A Telehealth Simulation Experiment: Exploring Prebriefing

Nancy Spear Owen

Submitted in partial fulfillment of the
requirements for the degree of Doctor of Education in
Teachers College, Columbia University

2022

Abstract

A Telehealth Simulation Experiment: Exploring Prebriefing

Nancy Spear Owen

The COVID pandemic led to a sudden expansion of telehealth in delivery of nursing services. At the same time, nursing education was forced to extend clinical learning to online approaches. However, telehealth clinical experiences are limited in the nursing curricula of entry-level programs. Nursing simulation is an educational activity that prepares students for clinical practice by supporting the learning of fundamental clinical competencies. This study was designed to explore prebriefing methods for simulation to prepare entry-level nursing students for telehealth patient care visit.

Standardized patient (SP) methodology was used to simulate a telehealth video conferencing call for an infectious disease case interview. Simulations were conducted remotely using Zoom technology with breakout rooms adhering to Healthcare Simulation Standards of Best Practice™, and informed by NLN Jeffries Simulation Theory and Experiential Learning Theory. The experiment compared two different methods for prebriefing: traditional prebriefing with a narrated script and structured prebriefing with narration script plus learners viewed a role modeling video and participated in guided reflection. Participants from one private university in the Northeast (N =126) were randomized and simulations took place over one semester.

In conclusion, the standardized patient simulations were an effective teaching strategy for developing fundamental telehealth skills of therapeutic communication and confidence with patient safety. Learners in the structured prebriefing group had significantly higher scores for confidence in quality and safety, faculty assessed therapeutic communication, and simulation

effectiveness. There were significant improvements of therapeutic communication scores over time for both groups, but there were no differences between groups. Future research might extend the explanations of how to best prepare learners for telehealth experiences; and it is important to further explore telehealth clinical competencies with entry-level nursing students

.

Table of Contents

List of Tables and Figures……..iii
Acknowledgments iv
Dedication.....v

Chapter 1: Introduction to the Dissertation…….……1
Specific Aims…….…..2
Changes in Methods Since the Proposal Hearing……4
Organization of the Dissertation……..5
Plans for Dissemination……...6
References……7

Chapter 2: Public Health Nursing Case Interview Simulation: Knowledge and Perceived Effectiveness……..10
Background……10
Simulation Effectiveness……..……...……...…...11
Prebriefing……12
Theoretical Frameworks……....13
Methods ……17
Study Design ……17
Participants……18
Instruments……19
Procedures……..20
Analyses……24
Results……25
Demographic Variables……25
Knowledge……25
Perceived Simulation Effectiveness……..…26
Discussion……...27
Implications……29
Limitations……30
Conclusion……30
References……..32

Chapter 3: Patient Safety in Telehealth Simulation for Nursing Students 36
Background……36
Defining Safety in Telehealth ……..……38
Simulations and Patient Safety……..39
Theoretical Framework……41
Methods……42
Design……42
Participants……43
Instruments……43
Procedure…….……..44

Data Analyses……..…….48
Results ……...49
Demographics of Participants…….…….49
Confidence with Nursing Quality and Safety……..49
Discussion……..50
Implications……50
Limitations……52
Conclusion……53
References……..54

Chapter 4: Therapeutic Communication Skills for Telehealth Nursing……...58
Background……58
Literature Review……..……60
Theoretical Framework……62
Methods……64
Study Design……64
Participants……64
Instruments……...65
Procedure……..…67
Data Analyses……71
Results……72
Demographic Variables……72
Therapeutic Communication Scores……..72
Relationship Between Demographics and Therapeutic Communication……..74
Discussion……..74
Implications……75
Limitations……77
Conclusion……..77
References……..79
Chapter 5: Dissertation Summary.....87
Findings……....87
Implications and Future Research……89
References.....91

Appendix A: IRB Approval from Teachers College 92
Appendix B: IRB Approval from The Study Site 94
Appendix C: Global Interprofessional Therapeutic Communication Scale 95
Appendix D: Simulation Effectivenss Tool – Modified 96
Appendix E: Nursing Quality & Safety Self Inventory.....97
Appendix F: Permission: Global Interprofessional Therapeutic Communication Scale.....104
Appendix G: Permission: Nursing Quality & Safety Self-Inventory 105
Appendix H: Permission: Simulation Effectiveness Tool – Modified.....106
Appendix I: Permission: Simulation Center Director 107
Appendix J: Permission: Course Coodinator.....108
Appendix K: Simulation Scenario.....109

List of Tables and Figures

Table 1.1 Definitions of Prebriefing …… 9

Table 2.1 Descriptive Statistics of Knowledge Quiz Scores…… 34

Table 2.2 Descriptive Statistics of Perceived Simulation Effectiveness……. 35

.

