
Studying during the COVID-19 Pandemic: Nursing Student's Perspectives and Experiences in Saudi Arabia

Abeer Alatawi

Abstract

The outbreak of the global and widespread COVID-19 pandemic extended to all nations and affected all races and socioeconomic categories. Global crises like the COVID-19 pandemic may pose devastating impacts on the academic functioning and psychological wellbeing of students, specifically nursing students. With such consideration, the current study focused on identifying the perceptions of nursing students towards the COVID-19 pandemic while also investigating some of their encounters while learning amid the pandemic. Data saturation was obtained after analyzing filled questionnaires and answers from 123 interviews conducted through virtual calls. Data was collected through analyzing the current literature and supplemented by surveys and virtual interviews online. Analysis of the data collected provided 16 codes that depicted various student's perceptions and experiences. The participating nursing students answered questions pertaining to the ability of government institutions in controlling the virus. They also answered positively to indicate the prevalence with which misinformation was propagated by social media sites. Besides, the participants reported that the general populations did not follow the measures set by government's institutions.

Keywords: Coronavirus, COVID-19, pandemics; nursing students; perceptions; experiences

1. Introduction

The outbreak of the global and widespread COVID-19 pandemic extended to all nations and affected all races and socioeconomic categories. COVID-19 virus is a novel virus that originated in Wuhan China towards the end 2019. The etiological agent of the virus is the *severe acute syndrome corona virus 2* (SARS-CoV-2) (Lavin et al., 2017). The global scene has witnessed more over 100 million COVID-19 infection cases and over two million deaths worldwide. According to statistics from The World Health Organization (2020), between December 2019 and mid-April 2020, there were over 1 million infections across Europe, with other infections dispersed within all the continents. The virus is new to the existing pharmacological treatments hence the numerous safety measures around the world (Lovric et al., 2020).

The SARS-CoV-2 is known for its high transmissibility and potent pathogenicity. Patients carrying a higher viral load have a low virus shedding

period than asymptomatic individuals who can transmit the virus easily. This characteristic makes healthcare professionals more vulnerable than any other group. The risk of infection is higher among nurses and doctors and also nursing students in most easily transmissible infections (Aldwin, 2007). There are direct links between nursing students, health centers and universities, with the likelihood of spreading pathogens to large and susceptible populations. Nursing students have found these facts quite stressful and highly implicating their studies and psychological wellbeing (Polite, 2017). This poses a challenge to universities who should establish measures that will effectively protect their students from exposure thus preventing the spread in their institutions. Universities adopted digital learning approaches and terminated in class lessons to curb spread of the virus (Lovric et al., 2020). This strategy blocked nursing students, faculty members and hospitals from becoming into contact.

2. Literature review

Even though COVID-19 is a novel pandemic in the global scene, the study's review found a few

Department of Nursing, Faculty of Applied Medical Sciences, University of Tabuk, Saudi Arabia, asalatawi@ut.edu.sa

studies that described the perceptions held nursing students and the various encounters experienced throughout the first few after the discovery of the COVID-19 pandemic. For instance, in a qualitative study conducted by Lovric et al (2020) to analyze nursing student's towards the pandemic and their personal encounters while learning amid the pandemic, numerous deductions were made. Students in the study described the high cases of misinformation through social media channels and the extensive risky behavior exhibited by members of society as the greatest challenges in fighting the pandemic. The study found that most nursing students are worried about the infection and their families, the continuously apply protective measures. Most of the nursing students 8 were cognizant of their responsibility besides the risks they were subjected to in their line of duty (Lavin et al., 2017). The study analyzed reports from a sample study of 33 students from Middle East universities. The study found out that nursing student had negative experiences in public transport as well as student residential dorms.

The findings of this study did not concur with previous studies and reports on the experiences and perspectives of nursing students. Al hazmi et al., (2020) reported that students from the studied institutions considered COVID-19 to be a very dangerous disease that should be avoided at any time (Harith Yas, Alkaabi, Al Mansoori, Masoud, & Alessa, 2021). Besides, the study concluded that many students believed that transmission could be prevented by following the universal guidelines outlined by World Health Organization. However, the study concluded that most of the nursing student believed that the general communities were not aware of the viruses' transmission and the severity of the situation as well as the failure to follow state recommendations.

