bridging intervals.

Tools of Data Collection

A self-administered structured questionnaire

The questionnaire was used to collect the knowledge, attitude, and practice towards the COVID−19 outbreak. The questionnaire was adopted from other published articles [7, 8, 9, 10,11, 12, 13, 14, 15 and 16] and further modification was

done to fit the local context and research objective. It includes the following parts:

Part 1: Personal and demographic data of the student nurses as age, gender, level of education, and years of experience.

Part 2: Student Nurses' Knowledge about COVID–19

Students Nurses' knowledge towards the COVID−19 was measured using eighteen questions questionnaires and by proving numerical value for each question (1 = Yes (correct), 0 = No (incorrect answer). The total knowledge score for the students nurses varied between 0 (with no correct answer) and 18 (for all correct answers), and a cut-off level of ≤ 9 was evaluated as poor knowledge, and > 9 indicated good knowledge.

Part 3: Students Nurses' Attitude towards COVID–19

The questions regarding the attitude were eleven (with a minimum score of 11 and a maximum score of 55). The score of the attitude was based on 5 points Likert Scale, in which the score of 1 to 5 was given from strongly disagree to strongly agree. A mean score >33 (answering for strongly agree or agree) was carried out as a favorable attitude and a score of 11 to 33 indicated an unfavorable attitude (answering strongly disagree or disagree or neutral).

Part 4: Students Nurses' Practice to prevent COVID–19

The questions regarding the practice were fourteen (with a minimum score of 14 and a maximum score of 70). The score of the practice was based on 5 points, in which the score of 1 to 5 was given from never to always. A mean score >42 (answering for always or most of the time or sometimes) was carried out as having good practice and a score of ≤42 indicated a poor practice (answering never or occasionally).

Tools reliability

All scales represented acceptable Cronbach's Alpha which illustrates valid and reliable scales. It showed that the Cronbach's Alpha for infection prevention practice of hemodialysis nurses toward the COVID 19 was .933, Knowledge about COVID19 questionnaire.873 and nurses' attitudes towards the COVID19 .922 consequently.

Ethical considerations

The research was approved by the ethical committee of the respective colleges. Any participant had the choice to quit the study at any point. The collected data's privacy and secrecy, anonymity, and protection were all ensured. The end output was used for both publication and education.

Study procedure

- Based on the recent and scientific researches, data was collected to design the research tool to assess students nurses' knowledge, practice, and attitude regarding COVID- 19 diseases by using a self-administered questionnaire.
- A pilot study of 10 % of the study sample was conducted to ensure the applicability of the questionnaire.
- The researcher obtained the permission from the dean of the faculty at Al-Hussein bin Talal University to conduct the study. In which the researchers explained the purpose of the study, as well as asked the participants about the possibility to join the study.
- The researcher distributed the self-administered questionnaire to each participant in the study and asked them to fill the questionnaire completely and honestly. The participants were confirmed that their evaluation grades will be not affected by their participation in the study. After that, the researcher collected the questionnaire from the students nurses.

Data processing and analysis

The collected data was checked for its completeness manually and then entered into EPI-data manager version 4.2.1 and analyzed using SPSS version 23 statistical software package. Descriptive statistics including proportion, Percentage, ratios, frequency distribution, the mean, and standard deviation were used to describe the normally distributed data, whereas, for the skewed data, the median and interquartile range was used.

Results

Table (1): Distribution of the demographic data of the intensive clinical training nursing students (N. 100)

Demographic data		N. (100)	%
Sex	Male	11	11.0
	Female	89	89.0
Age	18 to 20 years old	1	1.0
	20 ≥ 30 years old	86	86.0
	30 ≥ 40 years old	12	12.0
	40 years and above	1	1.0
Level of education	School of Nursing	48	48.0
	Nursing Institute	10	10.0
	Nursing College	42	42.0
Years of experience	Less than 5 years	92	92.0
	More than 5 years	8	8.0

Table (1) reveals that majority of the studied students were female (89%) and their age 20 ≥ 30 years old (86%). The table also reveals that large percentage of the studied students had school of nursing (48%) and nursing college (42%) and most of them (92%) their years of experience were less than 5 years.

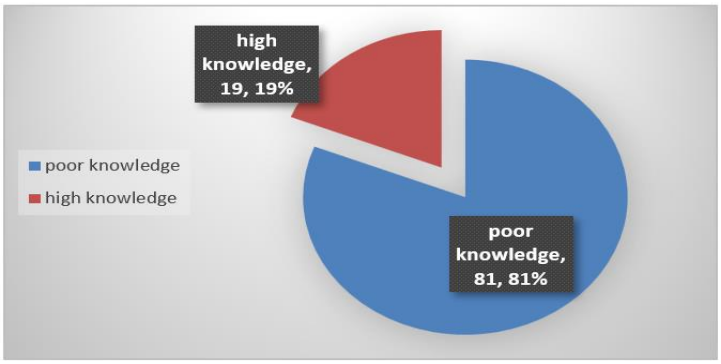

Fig (1): Distribution of the total knowledge level among the intensive clinical training nursing students (N. 100)