Table 3.1 Quality and Safety Considerations for Case Interview via Telehealth …… 56

Table 3.2 Descriptive Statistics of NQSSI Scores …….…….... 57

Table 4.1 Frequencies and Chi Square of Demographic Variables to Group ……. 82

Table 4.2 Descriptive Statistics of Student Assessed GITCS© …… 83

Table 4.3 Descriptive Statistics of Faculty Assessed GITCS© ……. ….. 84

Figure 4.1 Difference Between Time and Group ……...… 85

Table 4.4 Relationship Between Demographics and Therapeutic Communication …. 86

Acknowledgments

This dissertation endeavor would not have been possible without the guidance, support, and expertise of my professors and dissertation committee. Words cannot express my gratitude to Dr. Tresa Kaur, PhD, RN-BC, CNE, CHSE, CTN-A for believing in me as a student, sharing her expertise in simulation and nursing education. Dr. Kathleen O'Connell, PhD, RN, FAAN for teaching me quantitative research methods, to think more logically, and to pay attention to details in data. Dr. Jane Dickinson, RN, PhD, CDCES for sharing her qualitative approach to nursing and enthusiasm for knowledge development. Dr. Victoria Marsick, PhD and Professor of Education and Co-Director J.M. Huber Institute for generously providing knowledge and expertise on my defense committee.

A special thank you goes to my colleagues in the ONE Program and to my nursing professors and simulation mentors over the years. Kailee Kodama Muscente, from Teachers College IRB Office and Dr. Amanda Hessels, PhD, MPH, RN, CIC, CPHQ, FAPIC, FAAN were instrumental in providing IRB guidance that made the study possible. I deeply appreciate positive support from Dr. Karol DiBello, DNP, FNP-BC, ACHNP, FAAN, Mary Moran, MS, FNP, MPH, RN, CCRN, FAAN, Laura Geffs, RN, MSN, and John Williams statistician. Thank you to The Office of the Provost, Teaching and Learning Grants and Columbia's Center for Teaching and Learning for their generous financial support, and Nigel Frazier, instructional designer, for his expertise with development of the role modeling video. Lastly, I would be remiss without mentioning my gratitude for Dr. Kellie Bryant, DNP, WHNP, CHSE, FAAN and the Helene Fuld Health Trust Simulation Center Team, Teaching Assistants, Columbia University School of Nursing Standardized Patients, and Nursing Students whose participation made an impact on the study.

Dedication

It is with genuine love and gratitude that I dedicate this dissertation to my three sons Joseph, Dylan, and Thomas for your motivation, inspiration, and patience.

To my parents Mary and John Spear for teaching me perseverance by setting an example of working hard and taking time for Just Wandering Around. My sister Eileen, for all the sacrifices you made so I could study – you mean the world to me.

Coach Tommy Clyne, for your unwavering encouragement, optimism, and words of wisdom throughout this doctoral journey. Lastly, Scout my loyal study partner.

Chapter 1

Introduction to the Dissertation

Nurse educators around the world made a rapid shift to remote teaching when the World Health Organization declared COVID-19 a pandemic emergency on March 11, 2020. Two years later, on April 14, 2022, the WHO global dashboard reported over 500 million confirmed cases with 6,190,349 deaths (WHO). On May 17, 2022, the Centers for Disease Control Data Tracker reported the United States was leading all countries with over 1 million deaths (USDHHS, 2022). Although there have been major advancements in scientific developments with over 11 billion vaccine doses administered, variants of the virus continue to spread. Three important realities confronted nursing education due to the COVID-19 pandemic and inspired this study. 1. There was and continues to be an acceleration of telehealth use in all areas of healthcare. 2. Nursing simulation education rapidly shifted to remote delivery. 3. There is a crucial need for nursing students to understand fundamental public health nursing infection prevention strategies.

Telehealth use has accelerated exponentially, thus transforming healthcare and how nurses deliver services (CDC, 2020; USDHHS, 2020). For instance, in April 2020, 43.5% of Medicare primary care visits were provided through telehealth, up from 0.1% in February 2019. Nursing programs began to conduct telehealth simulations to offer remote clinical experiences, but best practices remain unknown. As a direct result of these realities, a telehealth simulation was developed for entry-level nursing students to learn what they will be confronted with when they transition to clinical practice. As an exemplar, a public health nursing case interview was designed.

Telehealth presents unique challenges for safe and effective clinical interactions. The skills assessed in the study were therapeutic communication and patient safety, which are

fundamental to quality nursing care and preventing harm to patients. This simulation research study is relevant and timely due to the expansive use of telehealth in healthcare and the need for nurse educators to find best simulation practices to prepare entry-level nursing students for online telehealth clinical experiences. This work continues to be pertinent as post-pandemic telehealth is predicted to remain around 20-21% of all primary care patient visits (USDHHS).

Specific Aims

The purpose of this study was to explore the effect of prebriefing on nursing student learning outcomes. Student learning outcomes were intended to develop knowledge related to conducting a COVID-19 case investigation; to develop skills in therapeutic communication; and to build confidence with quality and safety competencies. The results of the study provided nurse educators with valuable information on the overall effectiveness of a public health nursing simulation and the design of prebriefing for telehealth simulations with entry-level students.

This experimental study compared two diverse ways of facilitating simulation prebriefing - traditional prebriefing (Group A) vs. structured prebriefing (Group B). Table 1 defines the different terms used for prebriefing throughout the dissertation. Both groups followed the Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing (INACSL Standards Committee, 2021).

