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EXPLORING NURSING STUDENTS' KNOWLEDGE, RISK APPRAISAL, AND ACADEMIC SELF-EFFICACY DURING COVID-19 LOCKDOWN

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Abstract

Background: Countries enacted varied levels of limitations in response to the World Health Organization's directive for the containment of the novel coronavirus (COVID-19), including the closure of university campuses and the provision of on-line undergraduate education. This study aimed to explore knowledge, risk appraisal, and academic self-efficacy during COVID-19 lockdown among student nurses. **Methods:** A descriptive, cross-sectional online survey was completed by 190 nursing students in Qassim University using a convenience sampling method to assess the respondents' knowledge, Risk appraisal, and academic self-efficacy towards COVID-19. **Results:** The results showed that most students had a good knowledge regarding COVID, 53.7 % of the students reported high perceived academic self-efficacy, and, the level COVID-19 Own Risk Appraisal was 51.6% of the students reported moderate risk appraisal regarding COVID. Also, the student nurses with a high knowledge showed moderate Self-efficacy ($r = 0.377$, $p < 0.001$). In addition, students with higher academic Self-efficacy had lower Risk Appraisal ($r = -0.216$, $p = 0.003$). **Conclusion:** The findings of this study offered baseline information on the current state of knowledge, academic self-efficacy, and COVID-19 Own Risk Appraisal among Saudi nursing students. The findings of the study revealed that self-efficacy was positively related to satisfaction of nursing student's knowledge ($r = 0.377$, $p < 0.001$). The findings of the study could be used to guide the creation of a self-efficacy promotion program through education for online nursing students during the COVID-19 pandemic.

Keywords: Knowledge, Risk Appraisal, Academic Self-Efficacy, Nursing Students, Covid-19 Lockdown

抽象的

背景：为响应世界卫生组织关于遏制新型冠状病毒 (COVID-19) 的指令，各国制定了不同程度的限制措施，包括关闭大学校园和提供在线本科教育。本研究旨在探讨学生护士在 COVID-19 锁定期间的知识、风险评估和学术自我效能。方法：卡西姆大学的 190 名护理专业学生使用便利抽样方法完成了一项描述性的横断面在线调查，以评估受访者对 COVID-19 的知识、风险评估和学术自我效能。结果：结果显示，大多数学生对 COVID 有很好的了解，53.7% 的

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学生报告了较高的学术自我效能感，并且 COVID-19 自身风险评估水平为 51.6% 的学生报告了对 COVID 的中等风险评估。此外，知识渊博的学生护士表现出中等的自我效能感 ($r = 0.377$, $p = <0.001$)。此外，学业自我效能较高的学生的风险评估较低 ($r = -0.216$, $p = 0.003$)。结论：本研究的结果提供了有关沙特护理专业学生当前知识状况、学术自我效能感和 COVID-19 自身风险评估的基线信息。研究结果表明，自我效能感与护生知识满意度呈正相关 ($r = 0.377$, $p < .001$)。该研究的结果可用于指导在 COVID-19 大流行期间通过在线护理学生的教育来制定自我效能提升计划。

