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A Rural Telehealth Objective Structured Clinical Examination

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Abstract

Problem Rural healthcare consumers experience increased health disparities, especially when accessing health care. The use of telehealth to improve access has become an essential competency for nurse practitioner (NP) students. This study evaluated NP students' confidence and competence of rural social determinants of health (rSDOH) before and after a telehealth simulation.

Methods A descriptive, cohort design was used to review NP students' pre- and post-surveys, written case studies, and a video-recorded telehealth OSCE for a patient living in a rural area.

Results Student self-rated knowledge of rural health care did not improve despite didactic learning and simulation ($z = -1.63$, $p = .102$). However, a difference in student self-rated comfort in managing rural patients was found ($z=-3.32$, $p < .001$). The confidence level in identifying rSDOH and utilizing telehealth to perform a history and physical exam was improved ($z = -3.70$, $p < .001$; $z = -4.20$, $p < .001$). Of clinical significance, 100% of student groups discussed health history consideration items during simulation; and 55.5% of student groups included at least two rSDOH in their differential diagnoses.

Implications There was some benefit when NP students received education on rSDOH and experienced a rural telehealth simulation experience. Students reported increased comfort and confidence when encountered with a patient with limited access to care, but students inconsistently addressed rSDOH during simulation. Continual training for NP students in identifying rSDOH and telehealth practices is indicated to enhance culturally competent patient care when encountering those living in rural areas.

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Rural healthcare consumers may have limited access to and experience delays in the receipt of general or specialty care. In addition, there are confounding variables, known as social determinants of health, contributing to the health inequities of rural populations. Health inequities result from a decreased accessibility to general and specialty health care as evidenced by rates of disease and health outcomes (National Institutes of Health [NIH], 2014). The rural social determinants of health (rSDOH) impacting rural consumers include their geographic location, environment, transportation, level of education and other socioeconomic variables for health (National Advisory Committee on Rural Health and Human Services, 2017). Data from the National Center for Health Statistics (2016) revealed the prevalence of two to three chronic diseases reported by non-metropolitan, rural residents as 22.2%; however, their metropolitan counterparts had an 18.2% prevalence of the same diseases. Rural residents had a 5.8% prevalence of four or more chronic diseases, while metropolitan residents had a 4.3% prevalence of the same diseases (National Center for Health Statistics, 2016). Moy et al. (2017) reported rural residents have higher rates of the most common chronic illnesses, including diabetes and cardiovascular disease when compared to urban residents. In 2014, 193.5 per 100,000 deaths were caused by heart disease in rural areas, versus non-rural areas at 161.7 per 100,000 (Moy et al., 2017).

Those living in rural communities, and especially those who have lower socioeconomic status, have less accessibility to care and are more likely to engage in poor health behaviors (e.g., smoking and drinking) which can contribute to or exacerbate chronic illness. Chronic illness is suggested to account for one-third of all health

spending in the US at about $350 billion each year (Washington University, 2015). The inequities of chronic illness among rural dwellers may be correlated to other factors, such as lack of providers and specialists, poor transportation resources, poor education, poor socioeconomic status, increased number of uninsured residents, and a greater likelihood of participation in poor and risky health behaviors. Missouri designates 101 of its 114 counties as "rural," increasing the overall risk for health inequities associated with living in a rural area, especially with a chronic disease (Missouri Department of Health and Human Services [MODHSS], 2015). Unfortunately, the areas of greater need (i.e., rural and underserved areas), receive a disproportionate amount of public funding due to urban bias which is reflected in poorer health outcomes (World Health Organization [WHO], 2008). *Healthy People 2020*, a consensus statement on national objectives for improving the health of Americans, details rural health as only one of 14 disparities contributing to poor health, despite rural Americans making up 17% of the US population (Bolin, Bellamy, Ferdinand, Vuong, Kash, Schulze, & Helduser, 2015).