The traditional prebriefing for the control group included preparation plus a 5-minute narrated briefing. The structured prebriefing group received an intervention that included preparation, a 5-minute narrated briefing, plus an extra 15 minutes to view a role modeling video of a case interview followed by guided reflection with the instructor. The aims of this study and corresponding research questions were:

1. Determine the effect of prebriefing design, in a telehealth simulation, on nursing students' knowledge necessary for conducting a case interview to prevent and mitigate the spread of COVID-19.
    a. Research Question 1. What is the difference in knowledge scores, as measured on a knowledge quiz (KQ), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?
2. Evaluate the effectiveness of a telehealth simulation as a teaching strategy for an infectious disease case interview in a community and public health nursing course.
    a. Research Question 2. What is the difference in perceived effectiveness of a telehealth simulation as measured on the Simulation Effectiveness Tool - Modified (SET-M) between learners in the structured prebriefing group and learners in the traditional prebriefing group?
3. Determine the effect of prebriefing design, in a telehealth simulation on nursing students' confidence with quality and safety competencies during an infectious disease case interview.
    a. Research Question 3. What is the difference in self-reported confidence with quality and safety competency scores, as measured on the Nursing Quality and Safety Self-Inventory (NQSSI), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?
4. Determine the effect of prebriefing design in a telehealth simulation, on nursing students' therapeutic communication skills during an infectious disease case interview.

    a. Research Question 4. What is the difference in therapeutic communication scores, as measured on the GITCS© (Global Interprofessional Therapeutic Communication Scale), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?

5. Evaluate the relationship between nursing students' therapeutic communication skills and demographic characteristics following a telehealth simulation.
    a. Research Question 5. What is the relationship of therapeutic communication scores to nursing student age, race and ethnicity, and healthcare experience?

Changes in Methods Since the Proposal Hearing

The proposal, IRB approvals, and study took place during the COVID-19 pandemic. The unfolding science surrounding the novel coronavirus and prevention recommendations were incorporated into the simulation scenario content, as necessary. Some slight changes have been made since the proposal hearing for statistical testing that was originally presented in the table, *Analysis and Variables*. For research Q 4, an independent-sample *t* test was conducted on the faculty scores and a mixed ANOVA was conducted for the student scores. For research Q 5, a chi-square analysis was conducted along with a Pearson r correlation for the demographic variables. The researcher experienced technical difficulties as simulation recordings failed to save in the simulation center, which decreased the number of faculty-assessed GITCS© scores. It is noted that in September 2021 during the study, *Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing,* were first published thereby changing the terminology describing the intervention, but not the intervention or study. The simulation scenario was reexamined and found to meet the new standards.

Organization of the Dissertation

This dissertation has five chapters and follows a three-article format. Chapter 1 is introductory and presents an overview. Three articles are to be drawn from Chapters 2, 3, and 4, which report the quantitative data collected during the study. Each of these three chapters will be prepared for journal submission following dissertation approval. The chapters are distinct yet interconnected with the overarching purpose of preparing entry-level nursing students for care of patients in remote settings through telehealth and to emphasize the importance of a public health nurse's role in preventing the spread of infection during a pandemic. The results of all research questions are presented in the manuscripts for their respective chapters.

Chapter 2: The first manuscript will be from Chapter 2, *Public Health Nursing Case Interview Simulation: Knowledge and Perceived Effectiveness*, reports on the variables of knowledge and overall simulation effectiveness, between the two different prebriefing groups. Information reported in the chapter will answer research questions 1 & 2. This chapter is significant as it describes the prebriefing intervention and the two theoretical frameworks for the study. Chapter 2 includes a detailed description of the telehealth simulation scenario.

Chapter 3: The manuscript from Chapter 3, *Patient Safety in Telehealth Simulation for Entry-Level Nursing Students,* reports on the data describing the knowledge, skills, and attitudes related to the variable of confidence with quality and safety for telehealth case interviewing. This chapter answers research question 3.

Chapter 4: The last manuscript will be derived from Chapter 4, *Therapeutic Communication Skills for Telehealth Nursing,* which reports on learners' fundamental skills of therapeutic communication during a telehealth visit. This variable is measured by a student self-report for a pretest and posttest. Faculty assessed learner's communication skills using the same

instrument by watching video recordings. Demographic variables were analyzed, and these results are also presented and discussed in this chapter, which answers research questions 4 & 5. Chapter 5 is the summary and conclusion portion of the dissertation. The dissertation ends with recommendations and implications for future nursing education and research efforts.

Plans for Dissemination

The researcher will disseminate the results of the study through presentations at professional organizations and publications. Abstract submissions will be sent for an international simulation conference in 2023, such as International Nursing and Clinical Simulation in Learning (INACSL). Abstracts will also be sent for nursing education conferences such as Sigma Theta Tau International, National League for Nursing (NLN), or QSEN International Forum. The Association of Standardized Patient Educators (ASPE) has accepted a portion of the study for a presentation at the June 2022 conference in New Orleans, Louisiana, to discuss the collaborative work of the researcher with the technical manager regarding the role of standardized patients in the creation of the video.