In a Korean study, the correlation between the perceptions and experiences of nursing students towards preventive measures and their use was positive. Additionally, several studies proposed several ways through which students could be informed during the epidemic as well as the possible arising challenges (H Yas, Alsaud, Almaghrabi, Almaghrabi, & Othman, 2021). The conclusions of the study established that students use the internet often as a source of information. They also noted that students used televisions, radios and social network sites such as Facebook and Twitter, or written materials from their college libraries, official information from relevant authority and insights from family and friends (Liu et al., 2020). The authors concluded that there was

a lot of misinformation as confirmed by WHO. The study concluded that the current world is dominated by abundant dissemination of inaccurate and false data about COVID-19. It was concluded that students are highly exposed to misinformation from these platforms which can lead to psychological distress. From a qualitative study conducted by Al-rabiaah et al., (2012), the perspectives and experiences of students with the 2012 MERS-Cov epidemic led to significant stress among student's academic success and their overall psychological health.

2.1 Purpose of the study

The discussed studies point out at the significance of investigating the perceptions, feelings and personal experiences by nursing students during major pandemics in an attempt to adopt effective approaches and strategies which enhance students' needs, and challenges during pandemic or extreme crises. It is unfortunate that the existing literature fails to adequately offer in-depth analysis of experiences of the nursing students during global pandemics. This could affect the global understanding of the problems, difficulties and needs faced by nursing students during times of extreme crises. Thus, this study seeks to fill the existing gap by analyzing the results of student's experiences, feelings, and perceptions while studying during the COVID-19 pandemic. Therefore, this study expands the already available global knowledge on the physiological and behavioral elements exhibited by nursing students serving in times of crises (AL MANSOORI, ALSAUD, & YAS, 2021).

Precisely, this study is looking at the perceptions and experiences of nursing students from various institutions cornering the most recent pandemic. Through a mixed method the research presents how nursing students perceives learning during the current crises and their personal experiences as they learn in this crisis's situations.

3. Methodology

The study adopted a mixed-method approach. The volunteer nursing students who were learning during the pandemic in Saudi Arabia. The volunteer nursing students were perceived as a primary source of sharing their daily experiences and perceptions as global data continued to extrapolate the disadvantages of a pure online learning for nurses. Data collection was undertaken between April and September 2020. The research was implemented with a quantitative google documents developed questionnaire and a

qualitative online individual interview followed. The piloted Google questionnaire was submitted through email with a prior consent obtained from the participants to fill it up. This was followed by an online interview through calls that was aimed at answering the most fundamental questions. The current study included 123 nursing students from various universities in the Kingdom of Saudi Arabia aged between 20 to 24 years. Data from the questionnaires ($N = 103$) distributed. The interviews ($N = 20$) were analysed using deductive content analysis. After analysing questionnaires and interviews separately, the results were merged in a side by side comparison presented in the discussion.

3.1 Inclusion criteria

The inclusion criteria used in the current study were:

- Enrollment in a Bsc Nursing studies program
 - Voluntary student participation in the study
- According to Al-Rabiaah et al., (2020), the participant's convenience, all discussions were held individually until data saturation was reached. The nature of the questions allowed student nurses to communicate their in-depth experiences challenges and barriers at the time of stressful crises (Harith Yas, Alkaabi, Al Mansoori, Masoud, & Alessa, 2021). The researchers conducted a final group call to further investigate the underlying challenges, barriers and perceptions as well as filling the information gap left in collecting saturation data. Each online session was scheduled and conducted between forty to thirty minutes. These sessions allowed enough time for the researcher to interact with the participants. Literature from various sources determined how the data obtained was analyzed. The primary question glued in the whole data collection process was how the students felt while studying online instead of in-class studying while caring for themselves and their family, and what were the barriers experienced during online learning. The main questions surrounding data question were based on two broad categories.
- Students were asked to give their insights about the COVID-19 pandemic
 - Students were asked to narrate their personal experiences while studying amid the risk and uncertainties of the COVID-19 pandemic.