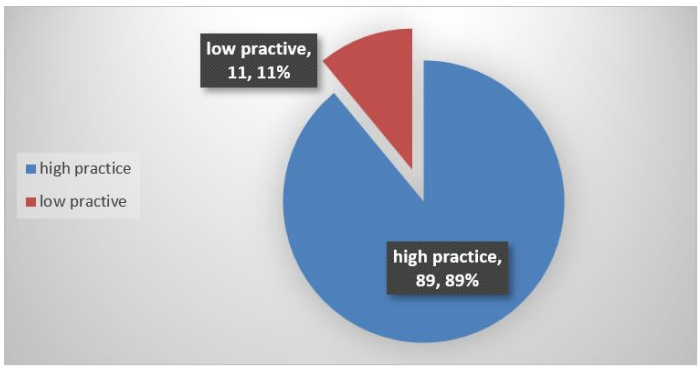

Fig (1): Distribution of the total practice level among the intensive clinical training nursing students (N. 100)

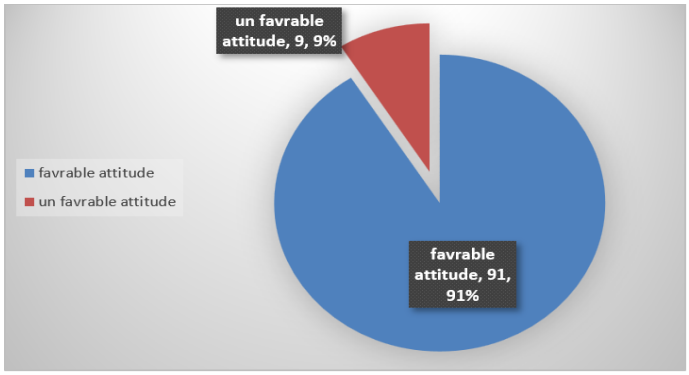

Fig (1): Distribution of the total attitude level among the intensive clinical training nursing students (N. 100)

Table (2): relation between total knowledge, practice and attitude levels and of *the intensive clinical training nursing students and their demographic data* (N. 100)

Demographic data		Total Knowledge		Total Practice		Total Attitude	
		Poor knowledge	High knowledge	High practice	Low practice	Favorable attitude	Un favorable attitude
Level of education	School of Nursing	38	10	42	6	45	3
	Nursing Institute	7	3	9	1	9	1
	Nursing College	36	6	38	4	37	5
P. value		0.473		0.899		0.641	
Years of experience	Less than 5 years	74	18	85	7	86	6
	More than 5 years	7	1	4	4	5	3
P. value		0.528		0.005*		0.023*	

The result revealed that there was no statistically significant difference between total knowledge, practice and attitude levels and of the intensive clinical training nursing students and their demographic data but there was a statistically difference between years of experience and total practice and attitude (p= 0.005, p= 0.023) respectively. The results are shown Table (2).

Discussion

The current descriptive study assessed knowledge, practice and attitudes of the intensive clinical training nursing students who were in their last semester at Al-Hussein bin Talal University about infection prevention towards COVID-19 Pandemic

The findings revealed that students had low knowledge regarding COVID-19 but had both high practice level and favorable attitudes toward infection prevention towards COVID-19 Pandemic.

The participation of nursing students in providing care to patients, combined with the high transmissibility of diseases that cause pandemics, puts this subpopulation at higher risk for contracting as well as transmitting the disease. During pandemics such as COVID-19, healthcare systems are under great pressure, and a shortage of healthcare providers (HCP) can drive the participation of less experienced HCP such as nursing students [(17)]. In addition, they are commonly referred to healthcare advice from family and friends, and have demonstrated better knowledge than students of other branches in relation to healthcare issue [(12)] which, expectedly, is more advanced in higher-level nursing students.

In the current study, majority of the correspondents were school and college nursing students whose experience is less than five years in university class. The researcher opinion that the low level of knowledge is due to these students have very limited education in this field and a lack of professional frameworks to assist them. In addition, the recent emergent of COVID-19 Pandemic and it exacerbate in short time interval didn't give the students the opportunities to form enough information through their last year of university studying. Moreover, these students will be newly graduates where they need to gain more knowledge regarding infection prevention

Outbreaks of novel infectious pathogens with poorly understood context perception towards such pandemics (as the students nurses in this study) and outcomes are often associated with tremendous fear amongst the general public. Fear and stigmatization may impact the intentions of an infected individual to seek medical assistance in the right timing which might contribute to increased morbidity and mortality. This is true for a spectrum of previous coronavirus outbreaks and other infectious diseases including SARS, MERS, HIV infection and tuberculosis [(18)]

In our analysis, the Intensive Clinical Training nursing students seemed to have less susceptible to stigmatization. This potential, despite minimal, stigma in nursing students is likely to reflect larger fear and sense of stigmatization among their university peers among other disciplines and possibly in the general public. Unfortunately, this might hinder the current local and healthcare efforts to contain the outbreak and to provide medical help to those in need.