关键词：知识、风险评估、学术自我效能感、护理学生、Covid-19 封锁

Introduction

In December 2019, a series of pneumonia cases with clinical symptoms similar to viral pneumonia were reported in Wuhan, Hubei, China. Deep sequencing of materials from the lower respiratory tract revealed a new coronavirus known as SARS-CoV-2 (2019-nCoV) [1-2]. The Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus are two fatal coronavirus diseases that have appeared in the last two decades. Based on the WHO's way for restraint [3], countries applied fluctuating levels of limitations to stop the spread of the virus. On the 2nd of March 2020, Saudi Arabia reported their first COVID-19 case, with a total of 371,356 confirmed cases and a recovery rate of 97.58 percent as on February 11th, 2021 [4]. Academic self-efficacy is a characteristic to consider in the university context since it reflects students' future aspirations based on their abilities, such as achievement motivation, scholarship access, academic success, or academic persistence [5]. However, in this time of confinement, when we have quickly transitioned from face-to-face teaching to remote emergency teaching [6], it was critical to assess whether this improvised change would affect university students' expectations of perceived self-efficacy to achieve academic success, given that students were not prepared. Social and cultural influences, as well as experiences, beliefs, knowledge, and attitudes, all influence how people perceive danger. In a study on a prior epidemic, avian influenza, risk perception was found to be inversely related to self-efficacy: the stronger one's self-efficacy, the lower one's risk perception [7]. The engagement in preventative measures during outbreaks is influenced by risk perception and self-efficacy [8-9]. Furthermore, recent research [10-11] has shown that self-efficacy is a key factor in fostering health-related intentions and behaviors. Nursing students have been reported to exhibit higher levels of anxiety as a result of their study than students in other health professions [12]. Additional pressures associated with social and academic adaptations as a result of COVID19 in the community [13] and its impact on nursing education delivery are likely to exacerbate this (Hayter & Jackson, 2020). Anxiety has a negative impact on one's quality of life, academic achievement, and clinical work [14].

Objective of the study

This study aimed to explore knowledge, risk appraisal, and academic self-efficacy during COVID-19 lockdown among student nurses

Materials and methods

The questionnaires were administered online in 15 March to 30 April 2020 after The Nursing Research Ethical Committee at Qassim University examined and approved this study. Students were sent an online survey link via university e-mails, phone numbers, and social groups, which are widespread among nursing students around the country. The surveys were uploaded to the Google Forms program (which is free to use) along with instructions on how to fill them out. The questionnaire, <https://forms.gle/HQ5x4DbyMW39Rym1A>, which was divided into 4 parts: as demographics, knowledge, risk appraisal, and academic self-efficacy. **Part 1** Demographic variables included age, and level of education. **Part 2** to measure the COVID-19 knowledge [15]. The questionnaire was developed using the Chinese National Health Commission's "guidelines for clinical and community management of COVID-19. The questionnaire comprised 12 questions, table (1), including four questions about clinical manifestations, three questions about transmission routes, and five questions about COVID-19 prevention and control. These questions were answered on a true/false basis, with the option of "I don't know" added in for good measure. A correct answer received 1 point, whereas an incorrect/unknown response received 0 points. The total knowledge score varied from 0 to 12, with a higher score indicating more COVID-19 knowledge. In our sample, the knowledge questionnaire's Cronbach's alpha coefficient was 0.71, showing acceptable internal consistency [16]. **Part 3** comprises an adapted scale from [17] to measure academic self-efficacy this scale had Academic Situations Specific Perceived Self-Efficacy Scale," which consisted of 10 items with a 4-point Likert scale response format ranging from 1 (never) to 4 (always). The minimum and maximum scores were 10 and 40, respectively, with a reliability of 0.92. The goal was to assess university students' self-efficacy expectations in certain settings in the educational context while their isolation due to the epidemic. Low self-efficacy is indicated by scores up to 24 points, moderate by scores between 25 and 29 points, and high by scores of 30 or more points. **Part 4** to measure Risk appraisal through the COVID-19 Own Risk Appraisal Scale (CORAS) [18] as 'I am positive I will NOT get infected with COVID-19,' and 'I feel vulnerable to COVID-19 infection,' were two of the nine items chosen for the CORAS. On a 5-point ordinal scale, all items were rated CORAS total scores were calculated by adding the scores of different components, with higher scores representing a higher perceived COVID-19 risk. This scale is an instrument measuring the strength of an individual's perceived risk. Respondents rate 6 statements on a scale of 1 to 5 (1-disagree, 2-somewhat disagree, 3-neutral 4-somewhat agree, 5-strongly agree). The total score, converted into standardized sten units, reflects the overall level of risk appraisal. Low risk perception is indicated by scores less than 10 points, moderate by scores between 10 to less than 20 points, and high by scores between 20 to 30 points. Cronbach's α for the instrument is 0.85.

Data Analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution Quantitative data were described using range (minimum and maximum), mean, standard deviation, median . Significance of the obtained results was judged at the 5% level.