3.2 Data Analysis

In this mixed approach study, literature from various sources determined the data analysis of the questions posed to the participants (H Yas, Alsaud,

Almaghrabi, Almaghrabi, & Othman, 2021). Majorly, a conventional content analysis was used to analyze the answered questionnaire and responses to the interview. The content analysis involved analysing data from a systemic classification point where themes were identified. Content analysis was appropriate for this study since it can be used on any type of written text irrespective of the techniques used to collect data. The answers of the questions and the interview were first analyzed to achieve a definitive organization of the resulting data. Given that the data was done by a single researcher, no consensus was needed on the most definite organization. In accordance with the current study's research question, inductive thematic saturation of data was used to generate codes and themes.

3.3 Ethical Considerations

To ensure that the study followed the required ethical procedures, all participants were enlightened on all details pertaining to the study. A voluntary approach was applied in recruiting the participants and they could withdraw from the project without any repercussions. All participants were guaranteed of anonymity, with only the researcher having access to the collected data.

4. Results

The final data generated specific codes, themes, subcategories and categories. As shown on Table 1; student perceptions of the COVID-19 crises were based on the following categories; Efficacy of government owned institutions, population behavior and the role of information systems. Out of the 123 participants, 90 believed that government owned institutions were adopting the necessary needed methods to control the virus.

5. Discussion

Following the main research questions guiding the current study, the main aim was to first describe students' insights towards the pandemic and secondly to elucidate student's studying experiences amid the pandemic.

5.1 Student Perceptions Towards the COVID-19 global pandemic

Most of the participant's perceptions were directed towards the ability of government institutions as well as ways of informing the public during the COVID-19 pandemic. According to filled questionnaires submitted by all the students, government institutions implemented effective and appropriate measures to curb the spread of

the deadly virus to protect the whole population (Kim, 2017). The results of the study support previous studies which noted that participants believed government institutions took the necessary measures to protect its people. The participants agreed that government institutions are an essential part of disease control and thus they should focus on implementing sufficient measures (Liu et al., 2020). Eighty-three of the

participants agreed that people would queue in public places such as pharmacies without masks and proper protective gears, disinfectants and medicines and thus a better supply of these essentials was paramount. These results were supported by previous studies conducted by Feng et al., (2020). The results show that participants took the virus as very serious crises and required to take the necessary measures.

Table 1. Nursing Students Perceptions of COVID-19 crisis

Category	Generic categories category	Sub categories	Codes
Nursing Students Perceptions of the Global COVID-19 pandemic	State institutions during COVID-19	Actions of government institutions	<ul style="list-style-type: none"> Sufficient protective measures (90) Shortages of protective equipment (90) An efficient system of informing the public (83)
		Informing the public	<ul style="list-style-type: none"> Spread of misinformation through media and social networks (123)
	Nursing Students during the COVID-19	Emotions and Opinions of students	<ul style="list-style-type: none"> Fearful of infection (90) Role of human factors and technological know-how to the spread of the disease (90)
		Students' behaviour and information sources	<ul style="list-style-type: none"> Knows the benefits of human communion (90) Recognizes the risks involved on the nursing profession (90)

Table 2. Nursing Students Experiences while studying during the global COVID-19 pandemic

categories	Generic Categories	Sun-categories	Codes/themes
Nursing Students experiences while studying during the pandemic	Experience with student life activities	Public transport	<ol style="list-style-type: none"> Cease using Public transport (48) Non-compliant passengers in the public (56)
		Resident in student quarters	<ul style="list-style-type: none"> Restriction of socializing and group work (12) Felling unsettled about social distancing (12)
	Experiences of the organization of work at the faculty	Teaching within the faculty	<ul style="list-style-type: none"> Satisfied with distance learning (123) Cease in class room lessons (123)
		Measures to prevent the virus	<ul style="list-style-type: none"> Role of the faculty in preventing spread (120) Effective prevention measures imposed by faculty (120)