Manuscripts for Chapters 2, 3, and 4 will be submitted for publication in peer-reviewed journals. The journal of choice for Chapter 2 is *Clinical Simulation in Nursing.* This is the official journal of INACSL organization and reflects the mission to advance the science of healthcare simulation. A manuscript for Chapter 3 may be submitted to *Nursing Education Perspectives,* a research journal of the National League for Nursing. Chapter 4 may be submitted to the *Journal of Nursing Education*, which supports creative and innovative research in nursing education. Alternative journal options include *Nurse Educator* or a technology journal such as *Computers and Education,* highlighting the important technical aspects of the online clinical learning and telehealth simulation research.

References

AHRQ, Patient Safety Network. (2020, May 14). Telehealth and patient safety during the COVID-19 response. Retrieved from https://psnet.ahrq.gov/perspective/telehealth-and-patient-safety-during-covid-19-response

Cronenwett, L., Sherwood, G., Barnsteiner J., Disch, J., Johnson, J., Mitchell, P., Sullivan, D., Warren, J. (2007). Quality and safety education for nurses. *Nursing Outlook*, 55(3)122-131.

Foster, M., Lioce, L., and Howell Adams, M. (2021). Telehealth in nursing education: A systematic review. *The Journal of Nursing Education, 60*(11), 633–635. Web.

Giddens, J., Douglas, J.P. & Conroy, S. (2022). The Revised AACN essentials: Implications for nursing regulation. *Journal of Nursing Regulation, 12*(40), 16-22. doi.org/10.1016/S2155-8256(22)00009-6

INACSL Standards Committee, McDermott, D.S., Ludlow, J., Horsley, E. & Meakim, C. (2021, September). Healthcare simulation standards of best practice™ prebriefing: Preparation and briefing. *Clinical Simulation in Nursing, 58*, 9-13. https://doi.org/10.1016/j.ecns.2021.08.008.

Institute of Medicine (US) Committee on Quality of Health Care in America, Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To Err is Human: Building a Safer Health System*. National Academies Press (US).

Kolb, D.A. (2015). *Experiential learning: Experience as the source of learning and development, 2nd edition*, Person Education, Inc.

National Academy of Medicine. (2022). *Future of nursing 2020-2030: Charting a path to achieve health equity*. Retrieved from https://nam.edu/publications/the-future-of-nursing-2020-2030/

QSEN Institute. (2020). QSEN competencies. Retrieved from https://qsen.org/competencies/pre-licensure-ksas/

Rutledge, C.M., Gustin, T., (2021, January 31). Preparing nurses for roles in telehealth: Now is the time! *OJIN: The Online Journal of Issues in Nursing, 26*(1), Manuscript 3. Retrieved from *https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-26-2021/No1-Jan-2021/Preparing-Nurses-for-Roles-in-Telehealth-Now-is-the-Time.html*

Seaton, P, Levett-Jones, T., Cant, R., Cooper, S., Kelly, M., McKenna, Ng, L., & Bogossian, F. (2019). Exploring the extent to which simulation-based education addresses contemporary patient safety priorities: A scoping review, *Collegian,* 26, (1), 194-203. https://doi.org/10.1016/j.colegn.2018.04.006

U.S. Department of Health and Human Services.gov. (2021). New HHS study shows 63-fold increase in Medicare telehealth utilization during the pandemic. Retrieved from https://www.hhs.gov/about/news/2021/12/03/new-hhs-study-shows-63-fold-increase-in-medicare-telehealth-utilization-during-pandemic.html

U.S. Department of Health and Human Services. Centers for Disease Control. (2022). *COVID data tracker*. Retrieved from https://covid.cdc.gov/covid-data-tracker/#datatracker-home

World Health Organization. (2022). *WHO Coronavirus (COVID-19) dashboard.* Retrieved from https://covid19.who.int/

Table 1.1 *Defining the Prebriefing Intervention*

Prebrief	*Traditional - Control*	*Structured - Intervention*
Preparation	Attend class, review assignment	Attend class, review assignment
Briefing	Narrated Briefing script	Narrated Briefing Script Plus Actively observe a 6-minute Role Modeling Video followed by Guided Refection

Chapter 2

Public Health Nursing Case Interview Simulation:

Knowledge and Perceived Effectiveness

The COVID-19 pandemic has illustrated infection transmission is a serious concern for populations around the world. Families, front-line healthcare workers, vulnerable populations, and communities have suffered dramatically due to the spread of the SARS – CoV 2 infections. To prevent the exposure of infection and minimize the unnecessary travel for patients with potential infections, public health departments and ambulatory care settings activated telehealth patient visits for case interviewing and nurses were an instrumental part of the system of response (Monaghesh & Hajizadeh, 2020; CDC, 2022). As healthcare exponentially expanded services to telehealth visits, academic institutions shifted from on-campus to online clinical learning.