Result

The present study included 190 of the students nursing college Qassim university in Saudi Arabia, with nearly two-thirds of the participants (64.2%) were aged between 21 and 26 years old, majority of the student's resident (88.9%) were from urban. Most of them do not have corona and have never been infected with corona (97.4 %, and 80.0% respectively). 67.9% of the have relatives, family or friends suffering from Corona now and (72.1 %) of them don't have any anyone died of coronavirus, table (1). The knowledge level of nursing students towards COVID-19 is presented in Table 2a. A majority of participants were aware with prevention as the isolating and treating people infected with the Coronavirus is an effective way to limit the spread of the virus (96.3 %), the observation period is 14 days for infected person (96.3 %) with the Coronavirus, main symptoms of corona 92.1% and also aware with mode of transmission as Corona virus spreads through respiratory droplets of infected individuals (90.0%). The mean knowledge score was 9.83 (SD 1.92, range 0-12), suggesting an overall 81.89 % correct rate on this knowledge test indicating that most students had a good knowledge regarding COVID. Of the 190 respondents, 94.0 % total score at Knowledge of the prevention with COVID-19. In terms of mode of transmission, 76.18 % of respondents. However, 69.30 % of the respondents had knowledge regarding prevention of COVID-19 as shown in **table (2b)**. Table 3 Shows that one hundred two 53.7 % of the students reported high perceived academic self-efficacy, fifty one (26.8%) reported low self-efficacy, and 37 (19.5%) reported moderate academic self-efficacy with mean 29.96 . while, the level COVID-19 Own Risk Appraisal was 51.6% of the students reported moderate risk appraisal and 48.4% of them with high risk appraisal regarding COVID. **Table 4** Shown that there was moderate positive correlation between Knowledge and Self-efficacy ($r=0.377$, $p<0.001$), in addition, there was weak negative relationship between Self-efficacy and Risk Appraisal ($r=-0.143$, $p=0.048$). Also, there was No or negligible relationship between Knowledge and Risk Appraisal ($r= -0.216$, $p=0.003$).

As shown in **Table 5**, there were significant relation between age, level of education and overall knowledge, academic self-efficacy and risk appraisal with high mean score in age group between 21-26 years, but statistically significant differences were found between relatives, family or friends previously been infected with Corona virus and Risk Appraisal.

Table 1: Distribution of the studied nursing students according to Socio-Demographic Data (n =190)

Demographic data	No.	%
Age (years)		
<21 years	68	35.8
21–26 years.	122	64.2
Residence		
Rural	21	11.1

Urban	169	88.9
Level of education		
Second	68	35.8
Third	64	33.7
Fourth	58	30.5
Have you ever had Corona?		
Yes	38	20.0
No	152	80.0
Are you suffering from Corona now?		
Yes	5	2.6
No	185	97.4
Is any of your relatives, family or friends suffering from Corona now?		
Yes	26	13.7
No	164	86.3
Has any of your relatives, family or friends previously been infected with Corona virus?		
Yes	129	67.9
No	61	32.1
Has anyone died of coronavirus?		
Yes	53	27.9
No	137	72.1

Table 2-a: Distribution of the studied nursing students Knowledge regarding COVID-19 (n = 190)

Survey elements	Incorrect		Correct	
	No.	%	No.	%
Knowledge of the clinical manifestations				
1. The main symptoms of corona are fever, fatigue, dry cough and muscle aches	15	7.9	175	92.1
2. Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in people with coronavirus	86	45.3	104	54.7
3. There is currently no effective treatment for corona, but early symptomatic and supportive treatment can help most patients recover from the infection.	45	23.7	145	76.3
4. Not all people with corona will develop severe cases. Only the elderly with chronic diseases and obesity are more likely to develop severe cases.	35	18.4	155	81.6
Knowledge of the mode of transmission				
5. Eating or contacting wild animals such as camels may cause infection with the Corona virus	105	55.3	85	44.7

