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Virtual learning experiences in population health nursing course during the COVID-19 pandemic

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Abstract

Aim: To discuss the virtual learning strategies used in population health nursing course during the coronavirus disease 2019 (COVID-19) pandemic.

Background: The School of Nursing faculty in a South Central University in the United States quickly combined innovation with digital resources and transitioned a course in population health during the COVID-19 pandemic. Nursing faculty were challenged to develop student nursing objectives in assessment, planning, intervention and evaluation of vulnerable populations in the community through a virtual environment.

Reflections of population health nursing clinical education: The experiences of five clinical groups are described, covering adults with disabilities, older people, patients with COVID-19 and youth populations.

Discussion: The course objectives were met through use of a digital environment. Collaborative interventions were designed and implemented with community stakeholders while maintaining social distancing policies. Successes included increased frequency of communication and learning opportunities for students and the community, and student satisfaction. Barriers to student learning were not related to the digital learning environment, although the older adults required modifications to use electronic devices.

Conclusion: Virtual classrooms are a viable platform to teach population health nursing and to benefit vulnerable populations.

Implications for nursing practice: Virtual learning offers benefits within academia and the community. Technology offers the possibility to improve mental health among older people and enhance knowledge among the general population. Students are better able to connect with clinical faculty and stakeholders through digital platforms.

Implications for nursing policy: Nurses play a vital role in improving population health and can collaborate with community stakeholders to implement innovative and sustainable solutions to nursing education, practices and policy. Digital platforms can enhance the involvement of students through these collaborations during and after the pandemic.

KEYWORDS
COVID-19, digital learning, learning outcome, older people, population health nursing, virtual learning, vulnerable population

INTRODUCTION

The world is confronting unique struggles in the face of a global pandemic. Coronavirus disease 2019 (COVID-19) has so far killed thousands worldwide (World Health Organiza-

tion [WHO], 2020). Throughout history, nurses have been providing care and saving lives from during widespread infectious diseases such as the bubonic plague, measles, Spanish Flu and HIV/AIDS (McDonald, 2020). It was challenging for new nurses to provide safe and quality care while tending

to their own safety and mental health. Nursing schools, which are positioned as the intersection of education and healthcare, have the responsibility to train new nurses to be compassionate, resourceful and skilful. The academic and teaching work of the university struck an unpredicted and abrupt standstill. Hence, nursing educators were forced to act swiftly with few resources and little time to reconceptualise courses and scholarly projects (Yancey, 2020). Over the past years, nursing schools across the country had to equip new nurses with essential skills virtually while hastening the maturation process to deal with grief and death due to the pandemic.

BACKGROUND

Nursing schools must provide quality education to their students. More importantly, nursing schools have an ethical role to prepare nurses to assess, evaluate and intervene on behalf of sick patients. Nurse educators had no choice but to quickly adapt to COVID-19 by delivering courses online. Complicating matters were the scarcity of hospital supervisory staff and necessary changes to workflow which led to suspending the clinical placements for nursing students (Hayter & Jackson, 2020; Jackson et al., 2020; Swift et al., 2020). Amid these changes, nurse educators and administrators were held accountable for ensuring that students met academic requirements.

In March 2020, our academic nursing programme made the difficult decision of withdrawing students from clinical practicums. Students in our population health course could not attend on-site rotations at various community sites due to COVID-19 restrictions. Fortunately, certifying bodies comprising the Commission on Collegiate Nursing Education (CCNE) were receptive to innovation in nursing education, provided the veracity of the programme was maintained. The restrictions necessitated the design of an alternate digital or modified clinical experience. Online learning strategies were created due to the learning crisis (Alkhowailed et al., 2020). Nurse educators had to instil fundamental nursing values of knowledge, empathy, basic and critical-thinking skills across a flat screen. Unlike other courses, population health faculty had to teach students that their "patient" was a whole population, not a single individual. Traditional hospital nursing skills in assessment, planning, intervention and evaluation were applied to the entire population. Due to physical restrictions, the lack of in-person contacts with community clinical sites posed a challenge for clinical faculty. New opportunities were created while faculty adapted the challenge and options arising from constructing new ways of being the teaching–learning mission of the university (Yancey, 2020). This paper discusses the virtual learning strategies used in the population health nursing course during the COVID-19 pandemic. The following examples illustrate how faculty accomplished these goals to help adults with disabilities, older people, COVID-19 patients and youth.