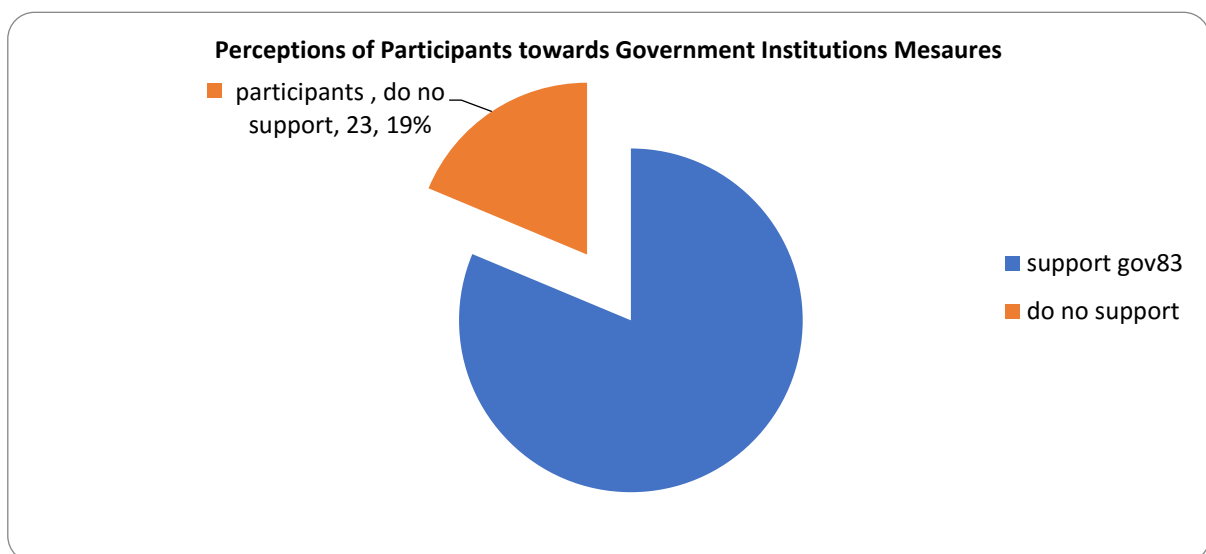


Figure 1. Percentage of participants who felt that the Government Took the necessary measures

Among the 123 participants, 83 (78%) of them felt that government institutions employed the necessary measures to curb the spread of the disease.

Among the total participants, only seventy-two participants believe that government institutions effectively informed the population. This result supports other existing studies conducted by Asaad et al., (2019). However, there were nine participants who believed that governmental institutions are hiding the real data concerning the pandemic to avoid panic. All the participants in the study believed that there was a widespread misinformation about the pandemic on social media and networks. Social media can be a perfect informant in the modern times; however, it can also provide risky and wrong information to people.

Among the total participants in the study, ninety participants suffered from fear of infection with a great concern their families and especially the older members. This study concurs with what Tork and Mersal (2018) concluded in their studies that many nursing students termed coronavirus as highly contagious and fatal. Nursing students are

prone to fear and high cases of psychological distress during times of crises. This is natural since fear is a physiological, psychological and behavioral condition that helps nursing students to cope with hostile situations such as the current global pandemic. In such adverse conditions, fear is expected as a natural response as well as a way of gauging how participants perceive and approaches global problems.

Around five participants believed that human factors and technological advancements contributed to the spread of the virus. They glued their answers to the millions of miles travelled through air as well as the frequent use of cell phones which are rarely disinfected. These answers were based on the fact that the SARS-CoV-2 19 is high potency and transmission rate. Therefore, new studies suggest that the virus is stable in vaporizers for almost four hours at room temperature (Chin et al., 2020). However, many scientific research publications have come to a consensus that the virus is highly stable in environments that favor it, although it is highly susceptible to basic disinfectant.