6. People with corona cannot transmit the virus to others if there is no fever.	51	26.8	139	73.2
7. Corona virus spreads through respiratory droplets of infected individuals.	19	10.0	171	90.0
Knowledge of the prevention				
8. Wearing medical masks can prevent infection with the Corona virus	15	7.9	175	92.1
9. It is not necessary for children and young people to take measures to prevent infection with the Corona virus	9	4.7	181	95.3
10. To prevent infection with the Coronavirus, individuals should avoid going to crowded places such as train stations and using public transportation.	19	10.0	171	90.0
11. Isolating and treating people infected with the Coronavirus is an effective way to limit the spread of the virus.	7	3.7	183	96.3
12. People in contact with a person infected with the Coronavirus should be isolated immediately in an appropriate place. Generally, the observation period is 14 days.	7	3.7	183	96.3

Table 2-b: Descriptive analysis of the studied nursing students according to scores of Nursing Students' Knowledge during COVID-19 Lockdown (n = 190)

Nursing Students' Knowledge	Total Score	Percent Score
Knowledge of the clinical manifestations	(0–4)	
Min. – Max.	0.0 – 4.0	0.0 – 100.0
Mean ± SD.	3.05 ± 1.01	76.18 ± 25.37
Median	3.0	75.0
Knowledge of the mode of transmission	(0–3)	
Min. – Max.	0.0 – 3.0	0.0 – 100.0
Mean ± SD.	2.08 ± 0.89	69.30 ± 29.68
Median	2.0	66.67
Knowledge of the prevention	(0–5)	
Min. – Max.	0.0 – 5.0	0.0 – 100.0
Mean ± SD.	4.70 ± 0.70	94.0 ± 14.10
Median	5.0	100.0
Overall Knowledge	(0–12)	
Min. – Max.	1.0 – 12.0	8.33 – 100.0
Mean ± SD.	9.83 ± 1.92	81.89 ± 15.98
Median	10.0	83.33

Table 3: Distribution of the studied nursing students according to scores of academic self-efficacy and the COVID-19 own risk appraisal scale (n = 190)

	No.	%
perceived academic self-efficacy.		
Low	51	26.8
Moderate	37	19.5
High	102	53.7
Total Score	(10–40)	
Min. – Max.	10.0 – 40.0	
Mean ± SD.	29.96 ± 7.01	
Median	30.0	
Student COVID-19 Own Risk Appraisal		
Low	0	0.0
Moderate	98	51.6
High	92	48.4
Total Score	(6–30)	
Min. – Max.	10.0 – 30.0	
Mean ± SD.	20.01 ± 4.69	
Median	19.0	

Table 4: Correlation between nursing students' knowledge, academic self-efficacy and COVID-19 own risk appraisal scale (n = 190)

	r	p
Knowledge vs. academic Self-efficacy	0.377*	<0.001*
Knowledge vs. Risk Appraisal	-0.143*	0.048*
Self-efficacy vs. Risk Appraisal	-0.216*	0.003*

r: Pearson coefficient *: Statistically significant at $p \leq 0.05$

Table 5: Relation between perceived overall knowledge, academic self-efficacy and risk appraisal with socio demographic characteristics (n=190)

% score	Overall Knowledge		Academic self-efficacy		Risk Appraisal	
	Mean ± SD.	Median	Mean ± SD.	Median	Mean ± SD.	Median
Age (years)						
<21 years	77.08 ± 19.66	83.33	59.85 ± 23.83	58.33	64.46 ± 18.46	58.33
21–26 years.	84.56 ± 12.84	83.33	70.27 ± 22.35	68.33	54.95 ± 19.38	54.17
Test of sig.(p)	U=3264.5(0.013*)		t=3.009*(0.003*)		U=3119.0*(0.004*)	
Residence						
Rural	74.24 ± 25.71	79.17	68.03 ± 27.05	68.33	53.41 ± 18.48	54.17
Urban	82.89 ± 14.05	83.33	66.35 ± 22.93	66.67	59.0 ± 19.64	54.17