Poor access to care contributes to health disparities in rural residents when compared to urban counterparts. There is a lack of healthcare providers in rural areas, exacerbating the number of underserved; moreover, rural consumers face barriers in obtaining specialty care due to issues of time from work, affordability, and lack of transportation. A survey of rural stakeholders' priorities in rural healthcare concludes access to quality health services as the single most important rural health priority (Bolin et al., 2015). Restrictions on some healthcare providers, such as those on the advanced practice registered nurses (APRNs) in Missouri dictating a physical proximity to a collaborating physician of 75 miles, contribute another barrier for accessing a healthcare

provider in a rural area (20 CSR 2200-4.200 Collaborative Practice, MO State Board of Nursing).

Telehealth overcomes several barriers and may be an option for expanding care to patients in rural and underserved areas; however, little training is available to prepare healthcare providers for a telehealth visit and may result in decreased utilization of this technology (Rutledge, Haney, Bordelon, Renaud, & Fowler, 2014). Furthermore, APRN students may not be trained in utilizing telehealth technology to be used as an adjunct for increasing access to care. Some doctor of nursing practice (DNP) programs have initiated telehealth training via simulation and telehealth immersion experiences (Rutledge et al., 2014). Reportedly, nurse practitioner (NP) students who received this training felt the training allowed for an opportunity to assess medical conditions and maintain awareness of patient progress through a virtual visit (Rutledge et al., 2014). Telehealth can decrease costs for patients, reduce hospital readmissions, and may contribute to improved health outcomes (Rutledge et al., 2014). Balestra (2018) recommended APRNs practicing in rural and underserved areas should anticipate a growing role for telehealth and master the technology to facilitate patient care. The National Organization of Nurse Practitioner Faculties (NONPF) supports telehealth in NP education, citing skills in this innovative technology as essential for NPs to help address national healthcare needs, including provider shortage, increasing complexity of disease, an aging population, and limited access to care (Rutledge, Pitts, Poston, Schweickert, 2018). Furthermore, NONPF anticipates NPs trained in telehealth can prove to emerge as nursing leaders, contributing creative innovation to healthcare (Rutledge, Pitts, Poston, Schweickert, 2018).

The purpose of this quality improvement (QI) initiative was to provide a rural, telehealth simulation experience for NP students enrolled in a DNP program. An objective structured clinical exam (OSCE) is a simulation experience for students while being observed by faculty in-person or by video recording, resulting in a clinical competence evaluation (Zayyan, 2011). This project included the implementation of a rural-focused telehealth OSCE into a three-day learning "intensive" for DNP students at a Midwestern, suburban, public college of nursing. The study questions for this QI project were:

In NP students who experience a rural, telehealth OSCE simulation:

1. What was the confidence level in identifying rSDOH prior to education and training on the topic?
2. What was the confidence level in utilizing telehealth technologies prior to education and training on the topic?
3. What was the number of students who are able to conduct a virtual physical exam through instruction on the use of medical devices for evaluative purposes, such as otoscope, stethoscope and ophthalmoscope when conducting the telehealth visit?
4. What were the number of students who are able to address at least one rural consideration items in their differential diagnoses?

Review of Literature

A literature review included PubMed, CINAHL, and Google Scholar search engines. The key words were *telehealth simulation, objective structured clinical examinations, nurse practitioner simulation training,* and *rural health*. The literature review included scholarly and peer-reviewed publications from 2008 to 2018 and was

limited to healthcare. Articles were excluded if full text was not available online or if they were not peer-reviewed. References from key articles were also retrieved and reviewed. Twenty-two articles were initially retrieved. Nine articles were selected to frame this initiative. The following themes organized the literature review: barriers to rural health care access, OSCEs for teaching skills and evaluating competency, and telehealth to address rural health access.

An increased incidence of health disparities for rural-dwelling healthcare consumers, when compared to urban counterparts, invites new and innovative care technologies and methodologies. *Rural Healthy People 2020,* a counterpart to *Healthy People 2020*, addresses priorities in healthcare specific to rural stakeholders, citing access to care as the most important priority for rural America (Bolin, Bellamy, Ferdinand, Kash, & Helduser, 2015). *Rural Healthy People 2020* reported telehealth may provide benefits to patients by expanding access to healthcare providers needed for managing chronic illness, such as diabetes and heart disease, the care of mental illness, and is of use in emergency services (Bolin et al., 2015; Sevean et al., 2008).

