Willingness of Graduate Nursing Students to Provide Care for COVID-19 Patients

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Abstract

Nurses play a key role in management and care services to maintain patient safety; however, with the emergence of COVID-19, the number of nurses still continues to decline. Due to the on-going problem that even novice nurses may see as a major challenge, this study aims to identify whether nursing graduates are willing to participate in the care of COVID-19 patients. The study is cross-sectional where a total of 146 conveniently chosen nursing graduates currently enrolled in Nursing Review Centers in the Philippines preparing to take the Nurse Licensure Examination. The data were collected using Google forms from August to September 2020 using a four-part questionnaire which includes demographic information sheet, COVID-19 Perceived Risk Scale, Fear of COVID-19 Scale, and questions pertaining to their willingness to care for COVID-19 patients. Descriptive statistics such as frequency, percentage, mean, and standard deviation and inferential statistics such as Mann-Whitney U test, Kruskal-Wallis and Spearman rho were used to analyze the data. After gathering the information from the participants, the results had ultimately shown that the majority of the participants (86.3%) are willing to care for COVID-19 patients. The ones with the most significant positive correlation with willingness were age (p = 0.008), self-reported health (p = 0.000), self-reported knowledge about COVID-19 (p = 0.001), and interest to become a Registered Nurses (p = 0.000). Based on these results, the majority of the participants had been willing to care for patients with COVID-19, although the factors that influence were associated with their willingness differ.

Keywords: COVID-19, nursing graduates, willingness

Abstrak

***Kesediaan Lulusan Mahasiswa Keperawatan dalam Memberikan Perawatan Pasien* COVID-19**. *Perawat memainkan peran kunci dalam manajemen dan pelayanan perawatan untuk menjaga keselamatan pasien; namun dengan munculnya* COVID-19 *jumlah perawat semakin berkurang. Masalah ini masih berlangsung dan dianggap sebagai tantangan besar bahkan oleh perawat pemula, oleh karena itu penelitian ini bertujuan untuk mengidentifikasi apakah lulusan keperawatan bersedia berpartisipasi dalam perawatan pasien* COVID-19. *Studi ini menggunakan metode* cross-sectional *dan dilakukan pada 146 lulusan keperawatan yang terdaftar di Pusat Tinjauan Keperawatan* (Nursing Review Centers) *di Filipina dan sedang bersiap untuk mengikuti ujian lisensi perawat* (Nurse Licensure Examination). *Data dikumpulkan menggunakan formulir* Google *dari Agustus hingga September 2020 menggunakan kuesioner empat bagian yang meliputi lembar informasi demografi, Skala Persepsi Risiko* COVID-19, *Skala Ketakutan terhadap* COVID-19, *dan pertanyaan terkait kesediaan mereka untuk peduli terhadap pasien* COVID-19. *Statistik deskriptif seperti frekuensi, persentase, mean, dan standar deviasi serta statistik inferensial seperti* Mann-Whitney U test, Kruskal-Wallis, *dan* Spearman rho *digunakan untuk menganalisis data. Setelah mengumpulkan informasi dari para peserta, hasilnya menunjukkan bahwa mayoritas peserta (86,3%) bersedia merawat pasien* COVID-19. *Korelasi positif yang paling signifikan dengan kemauan adalah usia (p = 0,008), laporan kesehatan diri (p = 0,000), pengetahuan yang dilaporkan sendiri tentang* COVID-19 *(p = 0,001), dan minat menjadi* registered nurse *(p = 0,000). Berdasarkan hasil tersebut, mayoritas peserta telah bersedia merawat pasien* COVID-19, *meskipun faktor yang memengaruhi kesediaannya berbeda-beda.*

Kata Kunci: COVID-19, *kesediaan, lulusan keperawatan*

Introduction

It is evident that even though this pandemic, the coronavirus disease (COVID-19), is on-going for about a year, it still possesses a serious global health threat in the healthcare system. Its effect on healthcare professionals is so severe that it causes them stress relating to mental and physical workload and health system resilience (Casafont et al., 2021; Ulenaers et al., 2021). As soon as hospitals were admitting patients for COVID-19, public hospitals were forced to adjust rooms into ICUs for patients in order to provide them care and meet clinical demands. With all these adjustments being done, the need for more hospital staff, especially nurses, are demanded (Casafont et al., 2021). Shortage of nurses has been a problem long before, knowing that during this pandemic, nurses play a role in diverse care practices and management services to ensure patient safety (Velázquez et al., 2020); yet, with the emergence of COVID-19, the need for nurses is still scarce. Different challenges everyday are being faced by nurses during this pandemic, let alone the negative impact it brings, such as emotional distress that results in burnout—which brings out psychological problems (Alharbi et al., 2020). With that being said, knowing that these challenges are far too much for a novice nurse, or even any employee - are nursing graduates willing to participate in the care of COVID-19 patients?