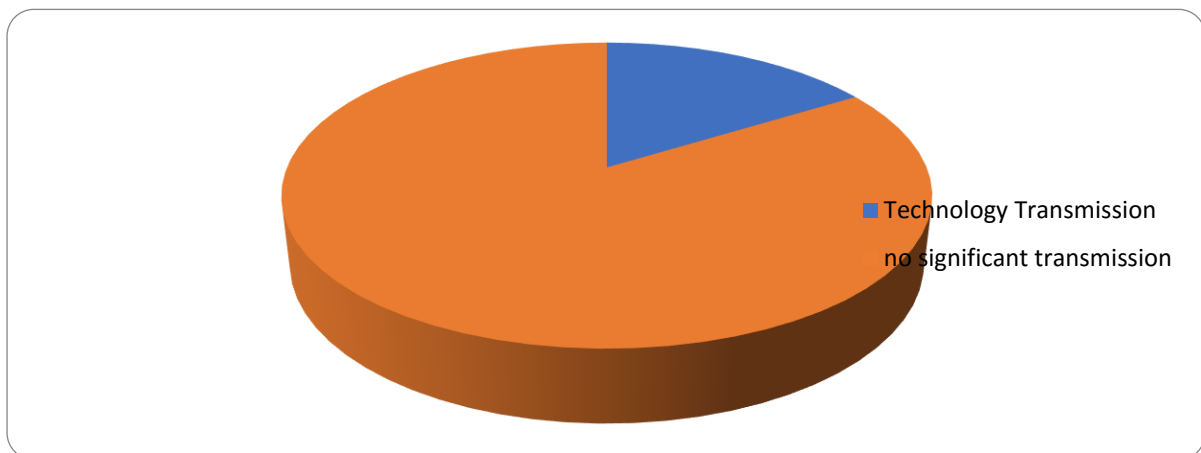


Figure 2. Percentage of Participants who felt that Technology contributed to the transmission of the COVID-19 pandemic

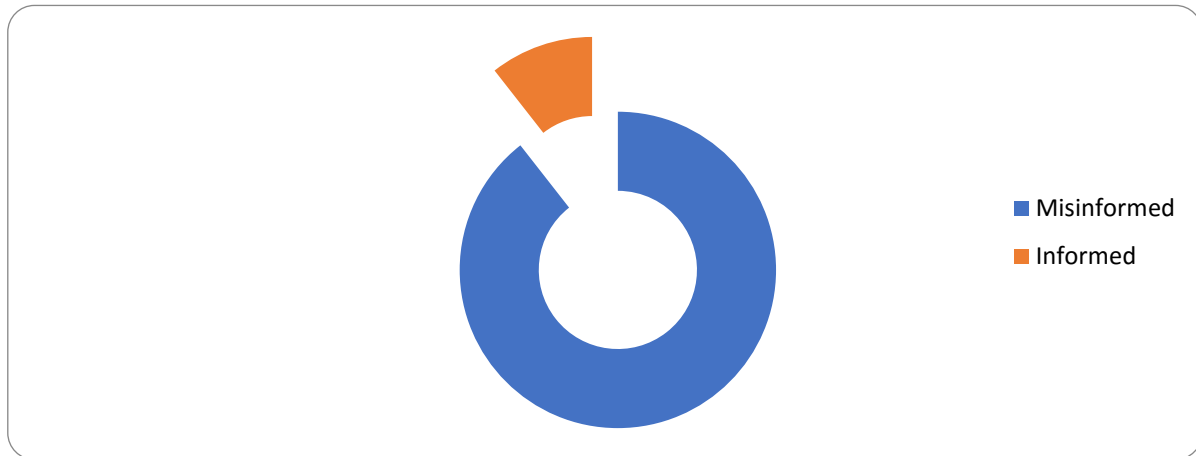
Majority of the participants in the study agreed to have adhered to the protective measures through wearing masks at public places. The seriousness and professionalism depicted by the nursing students is also discussed in various studies in the current literature. The nursing students are exposed to the public and professional views of wearing face masks in public places to reduce the spread of coronavirus disease (Han & Zhou, 2020). In its guidelines, the World Health Organizations states that “if an individual is healthy, he or she only needs to wear a face mask” (WHO, 2020).

Additionally, a research conducted by Leung et al., (2020) established that surgical face masks were found to lower the transmission of the COVID-19 virus from symptomatic and asymptomatic individuals (Shrivastava&Shrivastava, 2020). However, it is surprising to learn that the virus could survive for at least seven days in the inner layer and seven days in the outer layer of the surgical mask.

Most respondents also reported that they acquired information from credible internet sources while other relied on television news.

However, reports from government task forces were labeled as the primary and most reliable sources of information regarding COVID-19 pandemic (Wilder-Smith & Freedman, 2020). This result supports the existing literature which noted that nursing students are informed by the internet, television and media during times of global crises. Majority of the participants reported that they ignored a wide variety of information shared by

incredible sources on the internet and media. This depicts that nursing students have advanced media literacy regarding sensitive information (Khalid et al., 2016). However, it is believed and considered that these are just personal believes hence nursing students can be exposed to extremely stressful situations that threatens their lives, and there are no credible sources to verify their information.



Out of the total participants who took part in the current study, ninety of them believe that it is essential to bring people together during times of crises. These participants felt responsible for their communities and volunteered in various types of work. Therefore, the participating nursing students tend to employ a holistic approach as a support nursing theory together with their skills and knowledge (Mason, 2017).