Telehealth is within a nurse's scope of practice. Benefits for healthcare professionals are reportedly distance-mediated collaboration, job satisfaction and retention, increased productivity, client autonomy, and improved decision-making competency (Sevean et al., 2008). While there are few studies in the literature exploring telehealth education in DNP programs, and across other disciplines, DNP students may benefit from education pertaining to telehealth. APRN students who experienced telehealth education demonstrated an improved understanding of the potential for telehealth in decreasing healthcare costs, decreasing hospital readmissions, and the

potential to provide more timely and effective treatment (Rutledge, Haney, Bordelon, Renaud, & Fowler, 2014).

Additionally, there is a demand for new strategies to educate NP students due to the limited number of preceptors and evolving technologies. Simulation training in telehealth can supplement NP students' learning experience and may contribute to the preparation of an APRN for contemporary healthcare delivery practices (Merritt, Brauch, Bender, and Kochuk, 2018). Simulated experiences and virtual clinical competency evaluation can result in increased confidence when providing care to actual patients during residency experience, and students reported a simulation resembled real-world patients and improved their understanding of the APRN role in telehealth services (Merritt et al., 2018; Prettyman, Knight, and Allison, 2018). Virtual, video-recorded OSCE allowed for adequate faculty assessment of clinical skills with the use of standardized cases, patients, and rubrics allowing for objective evaluation of students (Prettyman et al., 2018). Additionally, the use of OSCEs in a NP curriculum may provide a safe and controlled environment for teaching and evaluating students, specifically useful in evaluating interpersonal skills, communication, cultural sensitivity, skill attainment, physical exam techniques, critical thinking, and diagnosis and management (Day, Barker, Bell, Sefcik, & Flournoy, 2017; 2018; Miller & Carr, 2016). Simulation-based education can be associated with patient benefits in comparison with non-simulation instruction (Zendejas, Brydges, Wang, and Cook, 2013).

A Plan-Do-Study-Act (PDSA) framework utilizes the underpinnings of Deming's Theory of Profound Knowledge, enabling students to learn on an individual level lending to an outward effect on the quality of healthcare provided on a broader spectrum (Moen

& Norman, 2016). Improvement in the process of learning for APRN students should be continual and drive the educational practices to evolve with the demands of healthcare. Telehealth training and simulation is a current need based on the disparities in healthcare access. Deming's Theory of Profound Knowledge suggested a challenge to learning beyond status quo (Moen & Norman, 2016). The PDSA cycle for improvement allows for testing change in small increments and allows for the constant evaluation of outcomes, including student learning, and is the framework for this study.

Method

Design

This was a QI initiative for a Midwestern, suburban, public university college of nursing (CON) utilizing a retrospective, observational, descriptive, cohort design. The plan included multiple modalities for education and evaluation: a written case study with rural health considerations to assess for important health factors; a pre-survey to obtain baseline information about the student and their confidence level with rural health disparities and the use of telehealth; a didactic presentation regarding rSDOH and the use of telehealth; a video-recorded OSCE involving a simulated rural resident; and a post-survey to evaluate to re-evaluate confidence with rural health disparities and telehealth. Implementation was planned during a three-day learning "intensive" (March 20-22, 2019) for the DNP students enrolled in an Advanced Health Assessment course.

Setting

The setting was a Midwestern, suburban, public university with a CON offering four graduate nursing programs including BSN-DNP, MSN-DNP, post-graduate certificate, and a PhD program. In addition, there were six population of foci tracks for

NP students (i.e., adult-geriatric primary care, family, pediatric primary care, pediatric acute care, psychiatric mental health, and women's health). Finally, the CON offered a leadership track for those interested in nursing administration, education, and other nursing leadership interests. The University is located in a metropolitan area with over three-million residents, including seven nursing schools offering a NP program. The CON has over 200 students enrolled in the BSN-DNP and MSN-DNP programs. The CON requires students enrolled in the BSN-DNP program to attend six, three-day "intensives," which is an on-campus, hands-on and simulation training experience at intervals throughout the curriculum. Post-graduate certificate and MSN-DNP students could elect to attend any or part of an intensive. Four of the six intensives include a video-recorded OSCE reviewed by the student and a designated faculty member as part of the evaluation process to assess student skill acquisition.

