Mini Review

Addressing Health Inequities through Simulation Training and Education in Rural and Tribal Communities

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Citation: Eddie RS, Karntisching L, Eccleston B, Schwartz A (2023) Addressing Health Inequities through Simulation Training and Education in Rural and Tribal Communities. Int J Nurs Health Care Res 6: 1388. DOI: 10.29011/2688-9501.101388

Received Date: 03 January, 2023; Accepted Date: 11 January, 2023; Published Date: 16 January, 2023

Abstract

**Background:** The nursing shortage is serious and getting worse in medically underserved areas. Nursing education needs to include faculty education in simulation-based education that focuses on public health and cultural education. New nurse graduates are inadequately prepared and need additional training to provide culturally appropriate care to varied and rural populations. **Method:** This project used simulation-based education and rural clinical placements to enhance the training and education needs of faculty, students and community partners to better address the health care needs of people living in rural and medically underserved areas of the Navajo Nation and northern Arizona. **Results:** The project increased knowledge and interest among faculty and community partners on simulation-based education as well as positive student learning experiences. **Conclusion:** Public health and culture can be integrated into simulation-based education. Partnerships with tribal communities can play a valuable role in nursing education.

**Keywords:** Rural; American Indian; Simulation training; Cultural competency; Public health; Partnerships

**Background**

Maintaining a strong nursing workforce is challenging in a variety of settings across the U.S., but no more so than in rural, medically underserved areas, including American Indian (AI) communities [1,2]. Such rural areas are situated in Northern Arizona and home to the Navajo Nation, the most populous and largest reservation land area in the U.S., which spans across northeastern Arizona, southwestern Utah, and northwestern New Mexico [3]. Within these lands, rural and AI people experience exceptional health challenges that include a disproportionate higher burden of preventable and chronic diseases (e.g., obesity, diabetes and cardiovascular disease) and disabilities, and lower life expectancy compared to urban areas [2,4]. Further, access to quality care is limited by residents’ lower education levels, lower socioeconomic status (69% poverty rate), lack of reliable transportation, long distance to reach health care facilities, poorly maintained unpaved roads, cultural insensitive encounters when receiving care, difficulty securing appointments, long waiting times when receiving care, and limited or no access to specialty care services [1]. The ongoing COVID-19 pandemic further contributed to these underlying health conditions, particularly at the height of the pandemic in spring 2020 when the Navajo Nation had one of the highest per capita COVID-19 infection rates in the nation [5].

Nursing education programs located in or near rural and American Indian communities have a unique opportunity to improve health disparities and nursing shortages. However, such programs must account for challenges around distance between faculty, students, clinical sites, resources, preceptors, and community partners. Rural clinical sites and partners are often difficult to find and are separated by many miles, requiring...
faculty to oversee students, manage clinical sites and partners at
great distances [6]. Additionally, distant clinical sites often have
limited or no lodging accommodations for students and faculty,
adding to costs for transportation and lodging; and lack of internet
infrastructure make it difficult to incorporate virtual methods of
teaching and communicating.

Other important challenges center on training and education
needs for faculty and nursing students. At the faculty level, there
is some evidence that suggests many faculty are not well trained in
how to use and integrate simulation technology in teaching [7,8].
Additionally, faculty may lack cultural knowledge and awareness
of other cultures than their own, impacting nursing students’
preparedness to provide culturally appropriate care to diverse
patients and families [9].

Preparing nursing students for rural and culturally diverse
settings calls for innovative approaches using simulation-based
education. Simulation-based education is an effective method for
teaching and learning for nursing students in a safe, controlled
environment, where students are provided a simulated experience
of an actual clinical situation to increase students’ hands-on
practice and knowledge not only of clinical skills but also cultural
care and communication without the risk of harming a real patient
[10,11]. Further, clinical opportunities in rural and culturally
diverse settings such as American Indian communities can support
and enhance learning opportunities for nursing students [12] and
perhaps even for faculty.

This paper describes a two-year HRSA-funded Nursing,
Simulation Education Practice, Quality and Retention (NEPQR)
Simulation Education Training (SET) project. The project focused on
1) enhancing simulation-based technology education and
training of faculty and community partners; and 2) increasing
nursing students’ awareness and understanding of culturally
diverse groups in rural and AI community settings. Our overarching
goal was to improve outcomes with adult and childhood obesity,
diabetes, hypertension, coronary heart disease, and behavioral/
mental health care, for people living on the Navajo Nation and in
rural northern Arizona; rural and medically underserved areas with
high poverty rates and disproportionately high burdens of these
diseases by increasing the nursing workforce and incorporating
cultural awareness about care for American Indians and people
living in rural and underserved areas.

**Method**

The project training sites were our main School of Nursing
campus and one of our extended campuses—the American Indian
Nursing Program (AIP) located on the Navajo Nation, the first
and only tribal reservation-based baccalaureate-nursing program.
These site locations allowed us to do this work throughout the
Navajo Nation and rural northern Arizona during the COVID-19
pandemic (2020-2022). Our project did not require ethical board
approval because project was not conducted for research purposes.

**Simulation-Based Training**

For faculty, to increase their basic understanding of simulation
technology and explore ways to expand and integrate simulation
into day-to-day teaching, we made online courses available through
the National League of Nursing Simulation Innovation Resource
Center (NLN SIRC). The project team, led by School of Nursing’s
simulation coordinator, followed up with faculty at monthly Zoom
meetings to address questions related to online courses. Faculty
were provided with a list of recommended simulation courses. The
simulation coordinator was available for faculty interested in using
simulation as a teaching tool in their course.