Background

In their documents, *The Essentials: Core Competencies for Professional Nursing Education*, the American Association of College of Nursing (AACN) designated *population health* as one of 10 broad areas of competence and an essential element of nursing practice (AACN, 2021, p. 33). The AACN goes on to explain that nurses play a critical role in responding to crises and providing care during emergencies such as epidemics and pandemics. Nursing competencies that students must learn are surveillance, prevention, and containment of factors contributing to an emergency (AACN, p. 33). The COVID-19 pandemic constitutes a public health emergency and magnifies the need to ensure entry-level nursing students transition to any practice setting with basic knowledge of infection prevention and telehealth skills.

The current study addressed fundamental public health nursing skills. Public health nurses possess skills for "disease surveillance, disease and health investigation, case finding, rapid needs assessment, public health triage, mass prophylaxis and treatment, collaboration, health teaching," and more (APHA, p. 6). The Centers for Disease Control explains that a successful case interview includes an assessment of the patient's medical condition, gathers information for continued monitoring and support, and obtains the names and location information of contacts who may have been exposed to COVID-19 (2020, para 1). This definition was applied to the simulation for this study to frame the learner and patient interaction.

Literature Review

The literature review includes a search for the overall effectiveness of public health simulations and then prebriefing with simulation designs. Simulations for entry-level, nursing students in a variety of public health topic areas are growing.

Effectiveness. A descriptive, mixed methods study by Matsuda et al., (2022) was designed to assess undergraduate nursing students' knowledge of telehealth. Students were offered students a clinical experience of assisting a parent with care for their infant at home after discharge from a neonatal intensive care unit. Results revealed that 94.5% of students reported improved knowledge about how telehealth is used in healthcare systems and 96.61% of the students were satisfied with the simulation encounter. Akselbo et al. (2018) conducted a qualitative study with public health nursing students during a simulation representing a childhood vaccination anaphylaxis situation. Akselbo et al. concluded that simulation was an effective teaching method for public health and promoted reflection on cooperation and communication necessary for competently responding to a stressful, acute situation surrounding vaccinations.

Gandhi, Yeager, and Glaman (2021) designed a mixed-methods, cross-sectional study to assess the usefulness of a pandemic simulation exercise. The aim was for public health nursing students to develop interprofessional collaborations with other healthcare providers during an influenza pandemic. Pre and posttest survey questions examined learning outcomes related to situation awareness, communication effectiveness, and knowledge during an influenza pandemic. The results of the paired *t* test showed all areas were significantly increased following the pandemic simulation. Gandhi et al. concluded that simulation may be a way to prepare nursing students for the end-of-semester exams and prepare them to be future public healthcare professionals.

Prebriefing. There are many areas of opportunity in simulation prebriefing research. The intervention for this study examined a structured prebriefing designed with role modeling video and guided reflection activities. The results of the study will add to nursing education's understanding of prebriefing design and the effect on nursing students' perception of simulation effectiveness and knowledge. In an experimental study by Page-Cutrara (2017), the role of prebriefing in developing complex thinking skills and clinical judgment was critically analyzed. Page-Cutrara suggested that novice learners may benefit from concept mapping activities and structured prebriefing, whereas more advanced students may benefit from less structure. The study posits that structured prebriefing will benefit the learners since they are second-semester students with limited clinical or simulation experience. An integrative review was conducted by Dileone et al. (2020) due to the lack of an established prebriefing framework and the variability in time spent during prebriefing. Dileone et al. concluded that although not yet standardized, a well-designed prebriefing process is a key to high-quality simulation experiences.

A randomized controlled trial by Jarvill et al. (2018) showed that skills practice and content review during prebriefing helped students develop skills and critical thinking through simulation (Jarvill et al., 2018). In the study by Jarvill et al., the intervention group viewed an expert role modeling video as part of prebriefing. Students in the intervention group scored significantly higher on the skills checklist than the students in the control group who received traditional prebriefing. In conclusion Jarvill et al. found expert role modeling to be a useful teaching strategy to improve undergraduate nursing students' sterile technique skills during an on-campus simulation. In the current study, the intervention group received structured prebriefing with 20 minutes for expert role modeling and guided reflection. The content included information related to case investigation, quality and safety considerations, and communication skills. The study helped to fill a gap in nursing simulation research about important strategies to employ during prebriefing when teaching entry-level nursing students.

Theoretical Frameworks

NLN Jeffries Simulation Theory

The NLN Jeffries Simulation Theory is the organizing framework for the current study. This mid-range theory helps to establish best education practices in simulation. The seven concepts of the NLN Jeffries Theory are *context, background, design, simulation experience, facilitator and educational experiences, participant,* and *outcomes*. The current study explored prebriefing, which is part of the *design* concept, and what, if any, influence prebriefing has on *participant outcomes* when all other concepts remain unchanged. Each of the seven concepts of the NLN Jeffries Simulation Theory will be described and then applied to the current study.

Context is the setting and circumstances of a simulation (Jeffries, 2015, p. 39). The study took place during the COVID-19 pandemic. The simulation was a synchronous online session for

formative learning. *Background* includes the goals of the simulation, along with theory and other aspects that inform the design and implementation (Jeffries). The simulation aligned with didactic content and the objectives for the simulation were written at the learners' level. Kolb's Theory of Experiential learning is also applied to the study and is discussed in detail below.