Sample

This study utilized a convenience sample of NP students enrolled in the advanced health assessment course and who were in attendance for intensive number two. The aim of the intensive was to educate NP and leadership students on rSDOH, implications for telehealth, and for NP students to perform the essential elements of an adult history and physical exam in-person and when using telehealth. Criteria for inclusion in this study were NP, BSN-DNP students who were enrolled in the advanced health assessment course and who were in attendance for all three days of the intensive. Exclusion criteria included any student who was not enrolled in the advanced health assessment course or who did not attend all three days of the intensive. Any student who did not consent to

having their video-recorded telehealth OSCE reviewed by the primary investigator was also excluded.

Procedures

The 'plan" phase of this project included the DNP program director, two assistant teaching professors, and the primary investigator. The intensive selected as most appropriate for this project was intensive number two which is the intensive associated with the advanced health assessment course and the first intensive for students to practice performing an adult history and physical exam. This initiative provided a didactic presentation on underserved populations, particularly those residing in rural areas, expanding on issues with access to care. Included was instruction on the influence of telehealth and the role of NPs in expanding access to care and meeting rural and underserved populations' health needs. Special emphasis was placed on telehealth utilization to address access to care. Additionally, an overview of telehealth skills and competencies was provided to students. Information on positioning, use of medical devices, communication of pertinent information and collaboration with provider, and treatment planning was included. Grading rubrics were developed for the written, in-person, and telehealth case studies.

The "do" phase of this study involved students completing a written case study with rural health considerations to assess their ability to identify important health factors for this population on day one of the intensive. A grading rubric to measure specific outcomes for performing an adult well-exam and identifying rSDOH was utilized for the written case study. The didactic presentation regarding rSDOH and considerations for telehealth was completed on day two. On the last day of the intensive, students

completed an in-person OSCE performing an adult history and physical, and a telehealth OSCE. Prior to the didactic presentation, the students completed the pre-survey to obtain baseline data about the student and assess their level of confidence with rural resident needs and the utilization of telehealth technologies. Conferencing technology provided by Zoom and the use of standardized patients (SP) performing as a rural patient and nursing faculty performing as the "presenters" from the rural site was utilized. The same grading rubric was used for the in-person and telehealth well-adult exams OSCEs, but the telehealth grading rubric included additional evaluation criteria for items specific to telehealth utilization and performance. Finally, a post-survey to assess for confidence level was obtained. The "study" phase of the project included an analysis and reporting of the results from the written case study grading rubric, the pre- and post-survey, the telehealth OSCE grading rubric, and a comparison of findings between the written and OCSE case studies. The "act" phase included recommendations for further improvement in educating NP students on rSDOH and the use of telehealth technologies.

Data Collection/Analysis

Informed consent from all participants was obtained after institutional review board (IRB) approval. Demographic data was collected on the pre-survey to include age, race/ethnicity, primary address zip code, NP population of focus, and years of RN experience. Additional information obtained in the pre-survey included a Likert scale of knowledge of and experience with rural healthcare considerations, telehealth experience, confidence level in treating patients with reduced access to care, and confidence in addressing rSDOH. Finally, data from the written case study and OSCE grading rubrics was compared. All data collected was de-identified and coded as 1, 2, 3, etc., and stored

on a password-protected computer and flash drive. The data was analyzed using descriptive statistics and inferential nonparametric statistical analysis, the Wilcoxon signed rank test.

Approval Processes

Approval from the CON was obtained. In addition, approvals from the DNP committee, university IRB, and the university graduate school was also obtained. There were no anticipated risks with this study as this was a simulation-based study. Benefits of this study included providing NP students with a foundational understanding of rSDOH and utilization of telehealth technologies as an adjunct to healthcare for rural residents. Another benefit was an effective training technique resulting in the application of new knowledge in actual practice.