5.2 Students experiences while studying during the COVID-19 pandemic

Majority of the respondents explained their experiences while using public means of transport, dormitory residence as well as regular teaching schedule of the faculty amid the COVID-19 pandemic. Sixty two percent of the participants reported to have decided not to use public transport while commuting to school as people within the buses did not adhere to COVID-19 regulations and measures. It is common to have people to fail to follow the set measures and guidelines, a behavior which puts the entire population at risk (Zeng et al., 2020). Majority of the nursing students who participated in the study reported to have felt uneasy as a result of the social distancing measures put in their residential rooms. Existing literature points out that prolonged cases of public isolation may pose devastating psychological effects including fear, stress, and

anxiety which may develop to depression as noted by Brooks et al., (2020). Additionally, Brooks et al., (2020) suggests that the best way to prevent the negative effects associated with isolation, governments should disseminate clear and accurate information to the public about the expected periods of when smooth operations is forecasted to begin. Previous studies conducted by Wang et al., (2011) also depicts that isolation and quarantine measures during the H1N1 epidemic in 2009 posed significant psychological distress to the patients.

Among the total participants who took part in the current study, only twenty participants felt fear of being infected during class lectures. This fear was linked to the expected departure of the nursing students to the clinical settings, even after effective measure were established to contain the pandemic. The results depicted are concurrent with the existing literature which found students in nursing avoiding the clinical setting due to the fear of being infected with the virus. This are expected results as they depict the awareness of the participants towards the pathogenicity and transmissibility of COVID -19 viruses in the clinical setting (WHO, 2020). Besides, these results show that the participating students are aware of the increase in the number of healthcare professionals infected with the virus while in the line of duty as previously reported by Kumar et al., (2020). The

results also depict that the participants understand the essentiality of clinical education to the masses as well as patients to safeguard their health. These results are supported by other studies such as Choi and Kim (2016) who noted that adoption of preventive measures for Sars corona virus depended on the levels of the virus by the nursing students in South Korea. According to Lovric et al., (2020) clinical faculties should equip nursing students with knowledge, psychomotor, technical and interpersonal skills alongside independence and self-confidence in the clinical setting. Additionally, some participants reported to have noted cases of intern nurses in the clinical setting lacking masks, gloves and even protective gears. This finding is affirmed by previous studies such as Jeong et al., (2008) who noted that intern nursing students tend to lack the necessary protective gear and equipment.

All the participants who took part in this study reported that teachers expressed professionalism, courage, and overall humanity which is essential as it delivers positive feedback to the teachers and lecturers in colleges and universities (Stirling et al, 2015; Sadaatjo et al., 2020). Additionally, all the participants reported that the organization of work at the faculty level during the pandemic was excellent. The participants reported counseling, blended learning, distance learning as well as departure from the clinical setting as appropriate and reasonable measures of controlling the COVID-19 pandemic. These results were supported by other studies existing in the literature such as Wong et al., (2004) who discussed the various psychological challenges facing nursing students during the 2004 SARs epidemic. The study had various limitations. For instance, the participants were from different institutions that might have employed varying approaches to prevent the spread of the virus. Additionally, the study population used was small and it might not depict the overall insights and experiences among students perusing nursing related courses during the COVID-19 pandemic. Besides, the results of the current research depict the acuties and experiences of a saturated group of participants and cannot be used to predict the experiences of the students, especially those in other professions.

6. Recommendations and Future Research

The overall results and conclusions drawn from the current research project can be used to gauge the feelings, perceptions, experiences and emotions of nursing students' during the COVID-19 pandemic. The conclusions drawn from the study

offers essential insight on the areas of need among nursing students among other learners in higher education. The subcategories and codes relating to in class teaching can be employed when investigating the learning experiences and insights of students in other disciplines during the, since the classrooms are similar. Similarly, the dt obtained on clinical training can be employed in studying the perceptions of nursing students across the globe. The study also provides various ways through which nursing students who undergo stress can be helped though applying teaching forms and methods as well as making those active agents in controlling the spread of the virus. Future studies should consider using a large population coupled with other factors that affect academic success such as poverty.