Test of sig.(p)	U=1538.0(0.192)		t=0.317(0.752)		U=1553.50(0.223)	
Level of education						
Second	77.08 ±19.66	83.33	59.85±23.83	58.33	64.46±18.46	58.33
Third	80.60±14.25	83.33	66.61±19.65	66.67	54.95±19.16	54.17
Fourth	88.94 ± 9.42	91.67	74.31 ± 24.53	80.0	54.96±19.78	54.17
Test of sig.(p)	H=17.486*(<0.001*)		F=6.329*(0.002*)		H=8.130*(0.017*)	
Have you ever had Corona?						
Yes	85.09±10.99	83.33	70.79±22.10	73.33	53.40±17.73	50.0
No	81.09±16.94	83.33	65.48±23.62	66.67	59.59±19.84	58.33
Test of sig.(p)	U=2613.50(0.355)		t=1.254(0.211)		U=2306.50(0.054)	
Are you suffering from Corona now?						
Yes	86.67 ± 12.64	83.33	86.67±29.81	100.0	56.67 ± 33.02	75.0
No	81.76 ± 16.07	83.33	66.0 ±23.03	66.67	58.40 ± 19.20	54.17
Test of sig.(p)	U=403.50 (0.620)		t=1.966(0.051)		U=438.50 (0.843)	
6. Is any of your relatives, family or friends suffering from Corona now?						
Yes	85.26±11.86	83.33	70.51±23.49	66.67	58.17±21.91	54.17
No	81.35±16.51	83.33	65.91±23.36	66.67	58.38±19.22	54.17
Test of sig.(p)	U=1969.0 (0.523)		t=0.932(0.353)		U=2117.0 (0.954)	
7. Has any of your relatives, family or friends previously been infected with Corona virus?						
Yes	80.62±17.09	83.33	66.54±23.69	66.67	61.82±19.71	58.33
No	84.56±13.07	83.33	66.56±22.87	66.67	51.02±17.16	50.0
Test of sig.(p)	U=3428.50 (0.144)		t=0.005(0.996)		U=2704.0* (<0.001*)	
8. Has anyone died of coronavirus?						
Yes	82.86±13.12	83.33	68.55±23.05	66.67	61.16±21.91	58.33
No	81.51±16.99	83.33	65.77±23.53	66.67	57.27±18.52	54.17
Test of sig.(p)	U=3603.50 (0.935)		t=0.736(0.462)		U=3166.00 (0.170)	

t: Student t-test

: F for ANOVA test

U: Mann Whitney test

H: H for Kruskal Wallis test * : Statistically significant at $p \leq 0.05$

Discussion

In higher education, self-efficacy toward learning, independent of the situation, is a key idea. It is more critical for faculty in an online course because cues present in a face-to-face course (such as students' body language and facial expressions) are less likely to be recorded in both synchronous and asynchronous sessions. The focus of this study was exploring knowledge, risk appraisal, and academic self-efficacy during COVID-19 lockdown among student nurses. COVID-19 was well-understood by Saudi nursing students, according to our findings showed that majority of participants were aware with the isolating and treating people infected with the Coronavirus is an effective way to limit the spread of the virus, the observation period is 14 days for infected person with the coronavirus, main symptoms of corona, and corona virus spreads through respiratory droplets of infected individuals. also, in terms of the COVID-19 knowledge dimension, we conclude that knowledge is a critical concern, as various research [19-22] have shown. Increased student understanding and the promotion of positive attitudes are critical for changing students' health habits and increasing compliance with preventive actions. Positive attitudes and adherence to restriction measures have the potential to dramatically improve public health and COVID-19 preparation [19-24]. Finally, in response to the COVID-19 pandemic, health-care students from throughout the world offered to help in hospitals, providing critical support to hospital operations and patient care in healthcare systems [25-26]. Online learning allows students to learn at their own pace and assists them in becoming self-directed learners, according to [27], [28] Students deemed it more beneficial since an internet-based environment offers a greater variety of teaching materials given in a variety of interactive techniques that meet their needs. Furthermore, visual learning is more effective than aural learning in helping pupils understand course materials. Because they don't have to commute, students have more time [28] to study when they study at home. All of these characteristics boosted students' academic achievement, as evidenced by exam scores. The findings indicated that there were moderate positive correlation between knowledge and academic self-efficacy ($r = 0.377$, $p < 0.001$). The findings from this study were similar to others that demonstrated that study COVID-19 knowledge was linked to health beliefs, self-efficacy, and behavioral intention in all nursing students. All nursing students had COVID-19 knowledge, evaluated their health beliefs, developed self-efficacy, and practiced behavioral intention to avoid COVID-19 spread, according to the findings [29]. Also, [1], [30-31] found that People with more education have more self-esteem, more knowledge, and a stronger belief in their talents, according to the study. While [32] stated that academic self-efficacy may influence students' conceptual thinking and knowledge of COVID-19 and may limit their e-learning experiences. Mobile learning (M-learning), on the other hand, is a method of learning via a mobile device that is being utilized to improve students' knowledge of the COVID-19 curriculum [33-35]. According to reports, 81.8 percent of students believe that M-learning can help them increase their knowledge in their subject of study [33]. Remote learning, which has grown in popularity as a result of the ongoing epidemic to meet the needs of medical students, offers a level of flexibility that is difficult to match. In this study, we found that there was no or negligible correlation between knowledge and risk appraisal ($r = -0.216$, $p = 0.003$). Previous studies have shown that COVID-19's perceived threat is projected to have a large positive influence on preventive behaviors and mental health since it prompts people to take precautions against threats [36],