Results

A total of 38 participants (*N*=38) met inclusion criteria and consented to participate in the study. The age range of the participants was 24- to 49-years (*m*= 31.95, *SD*= 6.61) with the most common age being 28. Participant race/ethnicity identified 2.6% (*n*=1) as Asian; 18.4% (*n*=7) as Black or African American; 5.3% (*n*=2) as Hispanic or Latino; 65.8% (*n*=25) as White or not Hispanic or Latino; and 7.9% (*n*=3) identified their race/ethnicity as multiracial. A primary address for the participants revealed 13.2% (*n*=5) lived in an urban location; 68.4% (*n*=26) in a suburban area; and 18.4% (*n*=7) lived in a rural location. The average years of registered nurse (RN) experience ranged from one to 21-years (*m*=5.8 years, *SD*= 4.49) with the most frequent years of experience being 5 years. Regarding education, the participants were enrolled in one of six populations of focus in the nurse practitioner (NP) program. There were 47.4% (*n*=18) in the family NP

focus; 2.6% (*n*=1) in the acute care pediatric NP focus; 15.8% (*n*=6) in the primary care pediatric NP focus; 15.8% (*n*=6) in the psychiatric-mental health NP focus; 5.3% (*n*=2) in the primary care adult-geriatric NP focus; and 7.9% (*n*=3) were in the women's health NP population of focus. Finally, 60.5% (*n*=23) of the participants were enrolled in the part-time DNP program and 39.5% (n=15) in the full-time program (Table 1).

A two-tailed Wilcoxon signed rank test was used to examine the difference in how the subjects rated their knowledge of rural health care in the pre- and post-survey periods. Results were not statistically significant ($z = -1.63, p = .102$), indicating no increase in self-rated knowledge of rural health care considerations after a didactic presentation and simulation experience. A two-tailed Wilcoxon signed rank test was used to examine how comfortable subjects felt managing a patient with reduced or limited access to healthcare resources in the pre- and post-survey periods. A difference was found indicating an increased comfort in managing patients with reduced or limited access when the pre- and post-survey periods were compared ($z = -3.32, p < .001$). In addition, the confidence level in identifying rSDOH and the confidence level in utilizing telehealth technology to perform a history and physical exam were found to be significant ($z = -3.70, p < .001$), indicating there was improved confidence when identifying rSDOH and utilizing telehealth to improve access to a healthcare provider. Similarly, the two-tailed Wilcoxon signed rank test demonstrated increased confidence levels for utilizing telehealth technology when performing a history and physical exam ($z=-4.20, p < .001$) when comparing pre- and post-survey results.

Analysis of the written case study for the number of items identified or discussed regarding the patient's social, family, and personal health histories revealed 45% (*n*=17)

of subjects identified or discussed at least three items; 32% (*n*=12) of subjects identified or discussed at least two items; and 23% (*n*=9) identified or discussed one or no items in the health histories. When identifying rSDOH, 42% (*n*=16) identified three or more items, 29% (*n*=11) identified at least two items, and 29% (*n*=11) identified one or no rSDOH factors. When listing differential diagnoses, 18.4% (*n*=7) included at least two rSDOH in their differential diagnoses, while 81.5% (*n*=31) included none (Figure 1).

The OSCE simulation had experienced technological difficulties resulting in students being placed into groups to perform their telehealth OSCE as a team, rather than on an individual basis. The telehealth OSCE results found 100% of student groups (*n*=9) had identified or discussed at least three items pertaining to the patient's social, family, and personal health histories. Regarding rSDOH, three student groups (33.3%) identified or discussed at least two rSDOH with the patient; whereas, six student groups (66.6%) identified or discussed one or no rSDOH. Upon listing differential diagnoses, five student groups (55.5%) included at least two rSDOH in their differential diagnoses; four student groups (44.4%) identified one or no rSDOH in their differential diagnoses (Figure 2).