7. Conclusion

This research was aimed at assessing nursing students' perceptions towards the COVID-19 pandemic as well as identifying the personal experiences which the students encountered as the learned during the pandemic. The results indicated that students have divided feelings concerning government's response towards containing the pandemic. The responses from the nursing students confirmed he high cases of misinformation through social media but also recognized some credible sources of information. Besides, most of the participants reported that populations had a high-risk behavior hence triggering them to adhere to the safety guidelines provided by government institutions to control the spread of the virus. Additionally, students' low levels of fear of being infected with the COVID-19 virus while attending lectures unlike in attending the clinical setting. However, all the participants understand that attending the clinical setting essential for their professional competency. Nursing students in this study viewed the implementation of long distance learning as the best solution as well as suspension of visits to the clinical setting.

References

- [1] AL MANSOORI, H. M., ALSAUD, A. B., & YAS, H. (2021). The Impact of Covid 19 on Increasing the Cost of Labor and Project Price in the United Arab Emirates. *International Journal of Pharmaceutical Research*, 13(1).
- [2] Aldwin, C. M. (2007). *Stress, coping, and development: An integrative perspective*. Guilford Press
- [3] Al-Hazmi, A., Gosadi, I., Somily, A., Alsubaie, S.,

- & Saeed, A. B. (2018). Knowledge, attitude and practice of secondary schools and university students toward Middle East Respiratory Syndrome epidemic in Saudi Arabia: A cross-sectional study. *Saudi journal of biological sciences*, 25(3), 572-577.
- [4] Al-Rabiaah, A., Temsah, M. H., Al-Eyadhy, A. A., Hasan, G. M., Al-Zamil, F., Al-Subaie, S., ... & Somily, A. M. (2020). Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *Journal of infection and public health*, 13(5), 687-691.
- [5] Asaad, A. M., El-Sokkary, R. H., Aedh, A. I., Alzamanan, M. A. A., & Khalil, F. O. (2019). Exploring knowledge and attitude toward Middle East respiratory syndrome-coronavirus (MERS-CoV) among university health colleges' students, Saudi Arabia: a cross sectional study. *Am J Infect Dis Microbiol*.
- [6] Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The lancet*, 395(10227), 912-920.
- [7] Chin, A., Chu, J., Perera, M., Hui, K., Yen, H. L., Chan, M., ... & Poon, L. (2020). Stability of SARS-CoV-2 in different environmental conditions. *MedRxiv*.
- [8] Choi, J. S., & Kim, J. S. (2016). Factors influencing preventive behavior against Middle East Respiratory Syndrome-Coronavirus among nursing students in South Korea. *Nurse education today*, 40, 168-172.
- [9] Feng, S., Shen, C., Xia, N., Song, W., Fan, M., & Cowling, B. J. (2020). Rational use of face masks in the COVID-19 pandemic. *The Lancet Respiratory Medicine*, 8(5), 434-436.
- [10] Han, G., & Zhou, Y. H. (2020). Possibly critical role of wearing masks in general population in controlling COVID-19. *Journal of medical virology*, 92(10), 1779-1781.
- [11] Jeong, I., Cho, J., & Park, S. (2008). Compliance with standard precautions among operating room nurses in South Korea. *American journal of infection control*, 36(10), 739-742.
- [12] Khalid, I., Khalid, T. J., Qabajah, M. R., Barnard, A. G., & Qushmaq, I. A. (2016). Healthcare workers emotions, perceived stressors and coping strategies during a MERS-CoV outbreak. *Clinical medicine & research*, 14(1), 7-14.
- [13] Khan, M. U., Shah, S., Ahmad, A., & Fatokun, O. (2014). Knowledge and attitude of healthcare workers about middle east respiratory syndrome in multispecialty hospitals of Qassim, Saudi Arabia. *BMC public health*, 14(1), 1-7.
- [14] Khudhair, H. Y., Alsaud, A. B., Alsharm, A., Alkaabi, A., & AlAdeedi, A. (2020). The Impact of COVID-19 on Supply Chain and Human Resource Management Practices and Future Marketing. *Int. J. Sup. Chain. Mgt Vol*, 9(5), 1681.
- [15] Kim, M. J. (2017). The convergence study of nursing students' knowledge, attitudes and preventive behaviors against MERS in South Korea. *Journal of the Korea Convergence Society*, 8(4), 149-157.
- [16] Kumar, J., Katto, M. S., Siddiqui, A. A., Sahito, B., Jamil, M., Rasheed, N., & Ali, M. (2020). Knowledge, attitude, and practices of healthcare workers regarding the use of face mask to limit the spread of the new coronavirus disease (COVID-19). *cureus*, 12(4).
- [17] Lavin, R. P., Adelman, D. S., & Veenema, T. G. (2017). Society for the Advancement of Disaster Nursing: exploring the path to excellence. *Disaster medicine and public health preparedness*, 11(6), 641-646.
- [18] Leung, N. H., Chu, D. K., Shiu, E. Y., Chan, K. H., McDevitt, J. J., Hau, B. J., ... & Cowling, B. J. (2020). Respiratory virus shedding in exhaled breath and efficacy of face masks. *Nature medicine*, 26(5), 676-680.
- [19] Liu, M., Cheng, S. Z., Xu, K. W., Yang, Y., Zhu, Q. T., Zhang, H., ... & Xiao, H. P. (2020). Use of personal protective equipment against coronavirus disease 2019 by healthcare professionals in Wuhan, China: cross sectional study. *Bmj*, 369.
- [20] Lovrić, R., Farčić, N., Mikšić, Š., & Včev, A. (2020). Studying During the COVID-19 Pandemic: A Qualitative Inductive Content Analysis of Nursing Students' Perceptions and Experiences. *Education Sciences*, 10(7), 188.
- [21] Mason, M. (2010, August). Sample size and saturation in PhD studies using qualitative interviews. In *Forum qualitative Sozialforschung/Forum: qualitative social research* (Vol. 11, No. 3).
- [22] Polite, D. F. (2017). Generating and Assessing Evidence for Nursing Practice Author—Denice F. Polite Cheryl Tatano Beck Chapter—2, Evidence-based Nursing (Review pages 14-31). and Chapter 6, Theoretical Frameworks
- [23] Saadatjoo, S., Miri, M., Hassanipour, S., Ameri, H., & Arab-Zozani, M. (2020). A systematic