Along with faculty, we educated rural community health
partners and preceptors about simulation technology and its uses
in nursing education. For example, community partners associated
with a local hospital and community college had onsite simulation
equipment at their facilities but did not know how to use it for
simulation-based education. To address these learning needs, we
provided onsite consulting and training on simulation hardware
and software equipment along with practice patient simulation
scenarios and telehealth training.

To expand simulation-based education for the reservation-
based American Indian Nursing Program (AIP) nursing students,
we upgraded and installed a new video capture system—VALT
(Vide, Audio, Learning, Tool) at the initiation of the project. For
the first time, students could participate remotely in a simulation
scenario via observation and debriefing by reviewing their
recorded simulations. For example, students participated in a
simulated clinical experience of a mother in labor where students
were expected are to recognize and treat signs of foetal distress.

The use of simulation-based education became even more
important when COVID-19 pandemic forced closure of clinical
practicum sites, making simulation the only clinical experience for
many of our undergraduate nursing students. These students were
provided simulation-learning experiences in areas such as patient
communication, sterile technique practice, interprofessional
communication, teamwork and delegation.

**Culturally Competent Nursing Education**

To optimize student readiness for culturally competent
public health care in rural and medically underserved settings, our
team is exploring ways to integrate public health nursing concepts,
cultural and communication skills, and social determinants of
health in simulation learning experiences. One example is through
our partnership with tribal health and school partners to develop
simulation scenarios that mimic real world experiences with AI
patients in rural settings. The severe impact of COVID-19 on the
Navajo Nation spurred ideas for simulation scenarios in response to some of the language and cultural conflicts/issues many Navajo families experienced. One example was the hospital restrictions that cut off family visits from loved ones in the hospital fighting for their lives where in some cases loved ones did not survive. Simulation is one way to provide students with the experience to practice difficult situations in a culturally sensitive manner.

With the impact of COVID-19 on student clinical experiences, we adapted our public health nursing clinical practicums to meet the learning needs of our students, support community, and tribal partners who faced many challenges in serving high-risk populations. One group of students learned social determinants of health and its devastating impact on rural and tribal communities because of no running water, inadequate housing, and limited access to health care services. Students developed a primary intervention project that focused on preventing the spread of COVID-19. One group project created a 4-minute YouTube video on how to wear facemask properly that was delivered to tribal and school partners.

**Results**

Nursing faculty across all campuses, 100%, received simulation training. This exceeded our projected goal and led to a campus-wide increased interest in simulation-based learning. COVID-19 made the simulation training provided to preceptors and community health challenging, but we succeeded by collaborating with the largest healthcare system in northern Arizona and a tribal partner. Both organizations were eager to share their approaches to virtual care, telehealth, remote patient monitoring, and virtual hospital and to provide opportunities for students when appropriate.

One hundred percent of undergraduate nursing students (N=462) on main campuses in Flagstaff and the American Indian Nursing Program were involved in simulation education. With the availability of vaccines and the easing of COVID-19 restrictions in fall 2021, most students resumed practicums in rural and medically underserved areas, including the Navajo reservation. Qualitative survey was sent to 320 students. 98 students described their experiences using simulation-based education and the positive impact of the program. The following are quotes from different students: the “scenarios helped me feel prepared to work in medically-underserved areas” and to “become more aware of different cultures or even economic status. “Each scenario exposed us to come cultural barrier that we had to overcome and find ways to adjust to so that all patients felt respected.” The training was described as “beneficial” in the clinical decision-making process by “making decisions under pressure”, working as a team”, “learning to delegate and ask questions”, “apply concepts from lecture that didn’t make sense that suddenly came alive and became real”. One student felt simulations “were not beneficial to my clinical experiences.”

**Discussion**

To improve the delivery of culturally appropriate care and address health equities in diverse populations, nursing programs can use innovative methods, such as simulation-based nursing, to incorporate cultural competency into the curriculum. Exposure to simulation-based nursing, along with traditional clinical experiences, can improve student clinical performance and expand clinical competence [13]. Additionally, simulation-based education can help students’ bridge significant educational and clinical gaps to meet required program standards. Simulation-based education is an approved accreditation expectation by State Boards of Nursing, and there is strong reason to expect that it will be sustained in the nursing curriculum. Our faculty embraced the simulation education and it was important to ensure that they were prepared with the appropriate skills and knowledge for enduring success.

Information regarding public health and culture can be integrated into simulation-based education. Content should include the principles of public health, epidemiology, and social determinants of health, policy, interprofessional team building and skills, and management of the spread of disease with real-world examples, such as the COVID-19 pandemic. This approach reduces the number of clinical sites.

Despite our successes, we encountered and continue to encounter challenges and limitations when working in rural and remote areas. These challenges, primarily distance and lack of reliable internet connectivity, are ongoing and inherent characteristics of working in remote areas. Forming strong partnerships with community health care facilities is one way to make an educational impact in a community where resources in funding, infrastructure (limited broadband internet connectivity) and health care personnel are limited [14]. Having a network of clinical partners provides a support system for communication, team building and interprofessional development for students to see how teams can collaboratively work together to overcome challenges.

**Funding**

All authors received funding to support this work from HRSA U4EHP394575. Schwartz and Eddie also received funding from NIH/NIMHD U54MD012388.

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