REFLECTIONS OF POPULATION HEALTH NURSING CLINICAL EDUCATION

In a traditional semester, population health nursing students are placed in community sites that serve vulnerable people. During these rotations, students perform a community assessment, consisting of a windshield survey, interviews with key informants and a comparison with available public health data and existing literature. The assessment is followed by the design, implementation and evaluation of sustainable interventions targeted to the health needs of the population. For nursing faculty in the 2020 Summer and Fall semesters, the goal was to guide students through their clinical experience remotely. Most of this was accomplished through phone calls and online meetings with key informants, research and comparison with existing literature, and designing evidence-based interventions that were sustainable and deliverable in a virtual or socially distancing environment.

As healthcare providers, it is imperative to recognise a patient's changing needs along with a human desire to feel involved and connected, and to provide opportunities to engage in evidence-based, creative interventions to help prevent adverse effects such as boredom, distress, and overall, a decreased quality of life. Students addressed these COVID-19 health concerns in several projects targeting older adults residing in long-term care facilities. One group was assigned to a rehabilitation and retirement community for senior residents. Most residents were aged 80 and older but cognitively intact and still able to perform activities of daily living. Since COVID-19 emerged, strict rules cancelled social activities and prevented residents from seeing family. Families and neighbours were not permitted to visit, and social distancing increased stress levels among residents in the nursing home (Simard & Volicer, 2020), putting them at risk for loneliness and depression (Chong et al., 2020,). Students combined the institutional knowledge with larger data, which indicated that most COVID-19 deaths comprised older individuals ≥65 years, and over one-fifth of these deaths were in a long-term care facilities (Gold et al., 2020). In addition to the mental stress of losing friends within the community, restrictions on family visits, communal dining, chronic conditions caused additional stress and a lower quality of life among older adults.

Students combined observations at the residential community with literature indicating that emotional and social problems worsen chronic illnesses and vice versa (Healthy People, 2020). To break the downward cycle of health during the pandemic, students identified social interaction with social distancing as the primary need of the community. Subsequently, students focussed on interventions to help residents cope with stress and decrease feelings of social isolation by engaging them in activities. Under the guidance of faculty, students conducted several Zoom sessions to support the staff and designed interventions to engage in mentally stimulating activities while adhering to social distancing guidelines (e.g. crocheting, crossword puzzles, themed lesson weeks on animals, places and historical eras). Students conducted a

pre- and post-quiz to assess the effectiveness of the intervention and the result showed that it was beneficial to the residents.

The second group of population health nursing students identified the needs of senior adult daycare residents in the same community. The facility offered affordable care for seniors with mental impairments. For the Population Health project, students created an activity for the facility which provided health and physiological education, meaningful entertainment and social engagement in a safe environment during the pandemic. Students provided educational materials to the residents in the adult senior care and nursing homes to help remind them about proper nutrition, sleep, hydration, hand hygiene, etc. A Jeopardy game was included with the intent of providing the same information and to evaluate the intervention. The results showed increased participation and knowledge of older patients.

The third group of students conducted video interviews with nursing home staff and identified an increase in depression and loneliness related to facility residents' social isolation. Students addressed this health need through the design and implementation of an enhanced window visit that allowed for safe family visitation. The facility activity director used a student-designed flyer to advertise a family visitation event conducted through the window. Students used social media crowdfunding to raise funds to purchase supplies, including walkie-talkies, game supplies and chairs and umbrellas to position outside windows. Walkie-talkies were used for communication through a closed window, and families were provided with game kits that were designed by the students. Nursing home residents used these to play simple games such as tic-tac-toe with their grandchildren using painters' tape and expo markers on the window. Families completed digital pre- and post-intervention surveys, and many families reported increased connection following the event.