The *design* concept is complex and includes fidelity, roles, progression, briefing, and debriefing strategies (Jeffries, p. 40). In the current study, the simulation fidelity, or level of realism, was at a high level due to the use of the standardized patient (SP) methodology. This is a recognized methodology that "involves human role players interacting with learners in a wide range of experiential learning and assessment contexts" (Lewis et al., 2017). All participants actively engaged with the patient during a telehealth visit. The simulation applied the Association of Standardized Patient Educators (ASPE) Standards of Best Practice and Healthcare Simulation Standards of Best Practice™ (INACSL, 2021). The simulation was written on ASPE simulation template.

In this study, the *design* concept of prebriefing was the focus of the intervention. The control and intervention groups prepared for the simulation by attending the infection prevention and telehealth lectures then completing a homework assignment. Both groups received a prebriefing immediately before the start of the telehealth SP interaction. The control group received traditional prebriefing which was a 5-minute narration plus time for questions and answers. The intervention group received the same as the control group, plus structured prebriefing, which included 20 minutes for viewing a role modeling video and participating in guided reflection.

The concept of *simulation experience* refers to being student-centered, interactive, and experiential (Jeffries, p. 41). This was accomplished by immersing learners in a telehealth

experience using Zoom breakout rooms and caring for the simulated patient. Each learner was actively engaged through a 1:1 case interview via Zoom, followed by a small group debriefing. It was expected that the intervention group would be more active because of additional involvement during the structured prebriefing.

The concepts of *facilitator and educational strategies* involve the "characteristics that create a dynamic interaction between the facilitator and participant" (Jeffries, p. 41). The facilitators for the simulation were healthcare simulation educators experienced with standardized patients and debriefing entry-level nursing students. To enhance the educational strategy, SPs for the simulation were trained by the standardized patient educator who is a Certified Healthcare Simulation Educator (CHSE).

The concept of *participant* involves the attributes of the learner such as age, gender, anxiety, and self-confidence along with the level of preparedness or role assignment for the simulation (Jeffries, p. 41). The study participants were from the same nursing course. All participants completed a demographic survey. Prior healthcare experience such as patient interactions, public heath activities, telehealth, or coursework may impact learning outcomes and were analyzed. According to the NLN Jeffries Simulation Theory, the concept of *outcomes* is divided into three categories - participant, patient, or system (Jeffries, p. 41). This study's focus was on participant outcomes including knowledge of public health nursing case interviews for COVID-19 and perceptions of simulation effectiveness.

Theory of Experiential Learning

Kolb's Experiential Learning Theory (ELT) was applied by the researcher to the educational experience. The premise of ELT is that learning is an ongoing process and knowledge is created and learning takes place through experiences in any setting (Kolb). ELT

approaches learning as a four-step ongoing process of experiencing, reflecting, thinking, and acting (Institute for Experiential Learning, 2021). The cycle begins with an experience, followed by reflecting on the experience, then abstract thinking to make meaning of the experience, and finally, actively engaging in an experience to try what one has learned (https://experientiallearninginstitute.org/).

In the current study, students learned by moving through the experiential learning cycle. The intervention group had an added experience of viewing a 6-minute video with role modeling followed by guided reflection and participation in questions and answers. Prior to the video starting, learners were given question prompts to actively observe during the telehealth video. A discussion on the questions followed and learners were asked to think about how they will approach their patient and plan the telehealth visit. Structured prebriefing interactions served as an experience. The reflecting and thinking steps of the learning cycle were applied when students listened and asked questions in the prebrief. Interacting with the SP was the last step of the learning cycle, active engagement, where students were able to try out their skills of case interviewing during a telehealth simulation. Once the interaction was over, reflection took place during the debrief.

The telehealth simulation emphasized reflection throughout which helps to prepare students for their next experience in a clinical setting with patients. Reflection is underscored again due to the choice of the debriefing method, Promoting Excellence and Reflective Learning in Simulation (PEARLS), developed by Eppich and Cheng (2015). PEARLS is an approach to debriefing that has scripted language to help facilitate reflective thinking through three debrief phases – self-assessment, discussion, and educator feedback and teaching (Eppich & Cheng, 2015). Using a PEARLS structured debriefing tool helped to ensure consistency of debriefing

during the study. Through ongoing reflection and immersion in a one-on-one clinical situation, students develop therapeutic communication skills.

Purpose

There are two aims of the study. The first aim was to determine the effect of prebriefing design in a telehealth simulation on nursing students' knowledge necessary for conducting a case interview to prevent and mitigate the spread of COVID-19. Research Question 1. What is the difference in knowledge scores, as measured on a knowledge quiz (KQ), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?

The second aim is to evaluate the effectiveness of a telehealth simulation as a teaching strategy for an infectious disease case interview in an ambulatory care nursing course. Research Question 2 is: What is the difference in perceived effectiveness of a telehealth simulation as measured on the Simulation Effectiveness Tool - Modified (SET-M) between learners in the structured prebriefing group and learners in the traditional prebriefing group?