Clearly, this time in history is frightful, having a lot of uncertainties, determining if it is safe to throw yourself out into the world, and whether or not, as graduate nurses, to provide care in COVID-19 patients during these dreadful times. Right after COVID-19 started, social distancing was implemented to reduce the risk of transmission, and with that, face-to-face classes were abrupted and were forced to shift from online classes. By then, a lot of nursing students' all over the world earned their degrees through online commencement ceremonies. In The University of Texas Rio Grande Valley School of Nursing, 166 out of 3,559 students are determined to enter the workforce, ready to serve COVID-19 patients and face the challenges brought about by the pandemic (Fernandez, 2020). Also, a number of schools in The United States of America allowed nursing students who are exemplary in their studies and clinical practice, to graduate early in order to contribute to the healthcare workforce during one of the most critical global health crises. Regardless, a sudden transition from nursing school to a professional setting causes an intimidating and exhausting occurrence—for these new professional's experience workload beyond their capabilities, less time for thorough training and care for patients in need, and the adjustments it has due to special treatment for COVID-19 patients (Cliburn, 2020). However, in a study by Alshutwi (2021), graduate nurses are neutral or undecided whether they are ready to provide care for COVID-19 patients. This is due to the fact that they have concerns in the healthcare system, their lack of knowledge to the disease, and issues raised in terms of treating COVID-19 patients.

Nursing is an essential component of the medical workforce. It is the art and science grounded in caring for human health that makes nursing an exceptional field that may never be replaced by any other discipline. Three million eight hundred thousand registered nurses nationwide with 84.5% of employed licensed registered nurses are recognized by the American Association of Colleges of Nursing (2023) in which they are the primary source of hospital patient care and are known to give out long-term care. Nurses are grounded to practice in nursing theories that makes the discipline even more remarkable. For instance, Virginia Henderson's Need Theory in 1966 focuses on 14 practices that may stimulate patient's independence to be free from any illness as she believes that a nurse should act for the patient in a time of a crisis where the patient lacks knowledge and capabilities towards healing (Sitzman & Eichenberg, 2017). Alongside this theory, Martha Rogers' Science of Unitary Human Beings allows nursing students to understand at an early stage the relationship of humans and their environment which enables

growth, knowledge, and identity through time (Rogers, 1992). Understanding the theory itself allows nurses to recognize how they themselves may also be affected by the environment around them regarding how they would carry out and practice the discipline as it is claimed that nurses have inadequate recognition of an infectious diseases' outbreak (Wu et al., 2020) may cause adverse health consequences on them.

Without a doubt, the world is experiencing an unknown epidemic at this moment. Many lives, including those of medical professionals who are saving lives on the front lines, are at risk due to a lack of preparation. In China, the disease's origin, more than 3,000 medical workers are recorded to have been infected with COVID-19 along with 34 deaths (Department of Human Resources, 2020). It is revealed that the extent of disease-related knowledge and disaster training may possibly affect healthcare workers' willingness to work (Patel et al., 2017) as they would feel more prepared to save and protect not only their patients' lives but also their lives' better. Regardless of any theories and training grounding nursing knowledge and patient care, lack of support and preparation from external factors may affect how nursing graduates may participate in the care of patients with COVID-19 which makes knowing how willing they are to participate in it is of high importance as this will explore factors that will determine their willingness to overcome any more outbreaks that may soon come in the future.