A comparison between the written case study rubric and the OSCE rubric regarding the identification of items for rSDOH was not able to be performed, but analysis of the essential components of the well-adult exam, creating a differential diagnosis list and developing a pan of care with the patient in the telehealth OSCE was performed. The telehealth OSCE simulation found 100% of the student groups (*n*=9) directed the remote provider to perform at least five essential physical exam components. When directing the remote provider on the use of equipment; five student groups (55.5%) instructed the remote provider on the use of at least three pieces of medical equipment;

two student groups (22.2%) directed the remote provider on the use of at least two pieces of medical equipment; and two student groups (22.2%) directed the remote provider on the use of at least one or no pieces of medical equipment while performing the physical exam. Finally, five student groups (55.5%) recommended referral to specialty care and informed the patient about the plan of care; two student groups (22.2%) recommended either referral to specialty care or gave patient information about their plan of care; and two student groups (22.2%) did not recommend referral or provide patient information regarding a plan of care (Figure 2).

Discussion

Overall, DNP students improved their confidence and competence in caring for rural residents being evaluated for a well-adult exam. The DNP students represented a variety of adult ages, but were less than 50-years, predominantly white females with an average of nearly six-years of RN experience, and nearly half enrolled in the part-time family NP program. The students primarily lived in suburban areas, but nearly equal numbers resided in either urban or rural areas. The low number of rural-dwelling NP students may be related to the lack of providers in the rural setting as NP providers tend to work in or near the community within which they live. The students' pre- and post-survey results indicated increased comfort and confidence when treating patients with reduced or limited access to care such as residents from rural communities, and when utilizing telehealth technologies.

Not surprisingly, the written case study revealed a student's ability to identify rSDOH was low intially; however, despite a didactic presentation with emphasis on rSDOH and the significance on health outcomes, greater than half of the student groups

during the telehealth OSCE failed to identify rSDOH in the history interviews, incorporate them into their differential diagnoses, and acknowledge them within the plan of care. The original plan for this study was to have each student participate as the consulting provider during the telehealth OSCE; however, there was a technology failure resulting in a limited number of rooms available for individual student evaluations. Instead, students were placed into groups and instructed to work as a team during the video-recorded OSCE. The students were then evaluated as a team instead of individually. Interestingly, even when working as a team, the students performed less than expected when identifying and addressing rSDOH and addressing them in a plan of care. The ability to compare the individually completed written case study results to telehealth OSCE simulated findings as a group was not possible due difficulty attempting to compare individual data to group data; however, descriptive analyses indicate a gap in students' understanding of rSDOH and addressing them in a plan of care.

As technology in healthcare evolves, there is an increasing demand for new strategies to educate NP students and keep them current on alternative avenues for patient-care delivery. Telehealth is becoming widely used throughout healthcare yet is seldom taught in academic settings. Telehealth appears to be a viable option for expanding access to care. While telehealth connects providers to rural patients, providers may fail to deliver culturally competent care, including the identification of rSDOH that may significantly impact care outcomes. This study provided some evidence for student healthcare providers successfully addressing physical assessment, personal, social, and family history components; however, deficiencies still exist when assessing rSDOH, despite a student's improved comfort and perceived competence for this.

The major limitation of this study was the technological failures of the telehealth OSCE simulation restricting the ability to compare individual written case studies to simulation performance since students needed to be placed into groups during the simulation experience, thus eliminating the ability to evaluate individual performance without a group influence. Thirty-eight students completed the written case study; however, only nine video recordings were available for study of the simulation experience performed as a group. The difference in the numbers of subjects did not allow for statistical analyses, contributing to a type II error. Another limitation was the inconsistent time groups spent in simulation. Some groups had 15-minutes and did not get to all components of their exam, while other groups had unlimited time in simulation.

This study provided evidence of a potential benefit of education on rSDOH and telehealth simulation. The results demonstrated students felt increasingly comfortable in managing patients with reduced or limited access to healthcare. Additionally, confidence levels in identifying rSDOH and when utilizing telehealth technology to perform a history and physical exam were improved. Students demonstrated improvement in performing history and physical exam measures in-person and via telehealth; however, most continue with opportunities for improvement in identifying and addressing rSDOH in their history-taking and plan of care. Recommendations for future practice include ongoing training for students in identifying SDOH for urban and rural residents. Expanding a NP students' scope of knowledge and practice to include in-person and telehealth experiences, especially with patients impacted by SDOH may enhance patient care when the NP student is in actually in practice. Further study is needed to determine if training in a graduate nursing program impacts future practice as an APRN.