Methods

Design

This study employed a randomized, control-group, posttest design to explore the effect of a structured pre-brief component of a telehealth simulation on nursing students' knowledge and perceived simulation effectiveness. Block randomization was used by the researcher. According to Polit and Beck (2008), rather than having the entire sample randomized from the beginning, randomization occurs for blocks of even sizes, and this helps to have appropriate distribution across conditions (p. 259). In this study, the simulation sessions took place over several months. Participants independently signed themselves up for a simulation session that fit their schedule

and could reschedule themselves as needed; thus, there were no preassigned blocks. Each simulation session or block had 24 slots. On the day of the simulation, the 24 participants were randomized into two groups, control or intervention, using an internet-based process on randomizer.org. This randomization method helped to prevent an uneven number of participants in the control or intervention groups. This paper is part of a larger study. The author presents findings for confidence in quality and safety and therapeutic communication skills in other chapters of the dissertation.

Participants

The study participants were a convenience sample of entry-level nursing students enrolled in a master's direct entry (MDE) nursing program, at a private university, located in the northeastern United States. The study aligned with an ambulatory care nursing course for second-semester students where infectious disease and telehealth were part of the curricular content. Inclusion criteria were nursing students enrolled in the ambulatory care nursing course. A total of 126 students were eligible to participate in the study and the final number of participants was 124. Excluded from the study were nursing students not enrolled in this nursing course. A power analysis using G-Power 3.1 was conducted to determine the smallest sample necessary for detecting statistical significance. Estimates were calculated for an independent *t* test, within and between the interaction. It was determined that 128 subjects were needed for a medium (0.5) effect size. This was calculated using an alpha level of 0.05, which indicates there is a 5% probability of rejecting the null hypothesis. A power of 0.8 was chosen to increase the probability of finding a significant effect if there is any. One cohort of entry-level students in the ambulatory care course at the institution was close to adequate to power the study. Institutional

Review Board (IRB) approval was granted by the researcher's institution and the institution where the research took place.

Instruments

The study used three instruments: (1) A demographics survey (2) Knowledge Quiz (KQ) developed by faculty to measure knowledge and (3) Simulation Effectiveness Tool – Modified (SET-M).

Demographic Survey

The demographic data was collected using a 6-item researcher-developed survey. The demographic survey was confidential and included age, gender, race, country, experience in health care, and highest degree completed.

Knowledge Quiz

The knowledge quiz (KQ) had 25 faculty-developed questions and was reviewed by content experts. The questions were derived from the course content including the COVID-19 prevention measures, therapeutic communication techniques, telehealth, and safety considerations. Experts in public health reviewed the content. The KQ was given as a posttest and included matching columns, true/false, and multiple-choice questions. The KQ was scored on a 25-point scale, with 1 point for each correct answer, and it was not counted toward a course grade. Analysis included a Kuder-Richardson Formula 20 (KR-20) for internal consistency, p-values for item difficulty, and point bi serial (PBI) values for item discrimination.

Simulation Effectiveness Tool - Modified

The Simulation Effectiveness Tool – Modified (SET-M) was updated in 2020 for participants to evaluate online simulation related to their own learning needs and perceptions. This was important to measure due to the new approach of simulations being conducted online.

The SET-M is a valid and reliable method of evaluating students' perceptions of the effectiveness of learning in the simulation environment (Leighton, 2015). There are 19 items, scored on a 3-point Likert scale. The SET-M includes four subscales: prebriefing, learning, confidence, and debriefing. For the current study, one question, related to medications, was removed due to being not applicable. Therefore, the scores ranged from 18 (least agreement) – 54 (most agreement). The SET-M had an overall score of simulation effectiveness with a Cronbach's alpha of 0.936 in one multi-site study for nursing (Leighton). There were 13 sites and 1288 undergraduate nursing student participants in simulations with manikins, SPs, and task trainers (Leighton et al., 2018). Reliability was also reported for other healthcare disciplines (cite). Cronbach's alpha of .86 was calculated for the 18 items in this study. Permission was obtained for use of the SET-M (See Appendix H).

Procedure

Procedures for the study unfolded in several phases. Permissions were obtained for use of the SET-M instrument, and then both the SET-M and demographic survey were prepared for electronic access on Qualtrics. Consent was granted by the ambulatory care nursing course faculty and from the simulation center director for implementation during the fall 2021 semester.

The simulation scenario was reviewed by content experts, finalized, and pilot tested. For the pilot test, a group of five current students were recruited during a voluntary open lab session to participate in and trial the simulation. After the pilot test, the prebriefing intervention and scenario were adjusted for the current study. The role modeling video was developed in collaboration with the Columbia University Center for Teaching and Learning. A storyboard was written, then filming took place. One SPs actor portrayed the role of the patient and an SP actress portrayed the role of the public health nurse in the video. The 6-minute video was recorded in the

simulation center by the technology manager. A pilot test of the simulation offered improvement information for both learner, SP, and simulation educator.