Methods

Study design and participants. This study utilized a cross-sectional design and employed convenience sampling in order to recruit the participants. A priori power analysis was conducted using G*Power version 3.1.9.7 to determine the minimum sample size required to test the study hypotheses (Faul et al., 2007). In order to detect a correlation coefficient of $r = .16$ with 95% power (alpha = .05, two-tailed), G*Power suggests the researcher would need 138 participants. In the study, a total of 146 nursing graduates were included. The participants were enrolled in nursing review centers in the Philippines preparing to take the Nurse Licensure Examination.

Instruments. The study utilized four-part questionnaire to collect the needed data which includes demographic information sheet, COVID-19 Perceived Risk Scale, Fear of COVID-19 Scale, and questions pertaining to their willingness to care for COVID-19 patients. The outcome variable in this study is the willingness of nursing graduates to participate in the care of COVID-19 patients. Nursing graduates were asked if they are willing to participate in the care of COVID-19 patients answerable by 1 – "Yes" or 2 – "No". They were also asked to what extent they are willingness to take care of COVID-19 patients answerable by 1 – "Not very willing" to 5 – "Very willing".

For the independent variables, participants were asked of their age, year graduated from Bachelor of Science in Nursing (BSN) degree, sex, marital status, type of school graduated, current location at the time of the survey, and if they have a medical condition that might increase their risk for severe COVID-19 illness. Self-reported health status was assessed using a single-item question about how they would describe their overall physical health, and this is answerable by "1-poor" to "5-excellent" (Oducado et al., 2021). Participants were also asked to rate their confidence in protecting themselves from COVID-19 through questions answerable by "1-low confidence" to "5-high confidence", rate in knowledge about COVID-19 with responses "1-low knowledge" to "5-high knowledge", and how likely do they want to become a Registered Nurse with responses "1-not likely" to "5-very likely".

The COVID-19 Perceived Risk Scale (CPRS) by Yıldırım & Güler (2020) was used to measure COVID-19 related perceived risk. Each item is rated on a 5-point Likert scale ranging between "1-negligible" to "5-very large or high". The scale includes cognitive and emotional di-

mensions of personal risk. The CPRS has a reported acceptable reliability of > .70 for both dimensions (Yıldırım & Güler, 2020). For this study, CPRS' cognitive dimension has α = .89 while emotional dimension has α = .82 with an overall α = .82. The higher the score, the higher the level of personal risk related to COVID-19. The Fear of COVID-19 Scale (FCV-19S) by Ahorsu et al. (2022) was also used in this study. The participants indicated their level of agreement using a 5-point Likert-type scale with responses ranging from "1-strongly disagree" to "5 -strongly agree". Among nursing student samples, the FCV-19S has a reported α = .89 (Oducado et al., 2021). Higher scores reflect higher levels of fear related to COVID-19.

Data collection and ethical considerations. The data were collected using Google forms from August 22, 2020 to September 8, 2020. Given the relative risk of the COVID-19, the only practicable way to gather data at the time of the survey was through online data collection. The researchers first contacted the owners of three review centers catering nursing students for the Philippine Nurse Licensure Examination review. The owners of the review centers served as gatekeepers and sent the link of the survey to the private Facebook groups and Messenger where the participants were member. Participants were provided with the purpose of the study at the beginning of the survey. Participants were informed that upon proceeding with

Table 1. Characteristics of Participants

Variables	f	%
Age (Mean = 24.71; SD = 5.03; Median = 22)		
20 to 25	102	69.9
26 and above	44	30.1
Year Graduated		
2020	106	72.6
2019	12	8.2
2018 to 2001	28	19.2
Sex		
Male	30	20.5
Female	116	79.5
Marital Status		
Single	134	91.8
Married	12	8.2
Type of School Graduated		
Public	29	19.9
Private	117	80.1
Current Location		
Luzon	66	45.21
Cordillera Autonomous Region	2	1.4
National Capital Region	21	14.2
Region II	37	25.3
Region III	5	3.4
Region V	1	.7
Visayas	65	44.52
Region VI	32	21.9
Region VII	33	22.6
Mindanao	14	10.3
Region IX	2	1.4
Region X	12	8.2
Region XIII	1	.7
Presence of medical condition that might increase risk for severe COVID-19 illness		
Yes	14	9.6
No	132	90.4