Conclusion

This study examined a DNP student's ability to identify and manage patients with rSDOH during an in-person and telehealth encounter. Students reported feeling more comfortable in treating patients with reduced or limited access to care, more confident in identifying and managing rSDOH, and in utilizing telehealth. Despite training on rSDOH, students showed minimal improvement when identifying rSDOH in their history taking and developing a plan of care during a video-recorded OSCE. Continued education and evaluation for students regarding rSDOH on health outcomes and how to address them is indicated.

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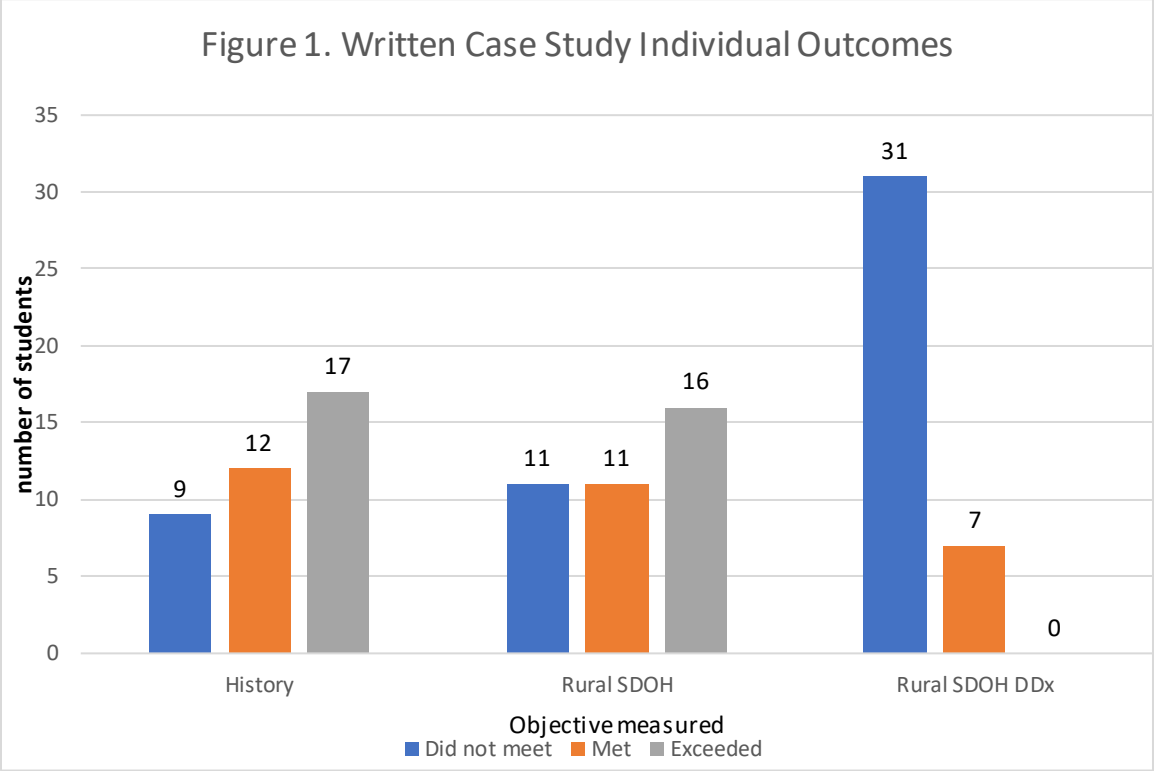
Appendix A

Table 1. *Demographic Data*

Variable:	*n*	*%*	*M(SD)*
Mean age, years			31.95 (6.61)
Race/ethnicity			
Asian	1	2.5%	
Black or African American	7	18.4%	
Hispanic or Latino	2	5.3%	
White, or not Hispanic	25	65.5%	
2 or more races	3	7.95%	
Primary address			
urban	5	13.2%	
suburban	26	68.4%	
rural	7	18.4%	
Mean RN experience, years			5.8 (4.49)
DNP population focus			
Family NP	18	47.4%	
Acute care pediatric NP	1	2.6%	
Primary care pediatric NP	6	15.8%	
Psychiatric-Mental Health NP	6	15.8%	
Primary care Adult-geriatric NP	2	5.3%	
Women's health NP	3	7.9%	
unspecified	2	5.3%	
Enrollment status			
Part-time enrollment	23	60.5%	
Full-time enrollment	15	39.5%	