The fourth clinical group addressed the health needs of a small sub-population of nursing home patients with gastrostomy tubes (G-tube). These patients were required to be sent to the Emergency Department (ED) each time their G-tubes were accidentally dislodged. The ED visits were especially risky during the pandemic, given the possible exposure to COVID-19 and other hazards associated with travel for frail older people. In some cases, fragile patients had been sent to the hospital weekly, resulting in unnecessary hospital admissions. Through video conferencing with a facility nurse practitioner, students learned that the patient visits had been preventable, given the proper patient G-tube education and care.

Students determined through literature readings that registered nurses could replace established G-tubes if the facility had a G-tube replacement protocol and training programme. Despite distancing challenges, the students worked remotely with facility nursing and medical staff to create an evidence-based and clinically guided G-tube replacement protocol and training programme. Under the guidance of clinical faculty, a physician champion was identified to work with nursing leadership to assist with the implementation of the protocol. Thus, ownership and capacity to deliver the protocol were fostered within the facility. As a sustained programme, the protocol can reduce unnecessary hospitalisation while protecting older residents from needless COVID-19 exposure. It gives the nursing staff increased autonomy in their facility, and it allows nurses to fully practice within the scope of their nursing licensure. These are meaningful ways in which nursing academia interacts with the community to create sustainable change.

Finally, the fifth clinical group addressed the mental health needs of youth among the digital community. By collaborating with the County Health District (CHD), the clinical faculty arranged Zoom interviews between students and CHD nurses and a coordinator. Mental health decline was identified, as evidenced by nursing reports of increased frequency of community distress calls since the pandemic began. These reports corroborated emerging COVID-19 literature, which indicated increased loneliness and mental health distress among youth and young adults (Lee et al., 2020). Students then created a TikTok video, role-playing activities with music to promote mental well-being while maintaining social distance. Activities included gardening (Van Lier et al., 2017), yoga (Capon et al., 2019), pet therapy (Carr et al., 2020), art (Beerse et al., 2019) and dancing (Wang et al., 2019). Students evaluated the video with a pre- and post-survey, which assessed the viewer's current health status and the likelihood of using the video. The viewers viewed their composite health scores and were taken to a CHD webpage with resource links to obtain health services and promote well-being. This activity was appropriate, evidence-based, collaborative with the community and sustainable. It leveraged a free, virtual resource to engage and benefit youth. Results from the survey will be assessed in the Summer of 2021, and students will be invited to work with faculty to publish the findings.

The fifth clinical group also volunteered to make phone calls for the CHD's COVID-19 monitoring system. Calls were made to monitor the symptoms of COVID-19 positive patients on home isolation. Students conversed with real patients who were more than willing to share their stories and feelings with the students. One patient expressed his gratitude for the call since he lived alone and was limiting excursions outside the home to chemotherapy visits. Others were thankful that healthcare was accounting for them during these unprecedented times. Questions the students were not capable of answering were relayed to the CHD nurses and followed up on accordingly. This mutually beneficial collaboration served the community while teaching students empathy for their patients.

DISCUSSION

The clinical groups faced similar successes and barriers to the virtual format. Successes were ample. Faculty are anticipated to demonstrate the standards recognised by their academic and clinical institution and serve as mediators of change. They offer leadership and management abilities and keep up with the latest teaching strategies and technologies. Faculty also participate in advocacy strategies to stimulate student and

organisational growth (National League of Nursing [NLN], 2020; WHO, 2016). First, nursing students' availability to meet with a variety of nurses in the community and with school faculty increased due to remote communication. Connecting through mobile phones and other portable devices meant increased availability for quick but more frequent meetings throughout the semester. Furthermore, students could meet and learn from a variety of nurses in different specialties throughout the clinical day, as opposed to shadowing a single nurse for an entire clinical day. Digital communication facilitated the mixing and matching of various students and mentor nurses.