Table 2. Descriptive Statistics of Major Variables

Variables	M	SD
Self-reported health	4.40	.67
Confidence in protecting self from COVID-19	4.40	.68
Self-reported knowledge about COVID-19	4.10	.76
Interest to become a Registered Nurse	4.95	.28
Perceived risk of COVID-19 (Composite)	3.46	.72
Perceived risk (Cognitive)	2.45	1.08
Perceived risk (Emotional)	4.46	.71
Fear of COVID-19	3.12	.98

Table 3. Willingness of the Participants to Participate in the Care of COVID-19 Patients

	f	%	M (SD)
Yes	126	86.3	
No	20	13.7	
Willingness			4.01 (1.04)

the survey, they grant consent to willingly join the study. Any identifiable data were coded to maintain anonymity and confidentiality.

Statistical analysis. The IBM SPSS Statistics version 23 was used for the data analysis. Descriptive statistics such as frequency, percentage, mean, and standard deviation and inferential statistics such as Mann-Whitney U test, Kruskal-Wallis and Spearman rho were used to analyze the data. The level of significance was set at 0.05.

Results

Table 1 shows that the average age of the participants was 24.71 (SD = 5.03) and they graduated in the year 2020. Majority were females (79.5%), single (91.8%), and had no medical condition that increases the risk of severe COVID-19 illness (91.4%). There was an almost equal proportion of participants currently located in Luzon (45.21%) and Visayas (44.52%) and the majority had no presence of medical condition that might increase the risk for severe COVID-19 illness.

Table 2 shows the following mean score of the participants: self-rated health (4.40 + .67), con-

fidence in protecting self from COVID-19 (4.40 + .68), self-reported knowledge about COVID-19 (4.10 + .76), interest to become a Registered Nurse (4.95 + .72), overall perceived risk of COVID-19 (3.46 + .72), and fear of COVID-19 (3.12 + .98). Table 3 shows that the majority of the participants (86.3%) were willing to participate in the care of COVID-19 patients with a mean score of 4.01 (SD = 1.04).

Table 4 shows that there was a significant difference in the willingness to participate in the care of COVID-19 patients according to marital status (t = 535.5; p = .043) and presence of medical condition (t = 507.5; p = .003). However, no significant difference was noted according to sex (t = 1424; p = .105), type of school graduated (t = 1662; p = .858), and current location (t = 0.779; p = .677).

Table 5 shows that there was a significant positive correlation between age (rho = .220; p = .008), self-reported health (rho = .326; p = .000), self-reported knowledge about COVID-19 (rho = .249; p = .001), interest to become a Registered Nurses (rho = 298; p = .000), and willingness to participate in the care of COVID-19 patients. There was also a significant but negative or inverse correlation between general perceived

Table 4. Differences in Willingness to Participate in the Care of COVID-19 Patients

Variables	Mean Rank	Test statistics	p
Sex		1424.000	.105
Male	84.03		
Female	70.78		
Marital Status		535.500	.043
Single	71.50		
Married	95.88		
Type of School Graduated			
Public	72.31	1662.000	.858
Private	73.79		
Presence of medical condition		507.500	.003
Yes	43.75		
No	76.66		
Location		.779	.677
Luzon	30.21		
Visayas	33.53		
Mindanao	27.80		

Table 5. Correlation to Willingness to Participate in the Care of COVID-19 Patients

Variables	Spearman's rho	p
Age	.220	.008
Year Graduated	-.192	.020
Self-reported health	.326	.000
Confidence in protecting self from COVID-19	.137	.099
Self-reported knowledge about COVID-19	.249	.001
Interest to become a Registered Nurse	.298	.000
Perceived risk of COVID-19	-.236	.004
Perceived risk (Cognitive)	-.162	.049
Perceived risk (Emotional)	-.195	.018
Fear of COVID-19	-.110	.185

risk of COVID-19 (rho = -.236; p = .004) and with its cognitive (rho = -.162; p = .049) and emotional (rho = -.195; p = .018) dimen-sions to willingness to participate in the care of COVID-19 patients. In contrast, confidence in protecting self from COVID-19 (p = .099) and fear of COVID (p = .185) were not significantly correlated with willingness to participate in the care of COVID-19 patients.