Appendix B

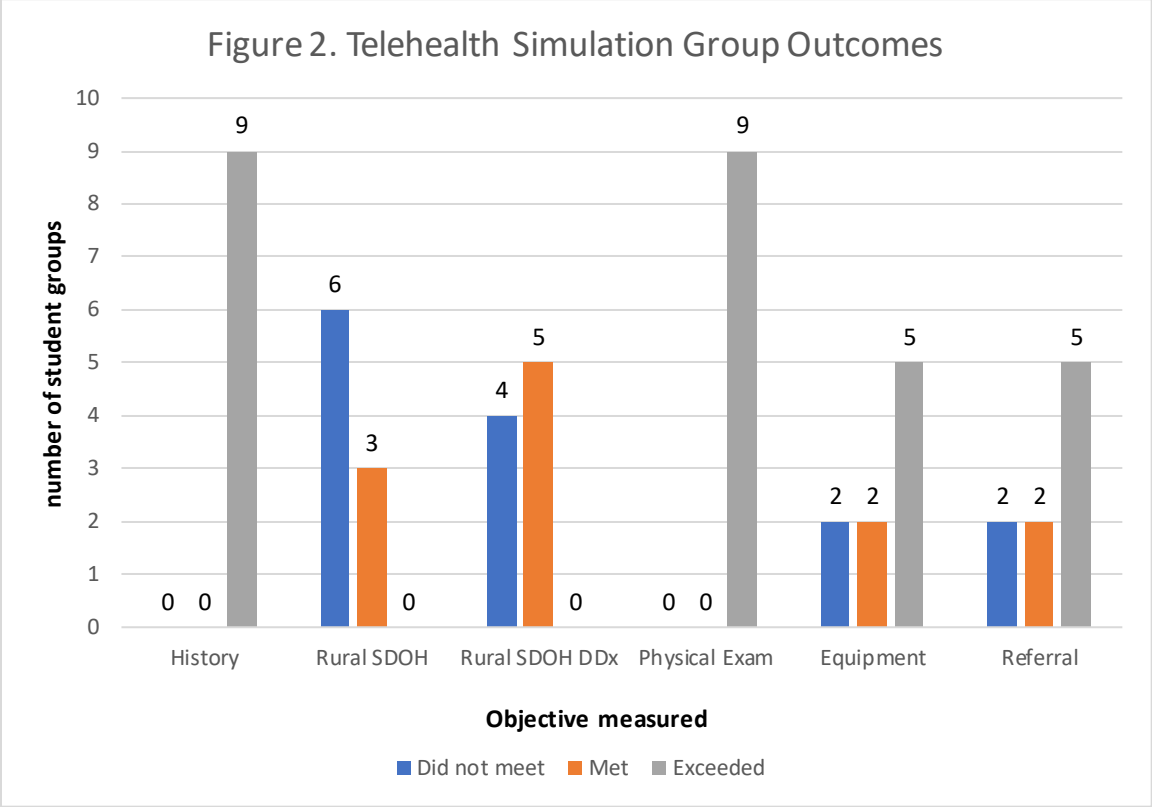
Figure 1. *Written Case Study Grading Rubric Outcomes*



Note. Number of students who did not meet, met, or exceeded expectations in taking history, addressing rSDOH, and including rSDOH in differential diagnoses in written case study.

Appendix C

Figure 2. *Telehealth Simulation Grading Rubric Outcomes*



Note. Number of student groups who did not meet, met, or exceeded expectations in taking history, addressing rSDOH, including rSDOH in differential diagnoses, completing thorough physical exam, instructing on the use of exam equipment, and placing referral to specialty provider in simulation experience.