Second, teaching the principles of public health nursing was fulfilled. Through each intervention, nursing students learned how to assess a population in the local community, synthesise existing literature, plan needs and evidence-based intervention, implement and evaluate the intervention. Furthermore, stakeholder involvement (e.g. nursing home leadership) and digital format facilitated sustainability and visibility of the interventions.

Third, despite the transition to a virtual clinical format, in the course evaluation, students reported they were equally satisfied with the course as before the pandemic. In addition to clinical outcomes, end-of-course evaluation data were reviewed to examine student learning outcomes. In these, 87% of students reported that the use of technology facilitated their learning, and 95% of students reported that the remote learning experience gave them confidence with their assessment skills and opportunities to practice clinical decision-making.

Similar barriers among the clinical groups included lack of interest or participation from students or more vocal students carrying an increased workload within the group. Such issues were not particular to the digital format of the course and would have been present under traditional teaching formats. Increasing participation may require smaller clinical groups using Socratic methods of direct questioning to random students within the group, or using other teaching methods, such as games or videos to teach content.

Barriers that pertained to digital technology included older residents who were not able to benefit from the intervention as initially intended. People with low health literacy levels and specific subgroups including older individuals may less commonly understand and utilise digital solutions (Nguyen et al., 2017). For example, the fourth clinical group initially attempted to have older residents speak to their families using walkie-talkies. The devices included knobs and buttons, which some residents did not have the strength to manipulate or press. After learning about this barrier during the evaluation stage, students and clinical faculty adapted to the residents' needs by replacing the walkie-talkies with baby monitors, which were more successful. Other barriers were identified and resolved earlier in the planning stages. For example, older patients with more cognitive decline were educated via pictures rather than words. Finding providers within the hospital/sites to champion the interventions was a minor barrier; in most cases, students interviewed providers, nurses and staff to determine their needs, interest and ability to implement and

sustain a solution. Accordingly, since community participation facilitated the needs assessment and subsequent intervention, ownership of the intervention was seated at the sites.

A continuing barrier to improving the health of the older population is emphasising psychosocial needs in addition to the physical ones. Students who participated in the baby monitor intervention to decrease social isolation witnessed the relief that the residents felt to see and speak with their loved ones finally. The faculty and students identified a lack of awareness among site personnel about the mental health needs of the residents since many of the apparent needs were physical. Through the necessity of innovation during the pandemic, a shared space within social distancing guidelines was created, bringing to light the mental health benefits of increased social interaction. We hope that similar interventions of creating shared spaces are a priority among older residents after the pandemic. The needs that surfaced among populations and within institutions during COVID-19, and how nursing schools and students addressed those needs, were not solely lessons in assessment, planning and implementation. They were experienced in leadership, social justice, ethics and patient care. This pandemic has indefinitely altered the educational environment (Dewart et al., 2020).

CONCLUSION

The COVID-19 pandemic required virtual classrooms to foster creative thinking and to solve the problem capabilities of students (Alkhowailed et al., 2020). The students formulated relevant community nursing diagnoses, planned appropriate nursing interventions, provided health education and worked with stakeholders to develop sustainable solutions, despite the virtual format. Clinical faculty successfully used a virtual learning platform to conduct most of the didactic teaching activities and to facilitate the clinical learning experience. The frequency of communication with stakeholders in the community increased using virtual platforms, and evidence-based, sustainable solutions were implemented to meet the needs of older, vulnerable and general youth populations. Overall, the students were satisfied with the transfer of learning into a collaborative virtual learning atmosphere.

IMPLICATIONS FOR NURSING PRACTICE

Through these clinical experiences, students successfully used digital technology to partner with community agencies to apply population health assessment and intervention skills when on-site clinical experiences were not available. Use of technology allowed faculty to create real-world clinical experiences and community impacts during a time of virtual learning. The COVID-19 pandemic has required the implementation of virtual learning. It is a reliable and gratifying educational opportunity to safeguard students' commitment to the nursing profession, and it builds upon the nurse educators' skill sets through learning new and innovative techniques to improve communication (Ng & Peggy, 2019).