Discussion

The study was conducted in order to determine the willingness of nursing graduates to care for patients with COVID-19. The results had ulti-mately shown that the majority of the partici-pants (86.3%) were willing to care for COVID-19 patients. This proportion was higher than that found in earlier studies that identified stu-dents' willingness to participate in the signifi-cant demand for healthcare providers in the on-going pandemic. In those studies, 66.3% of medical and nursing students in South Korea (Kim et al., 2022), 74.2% of medical and nurs-ing students in Spain (Cervera-Gasch et al., 2020), 71.18% of medical students in a survey across 74 countries (Michno et al., 2021), and 80% of medical students from 10 medical schools in Uganda, Olum et al. (2020) reported that they were willing to enter the medical work-force. The wording of the items and Likert re-sponse scales used for assessment, along with the period of data collection, may have affected the results of the current study and previous

studies differently. The Philippines, which started reporting cases in August 2020 and is still reporting two to three instances every day, crossed the 100,000-case mark on August 2 (Crisostomo, 2020). At that point, the Philippines had the most COVID-19 cases in Southeast Asia after surpassing Indonesia's total number of confirmed COVID-19 cases. Given that COVID-19 is spreading throughout local communities and that patients posed a risk of infection, this may have contributed to the participants' sense of community.

In terms of the willingness of the participants to care for COVID-19 patients when grouped according to the demographic profile, the marital status and the presence of medical condition have shown a significant different. Married participants and those with no medical condition showed more willingness to care for patients with COVID-19 as compared to those who are single and with medical condition. The significance of these factors heavily relates to the willingness as both require the nurse to place someone at risk, whether themselves or those that they care about around them which would severely impact their decision to care for patients with COVID-19. This is especially so with those who have medical conditions as COVID-19 would affect the respiratory system significantly and could potentially compromise the patient's health; even more so if they had a pre-existing morbidity such as hypertension. It has been mentioned by Ulenaers et al. (2021) and Casafont et al. (2021) that with the current situation, the stress that it has placed on healthcare professionals has been detrimental to their health.

Moreover, as for the correlation to willingness, the ones with the most significant positive correlation with willingness were age (rho = .220; p = .008), self-reported health (rho = .326; p = .000), self-reported knowledge about COVID-19 (rho = .249; p = .001), and interest to become a Registered Nurse (rho = 298; p = .000). These positive correlations with the willingness of the nursing graduates could be further enhanced amongst participants, not necessarily age itself but more so of the latter factors, as if they were better prepared with information and knowledge surrounding the disease, their willingness to work in that environment, as mentioned by Patel et al. (2017), could be affected for better or for worse. Furthermore, as explored by studies such as Baack and Alfred (2013) and Sultan et al. (2020), the better prepared the nurse's colleagues and institution are—such as enhancing the staff's knowledge and skills with necessary disaster preparedness programs—the more willing and confident these nurses would be in taking care of patients with COVID-19. However, confidence in protecting self from COVID-19 (p = .099) and fear of COVID-19 (p = .185) were not significantly correlated with willingness to participate in the care of COVID-19 patients. These results do not mean that certain factors should be disregarded; in fact, it should be further investigated as the study itself had only been limited to a handful of factors with little depth. Especially since the grasp of dealing with COVID-19 by governments, civilians, and medical professionals alike around the world had significantly improved since the first year of the pandemic, the factors and their correlations would have changed overtime as well. Some may increase, whilst others decrease, or maybe some would stay consistently stagnant.

A lack of interest among medical and nursing students in providing patient care during a pandemic like COVID-19 could add to the strain on an already overburdened healthcare system and ultimately cause it to collapse. Numerous affected countries have already reported seeing this (Rafi et al., 2021; Al-Hunaishi et al., 2019; Ahmad et al., 2020). Middle and low-income countries would be more severely affected by such a collapse. Any system for preparing the healthcare workforce must have a strategic, research-based plan in place to handle a disaster situation. One important aspect of such planning might be addressing the elements that affect the medical and nursing students' willingness to participate as future healthcare workers.

Notwithstanding its positive findings, this study

has some limitations. First, it needs to be clarified if the findings hold for other nations given the study was conducted in the Philippines. Also, the study included newly graduated nurses undergoing review for their licensure examination; hence, selection bias may have influenced the findings. Prospective research endeavors could be undertaken to assess the willingness of nurses to care for COVID-19 patients or other communicable diseases in other countries.