Assessing knowledge of precautionary measures for contracting the disease is the first step in directing future efforts in the educational process, which have been shown

to affect future behavior [19]

Nevertheless, our results showed that the participants' high knowledge of COVID-19 translates into good and safe practices, during the COVID-19 pandemic, this suggests that the practices of nursing students are very cautious. Almost most of respondents refrained from attending social events, avoided crowded places, and avoided shaking hands.

Respondents adopted good and safe practices, as a result of the health authorities providing education and outreach materials, to increase public understating of the disease, and influence behavioral change [4]

Chinese residents where nearly all of the participants admitted to wearing masks when leaving their homes as a practical site [12]. This could be due to differences in regulations enforced by the state, cultural experience in previous pandemics, and the educational level of the two subpopulations.

The present study found that majority of the studied nursing students had a high practical level and participants still confirmed the importance of infection control practice, such face mask practices are advised by the WHO and CDC. Better education regarding the need for wearing a face mask is essential.

There is a paucity of evidence on assessing knowledge and attitude of nursing students toward COVID-19, that confirmed in the study by Ruan et al., (2020) [20] who investigating knowledge, attitude, and practices toward COVID-19 pandemic among students was conducted in a single institution included 323 medical students which is a large sample compared to the number of students included in our study. However, several clues can be inferred from the comparison of knowledge, practice and attitude of nursing students in the first 6 years and their counterparts doing clinical rotation, assuming that they will have good clinical knowledge. Moreover, the questionnaire in our study covered wider aspects of the knowledge to evaluating stigma and level of reaction of students toward this pandemic which were not included in Bogoch et al., (2020) study. [2]

By assessing public awareness and knowledge about the coronavirus, deeper insights into existing public perception and practices can be gained, thereby helping to identify attributes that influence the public in adopting healthy practices and responsive behavior [21].

The present study found that majority of the studied students had a favorable level of attitude, Positive attitudes and high confidence in the control of COVID-19 can be explained by the government's unprecedented actions and prompt response in taking stringent control and precautionary measures against COVID-19, to safeguard citizens and ensure their well-being. These measures include the lockdown, and the suspension of all domestic and international flights, prayer at mosques, schools and universities, and the national curfew imposed on citizens.

This finding is consistent with a recent study of Zhong et al., (2020) [12] which conducted in China, where the majority of participants were convinced that the disease is curable and that their country will combat the disease through providing some directions regarding health practices. However, other findings suggest that people tend to express negative emotions, such as anxiety and panic, during a pandemic that could affect their attitude [22].

Another report from Iran targeted final years medical students by Khan et al., (2020) [14] showed a significant correlation between preventive attitude and knowledge and their characters whereas our study showed no concordant relation.

The existing study found that there was no statistically significant difference between total knowledge, practice and attitude levels and of the intensive clinical training nursing students and their demographic data but there was a statistically difference between years of experience and total practice and attitude (0.005 and 0.023) respectively. This match with Phan et al., (2020) [23] who found that the more experience the more compliance in practice and attitude.

On the other hand, Shereen et al., (2020) [24] found that men had a statistically significant difference be to have knowledge, optimistic attitudes, and appropriate or safe practices toward COVID-19. These findings are contrast with other studies showing that, in response to SARS and MERS, men were significantly less likely take preventive and protective measures than women [18]. However.

Our study findings revealed that there was no statistically significant difference between males and females nursing students regarding knowledge, attitude and practice.

Our finding suggests that targeted health education interventions should be directed to this vulnerable population who are at high risk of contracting COVID-19.

In this respect, Zhou et al., (2020) [10] suggested that students level of education effect on health information that may influence their practices.

Lastly, this study showed that nursing students had an incomplete knowledge and high practice level and a favorable attitude toward infection control of COVID 19.

Therefore, it is of paramount importance that nursing students have extensive training through workshops and scheduled courses to gain knowledge about the preventive measures (social distancing, hand hygiene, coughing etiquette, avoiding crowded places, and wearing a face mask when going outside of the house). as applying the aforementioned techniques constitutes the first line of defense against infection [25]. Because providing such kind of theoretical knowledge will help nursing students to perform healthy practices based on scientifical conviction rather than following country commands and thus, we ensure continuity in the application of these healthy practices in a variety of time and settings.

Conclusion & Recommendations

The result of this study showed that intensive clinical training nursing students have incomplete knowledge and positive practices with favorable attitude at Al-Hussein bin Talal University about COVID-19 infection control. Urgently implement of strategies as educational interventions to protect students and employees in the time of the COVID-19 pandemic.

Finally, the study findings may be useful to inform policymakers and healthcare professionals, on further public health interventions, awareness-raising, policies, and health education programs

Declaration of conflicting interests

The author declare that there is no conflict of interest

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