while [37] discovered that perceived academic self-efficacy was significantly negative linked with anxiety in Spanish university students using the modification of the Specific Perceived self-efficacy scale in confinement situations by COVID-19 (ASPS-COVID-19). Other studies have reported that students' attitudes and understanding about preventative methods will improve as their education level improves [38]. This study demonstrated that, there were significant relation between age , Level of education and overall knowledge, academic self-efficacy and risk appraisal with high mean score in age group between 21-26 year . This result was contrary with previous studies [39], [40] found that the participants' age had an impact on the precautions they took and their sense of risk: the older they were, the more precautions they took. In addition, older teachers' risk perception and self-efficacy were poor. While, other researcher [41] found that COVID-19 knowledge did not differ significantly dependent on age, gender, field, or hospital site. This conclusion is consistent with the findings of [42], who found that COVID-19 knowledge levels were similar regardless of age, gender, academic degree, or profession. Multidimensional variables could be to blame for this discovery. Other previous studies [43], demonstrates that , the high level of knowledge among the participants study could be due to the fact that the majority of them have a college diploma or higher, or it could be due to the extensive media coverage, which includes all media outlets, and the pandemic's impact on social life, which forces people to follow. COVID-19 infection is rapidly spreading over the world and has emerged as the most serious global threat. Infection management is aided significantly by health care providers who have direct contact with infected patients [44]. University students are in the midst of a dynamic time of growth and development that spans infancy and maturity, a period marked by rapid, intertwined changes in cognition and social connections [45] [46]. Universities have implemented a number of steps to restrict the spread of the virus in the context of a growing and ever-changing pandemic. During the coronavirus lockdown, new and diverse things have harmed university students. The majority of students around the world has been restricted to their homes, away from university learning resources, educators, and peers, and is seeking to learn remotely via textbooks or online resources. This new academic life brought with it more stress and demands, more independent decision-making, and different study and interpersonal approaches [47]. This study revealed nursing students' a good degree of knowledge is in line with the findings of earlier investigations [48-50]. One of the limitations of this study is that assessing risk appraisal can source bias and distortion. As a result, future training programs should take into account nursing students' risk assessment and academic self-efficacy, as well as their understanding of the success of recommendation strategies for performing COVID-19 preventative measures.

Conclusion

This study highlights some serious questions about the quality of knowledge and risk assessment in order for student nurses to acquire academic self-efficacy in the face of the COVID-19 outbreak. Training programs to promote risk appraisal understanding and academic self-efficacy are clearly required. As a result, nursing students should feel more confident in their ability to offer appropriate care to their patients while also safeguarding themselves.

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Interest Conflict

There is no conflict of interest to declare.

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