Conclusion

In spite of the growing problem of exposure and workload caused by COVID-19 for healthcare workers and the scarcity of nurses, it was found that majority of the participants were willing to care for patients with COVID-19. In addition, proper preparation done for the newly graduated nurses such as intensive training and hands-on practice could positively affect their willingness to care for patients during the pandemic and even more once they are equipped with the proper information regarding the disease and tools for care as staff nurses. Nevertheless, it is also important to look into the reasons for newly graduated nursing students why some are not willing to provide care for patients during the COVID-19 pandemic as the number of nurses is highly needed to be increased. Further, the result of this study is an important contribution to the design of future intervention strategies to increase nursing students' readiness to provide care for patients in a public health emergency.

References

Ahmad, M., Iram, K., & Jabeen, G. (2020). Perception-based influence factors of intention to adopt COVID-19 epidemic prevention in China. *Environmental Research, 190*, 109995. doi: 10.1016/j.envres.2020. 109995.

Ahorsu, D.K., Lin, C.Y., Imani, V., Saffari, M., Griffiths, M.D., & Pakpour, A.H. (2022). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction, 20* (3), 1537–1545. doi: 10.1007/s11469-020-00270-8.

Alharbi, J., Jackson, D., & Usher, K. (2020). The potential for COVID-19 to contribute to compassion fatigue in critical care nurses. *Journal of Clinical Nursing, 29* (15–16), 2762–2764. doi: 1010.1111/jocn.15314.

Al-Hunaishi, W., Hoe, V.C., & Chinna, K. (2019). Factors associated with healthcare workers willingness to participate in disasters: A cross-sectional study in Sana'a, Yemen. *BMJ Open*, *9*, e030547. doi: 10.1136/bmjopen-2019-030547.

Alshutwi, S.S. (2021). Senior nursing students and interns' concerns and willingness to treat patients with COVID-19: A strategy to expand national nursing workforce during the COVID-19 pandemic. *Risk Management and Healthcare Policy*, *14*, 39–48. doi: 10.2147/RMHP.S279569.

American Association of Colleges of Nursing. (2023). *Nursing workforce fact sheet.* Retrieved from: https://www.aacnnursing.org/news-Information/fact-sheets/nursing-fact-sheet

Baack, S., & Alfred, D. (2013). Nurses' preparedness and perceived competence in managing disasters. *Journal of Nursing Scholarship, 45* (3), 281–287. doi: 10.1111/jnu.12029.

Casafont, C., Fabrellas, N., Rivera, P., Olivé-Ferrer, M.C., Querol, E., Venturas, M., Prats, J., Cuzco, C., Frias, C.E., Perez-Ortega, S., & Zabalegui, A. (2021). Experiences of nursing students as healthcare aid during the COVID-19 pandemic in Spain: A phenomenological research study. *Nurse Education Today*, *97*, 104711. doi: 10. 1016/j.nedt.2020.104711.

Cervera-Gasch, Á., González-Chordá, V.M., & Mena-Tudela, D. (2020). COVID-19: Are Spanish medicine and nursing students prepared? *Nurse Education Today*, *92*, 104473. doi: 10.1016/j.nedt.2020.104473.

Cliburn, E. (2020). *Launching a nursing career during COVID-19: Recent graduates share*

what they've learned during the global pandemic. Insight into Diversity. Retrieved from: https://www.insightintodiversity.com/launching-a-nursing-career-during-covid-19-recent-graduates-share-what-theyve-learned-during-the-global-pandemic/

Crisostomo, S. (2020). *COVID-19 cases breach 100,000.* The Philippine Star. Retrieved from: https://www.philstar.com/headlines/2020/08/03/2032520/covid-19-cases-breach-100000

Department of Human Resources. (2020). *Decision to commend the advanced collectives and individuals in the prevention and control of the new pneumonia epidemic in the national health system.* National Health Commission, PRC. Retrieved from: http://www.nhc.gov.cn/renshi/s7771/202003/28cc60d7e33b4dc7bd77af485fab1a58.shtml

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behavior Research Methods*, *39* (2)*,* 175–191. doi: 10.3758/BF 03193146.