Implications include using hybrid models to conduct classes and clinical sessions. During the pandemic, Zoom rooms, TikTok videos and baby monitors were used to achieve benefits both for student learning and the community. Using these resources to circumvent social distancing restrictions indicates that population health interventions will improve.

Additionally, developing pre-recorded voice-over content for students to view before virtual meetings will make the discussions more focussed and organised. We adapted a case study to provide students with insight into experiential learning and to allow students to reflect on ethics and population health principles. We will expand these studies for future cohorts to augment student learning. Although students expressed satisfaction with the remote clinical experiences, further research will compare learning outcomes between the remote and on-site clinical experiences. Additionally, the digital format may expand clinical site availability and overcome geographical barriers after COVID-19 has subsided.

Overall, we maintained our objectives for population health throughout the pandemic. We developed the students' abilities to assess, plan, implement sustainable and evaluate health interventions despite transitioning to digital formats. We taught nurses to be proactive on behalf of whole patient populations in the community and to adapt to population needs. While the pandemic undoubtedly devastated lives across the globe, this Nursing School programme demonstrated resourcefulness and leveraged digital technology for communication, health promotion and healthcare delivery. The students were provided with a unique opportunity to engage with patients in the community, despite the distancing regulations and stress accompanying the pandemic. These novice nurses will bear the professional torch moving forward. They will be fundamental to the care and survival of the most vulnerable populations who are most seriously affected by the COVID-19 pandemic.

IMPLICATIONS FOR NURSING POLICY

COVID-19 has hastened the development of innovative nursing education practices. Increased cases of COVID-19 have intermittently blocked schools from direct patient care learning encounters. Others were forced to stop clinical learning experiences as case numbers surpassed the capability to hold students for on-site learning (Ziehm et al., 2021). Nursing schools need the flexibility to leverage online learning experiences. CCNE (2020) acknowledges that its accreditation guidelines permit innovation, adaptability and modifications in programme delivery.

Faculty can guide students through evaluating population health needs and offering leadership and assistance for designing and executing strategies in this process. CCNE (2020) specified that this flexibility pertains to didactic and clinical experiences for pre-licensure programmes, and provided that students complete programme outcomes and fulfil requisite clinical hours. Innovative teaching must work in agreement with local, state and federal approvals and state licensing board requirements. It is the role of programme administrators, faculty and clinical partners to hold each other accountable to these standards. Nursing schools should integrate population-centred models into the curricula for all nursing students, and help students identify the vital role they can perform in fostering population health.

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REFERENCES

Alkhowailed, M.S., Rasheed, Z., Shariq, A., Elzainy, A., El Sadik, A., Alkhamiss, A. et al. (2020) Digitalization plan in medical education during COVID-19 lockdown. *Informatics in Medicine Unlocked*, 20. Available from: https://doi.org/10.1016/j.imu.2020.100432

Beerse, M.E., Van Lith, T., Pickett, S.M. & Stanwood, G.D. (2019) Biobehavioral utility of mindfulness-based art therapy: neurobiological underpinnings and mental health impacts. *Experimental Biology and Medicine*, 245(2), 122–130.

Capon, H., O'Shea, M. & McIver, S. (2019). Yoga and mental health: a synthesis of qualitative findings. *Complementary Therapies in Clinical Practice*, 37, 122–132.

Carr, D.C., Taylor, M.G., Gee, N.R. & Sachs-Ericsson, N. (2020) Psychological health benefits of companion animals following a social loss. *Gerontologist*, 60(3), 428–438.

Chong, T., Curran, E., Ames, D., Lautenschlager, N.T. & Castle, D.J. (2020) Mental health of older adults during the COVID-19 pandemic: lessons from history to guide our future. *International Psychogeriatrics*, 32(10), 1249–1250.

Commission on Collegiate Nursing Education (2020) Information regarding coronavirus impact on CCNE-accredited baccalaureate and graduate nursing programs. Available at: https://www.aacnnursing.org/Portals/42/CCNE/News/CCNE-Statement-on-Coronavirus-Bacc-and-Grad.pdf. Accessed on May 30,2021.