- review of the knowledge, attitudes, and practices of physicians, health workers, and the general population about Coronavirus disease 2019 (COVID-19). *medRxiv*
- [24] Shrivastava, S. R., & Shrivastava, P. S. (2020). Standardized risk assessment and management of exposure amongst healthcare workers to coronavirus disease 2019. *Germs*, *10*(2), 126.
- [25] Stirling, B. V., Harmston, J., & Alsobayel, H. (2015). An educational programme for nursing college staff and students during a MERS-coronavirus outbreak in Saudi Arabia. *BMC nursing*, *14*(1), 1-7.
- [26] Tork, H., & Mersal, F. A. (2018). Middle East respiratory syndrome-corona virus: knowledge and attitude of Qassim University students, KSA. *Global Adv Res J Med Med Sci*, *7*(4), 90-7.
- [27] Wang, Y., Xu, B., Zhao, G., Cao, R., He, X., & Fu, S. (2011). Is quarantine related to immediate negative psychological consequences during the 2009 H1N1 epidemic?. *General hospital psychiatry*, *33*(1), 75-77.
- [28] Wilder-Smith, A., & Freedman, D. O. (2020). Isolation, quarantine, social distancing and community containment: pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak. *Journal of travel medicine*, *27*(2), taaa020.
- [29] Wong, J. G., Cheung, E. P., Cheung, V., Cheung, C., Chan, M. T., Chua, S. E., ... & Ip, M. S. (2004). Psychological responses to the SARS outbreak in healthcare students in Hong Kong. *Medical teacher*, *26*(7), 657-659.
- [30] World Health Organization (WHO). Coronavirus Disease (COVID-19) Advice for the Public: When and How to Use Masks. Available online: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks>
- [31] World Health Organization. (2020). Coronavirus disease 2019 (COVID-19): situation report, 82.
- [32] Yas, H., Alkaabi, A., Al Mansoori, H. M., Masoud, M., & Alessa, A. (2021). A scoping review research on the dynamics managing of Coronavirus disease (COVID-19). *Ilkogretim Online*, *20*(2), 169-178.
- [33] Zeng, N., Li, Z., Ng, S., Chen, D., & Zhou, H. (2020). Epidemiology reveals mask wearing by the public is crucial for COVID-19 control. *Medicine in Microecology*, *4*, 100015.