Fernandez, L. (2020). *Nursing graduates ready to help patients from the front lines of the COVID-19 pandemic*. UTRGV The Newsroom. Retrieved from: https://www.utrgv.edu/newsroom/2020/05/26-nursing-graduates-ready-to-help-patients-from-the-front-lines-of-the-covid-19-pandemic.htm

Kim, E.A., Kim, H.R., & Kim, B. (2022). Factors influencing medical and nursing students' willingness to care for COVID-19 patients in South Korea: A cross-sectional study. *BMC Medical Education, 22* (1), 161. doi: 10.1186/s12909-022-03229-6.

Michno, D.A., Tan, J., Adelekan, A., Konczalik, W., & Woollard, A.C.S. (2021). How can we help? Medical students' views on their role in the COVID-19 pandemic. *Journal of Public Health, 43* (3), 479–489. doi: 10.1093/pubmed/fdaa271.

Oducado, R.M., Rabacal, J., Moralista, R., & Tamdang, K. (2021). Perceived stress due to

COVID-19 pandemic among employed professional teachers. *International Journal of Educational Research and Innovation*, *15*, 305–316. doi: 10.46661/ijeri.5284.

Olum, R., Kajjimu, J., Kanyike, A.M., Chekwech, G., Wekha, G., Nassozi, D.R., Kemigisa, J., Mulyamboga, P., Muhoozi, O.K., Nsenga, L., Lyavala, M., Asiimwe, A., & Bongomin, F. (2020). Perspective of medical students on the COVID-19 pandemic: Survey of nine medical schools in Uganda. *JMIR Public Health Surveillance*, *6* (2), e19847. doi: 10.2196/19 847.

Patel, R., Wattamwar, K., Kanduri, J., Nahass, M., Yoon, J., Oh, J., Shukla, P., & Lacy, C.R. (2017). Health care student knowledge and willingness to work in infectious disease outbreaks. *Disaster Medicine and Public Health Preparedness, 11* (6), 694–700. doi: 10.1017/dmp.2017.18.

Rafi, M.A., Hasan, M.T., Azad, D.T., Alam, S.F., Podder, V., Hossain, S., Akhter, S.M.Q., Ashraf, F., & Hossain, M.G. (2021). Willingness to work during initial lockdown due to COVID-19 pandemic: Study based on an online survey among physicians of Bangladesh. *PLOS ONE*, *16* (2), e0245885. doi: 10.1371/journal.pone.0245885.

Rogers, M.E. (1992). Nursing science and the space age. *Nursing Science Quarterly, 5* (1), 27–34. doi: 10.1177/089431849200500108.

Sitzman, K. & Eichenberg, L.W. (2017). *Understanding the work of nurse theorists: A creative beginning* (3rd Ed.). Jones and Bartlett Learning.

Sultan, M.A.S., Løwe Sørensen, J., Carlström, E., Mortelmans, L., & Khorram-Manesh, A. (2020). Emergency healthcare providers' perceptions of preparedness and willingness to work during disasters and public health emergencies. *Healthcare, 8* (4), 442. doi: 10.3390/healthcare8040442.

Ulenaers, D., Grosemans, J., Schrooten, W., & Bergs, J. (2021). Clinical placement experience of nursing students during the COVID-19 pandemic: A cross-sectional

study. *Nurse Education Today*, *99*, 104746. doi: 10.1016/j.nedt.2021.104746.

Velázquez, M.D.R.H., Bravo, J.F.S., Bermúdez, C.L.P., Mendoza, P.R.V., & Murillo, K.I.B. (2020). Management of the nursing processes of internal students in the confrontation of the COVID-19. *International Journal of Health Sciences*, *4* (2), 24–30. doi: 10.29332/ijhs. v4n2.441.

Wu, B., Zhao, Y., Xu, D., Wang, Y., Niu, N., Zhang, M., Zhi, X., Zhu, P., & Meng, A. (2020). Factors associated with nurses' willingness to participate in care of patients with COVID-19: A survey in China. *Journal of Nursing Management*, *28* (7), 1704–1712. doi: 10. 1111/ jonm.13126.

Yıldırım, M., & Güler, A. (2020). Factor analysis of the COVID-19 perceived risk scale: A preliminary study. *Death Studies*, *46* (5), 1065–1072. doi: 10.1080/07481187.2020. 1784311.