Dewart, G., Corcoran, L., Thirsk, L. & Petrovic, K. (2020) Nursing education in a pandemic: academic challenges in response to COVID-19. *Nurse Education Today*. Available from: https://doi.org/10.1016/j.nedt.2020.104471

Gold, J.A., Rossen, L.M., Ahmad, F.B., Sutton, P., Li, Z., Salvatore, P.P., Coyle, J.P. et al. (2020). Race, ethnicity, and age trends in persons who died from COVID-19 – United States, May–August 2020. *Morbidity and Mortality Weekly Report*, 69, 1517–1521.

Hayter, M. & Jackson, D. (2020) Pre-registration undergraduate nurses and the COVID-19 pandemic: students or workers. *Journal of Clinical Nursing*, 29, 3115–3116.

Healthy People. (2020). Available at: https://www.cdc.gov/nchs/healthy_people/hp2020.htm

Jackson, D., Bradbury-Jones, C., Baptiste, D., Gelling, L., Morin, K., Neville, S. & Smith, G.D. (2020). Life in the pandemic: some reflections on nursing in the context of COVID-19. *Journal of Clinical Nursing*, 29, 2041–2043.

Lee, C.M., Cadigan, J.M. & Rhew, I.C. (2020). Increases in loneliness among young adults during the COVID-19 pandemic and association with increases in mental health problems. *Journal of Adolescent Health*, 67(5), 714–717.

McDonald, T. (2020). Getting the COVID-19 pandemic into perspective: a nursing imperative. *International Nursing Review*, 67(3), 305–317.

National League of Nursing. (2020). *NLN core competencies for academic nurse educators*. Available at: http://www.nln.org/professional-development-programs/competencies-for-nursing-education/nurse-educator-core-competency

Ng, Y.M. & Peggy, P.L. (2019). Coronavirus disease (COVID-19) prevention: virtual classroom education for hand hygiene. *Nurse Education in Practice*, 45, 102782.

Nguyen, A., Mosadeghi, S. & Almario, C.V. (2017). Persistent digital divide in access to and use of the Internet as a resource for health information: results from a California population-based study. *International Journal of Medical Informatics*, 103, 49–54.

Simard, J. & Volicer, L. (2020). Loneliness and isolation in long-term care and the COVID-19 pandemic. *Journal of the American Medical Directors Association*, 21(7), 966–967.

Swift, A., Banks, L., Baleswaran, A., Cooke, N., Little, C., McGrath, L., Meechan-Rogers, R., Neve, A., Rees, H. & Tomlinson, A. (2020). COVID-19 and student nurses: a view from England. *Journal of Clinical Nursing*. Available from: https://doi.org/10.1111/jocn.15298

Van Lier, L.E., Utter, J., Denny, S., Lucassen, M., Dyson, B. & Clark, T. (2017). Home gardening and the health and well-being of adolescents. *Health Promotion Practice*, 18(1), 34–43.

Wang, Z., An, G., Zhang, W. & Yang, G. (2019). The effect of jazz dance on physical and mental health of students with different physical fitness. *Journal of Sports Medicine and Physical Fitness*, 59(5), 880–885.

World Health Organization (WHO). (2016) *Nurse educator core competencies*. Available at: https://www.who.int/hrh/nursing_midwifery/nurse_educ_core_competencies/en/

World Health Organization (WHO). (2020) *Coronavirus disease 2019 (COVID-19)*. Available at: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200326-sitrep-66-covid-19.pdf?sfvrsn=81b94e61_2

Yancey, N. (2020) Disrupting rhythms: nurse education and a pandemic. *Nursing Science Quarterly*. Available from: https://doi.org/10.1177/0894318420946493

Ziehm, S.R., Nelson, R., Greiner, P.A., Wickman, M., Weismuller, P.C., Lightfoot, K.L. & Ruggenberg, S. (2021). Building coalitions: a statewide nursing organization's role in changing nursing education regulation during the COVID-19 pandemic. *Journal of Professional Nursing*, 37(3), 510–515.