Standardized Patients

Nine SPs were recruited through an established SP program. Each actor was previously oriented and trained for face-to-face and online cases. Training for the simulation addressed physical appearance, level of the learner, feedback rubric, emotional engagement, and psychological safety considerations for learners and SPs. Confidentiality was reinforced to protect the learner. SP training for the study included a 1-hour Zoom session. The agenda for the training included logistics of Zoom simulations, use of breakout rooms, timing of interactions, and a description of learners' educational level. Finally, character development and acting were reviewed. The SPs were coached to practice the signs and symptoms of the patient with COVID-19 and how to respond to the potential questions students may ask. The patient's voice tone, mood, and expressions were also practiced. To decrease the potential bias of SP influence on the results, nine SPs were divided into three groups. A schedule was made for each group to rotate weekly through Group A (control), Group B (intervention), and then a week off.

Recruitment and Scheduling

The telehealth simulation was a clinical learning experience for all students regardless of participation in the study. IRB approval was granted by the researcher's institution and the institution where the research took place. Nursing students were introduced to the study at the end of a didactic Zoom session of the fully online ambulatory care nursing course. Written information was emailed to the learners in the course to explain the study and recruit participants. Informed consent was obtained prior to students initiating and completing the demographic survey on a Qualtrics link. Verbal agreement was also obtained at the start of the

simulation. Students who chose to participate in the study were able to drop out at any time. Four $50 gift cards were raffled after the simulation as an incentive to those who chose to participate.

Sign-up Genius scheduling software was used so that each student chose a simulation session that fit with their schedule with up to 24 students per day. Each day served as a block. Random assignment was conducted for each block using a web-based program, Research Randomizer (https://www.randomizer.org/). Participants were randomly assigned to Group A (control) or Group B, (treatment). Respective zoom links were sent to the student via course management system email. Simulations took place concurrently for each group.

Simulation

The simulation was a fully online, formative learning experience designed for nursing students to develop knowledge, skills, and attitudes needed for patient care during a telehealth video conference visit. This was a clinical experience where learners, in the role of a public health nurse, engaged one-on-one with a patient diagnosed with an infectious disease, COVID-19. Learners gained experience with public health nursing through case interviewing and contact tracing for a nationally notifiable disease. The learning objectives of the simulation are below. After the simulation learners will:

1. Demonstrate therapeutic communication skills of building trust and rapport, power sharing, and empathy during a telehealth visit.
2. Discuss the application of patient safety competencies that relate to the use of telehealth technology in public health settings.
3. Estimate the number of people exposed to infectious disease in the family and community.

4. Explain to the patient three ways to reduce the risk of spreading COVID-19 within their family and/or community.

The following case handoff was provided to students as part of the briefing before the simulated telehealth interaction:

> A learner plays the role of a county public health nurse (PHN) assigned to the communicable disease office. There is an outbreak of a new strain of COVID-19 in the local county. A nationally notifiable disease report was submitted to the state health department yesterday. In response, the state has contacted the county health department today to follow up on the report of a patient with a positive COVID-19 PCR test and experiencing moderate symptoms. As the PHN, you will need to contact the patient via telehealth to conduct an interview, monitor COVID-19 symptoms, elicit close contacts, and connect the patient with resources. (The complete simulation scenario is presented in Appendix K)

On the day of the simulation, an experienced simulation educator hosted the Zoom sessions. Faculty and SPs arrived on Zoom 30 minutes before participants to allow time for questions, technology troubleshooting and assigning SPs to breakout rooms. The control group and the intervention groups followed the same format of attending prebriefing, one-on-one interaction with an SP for a telehealth case interview, and debriefing with an instructor. As defined by the Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing, *prebriefing* refers to "the activities PRIOR to the start of the simulation including the preparation and briefing aspects of the simulation-based experience" (INACSL Standards Committee, 2021, p. 9). In the study, both Group A and Group B followed the standards. The main difference was that the intervention group, Group B, had a structured briefing portion. This design included observation of a 6-minute role modeling video and guided reflection learning activities. This added 20 minutes to the intervention group's briefing. The control group had a traditional briefing that included a narrated script and time for questions and answers.

The simulation went as follows: learners entered the Zoom main room and pre-briefed together. Half the learners then moved into a breakout room for a one-on-one 12-minute telehealth interaction. There was no SP feedback. The next three students rotated into the breakout room for their patient interaction. Students returned to the main room for a group debriefing following the PEARLS debriefing method. The session ended with the completion of the SET-M and KQ posttests available on a Qualtrics link. After all simulations were completed, the control group was offered an opportunity to try the structured prebriefing intervention and one student attended. A drawing for the four $50 gift cards took place.

Analyses

Data were analyzed by the researcher using SPSS version 28.0.0 software. The number of eligible study participants was 126. Three surveys were analyzed: the demographic survey, KQ, and SET-M. The total number of students who completed the demographic survey was 124. Demographic variables were analyzed using descriptive statistics.

In reference to the KQ, a total of 114 participants completed the quiz. The traditional prebriefing or control Group A (n = 48) was compared to the structured prebriefing or intervention Group B (n = 66). Ten students in the group did not complete the quiz questions.

In reference to the simulation effectiveness, the number of participants, N = 124, completed the post-simulation SET-M© instrument. The control Group A (n = 56) was compared to the intervention Group B (n = 68). There were unequal group sizes due to faculty absence on one day and all participants who attended on that day participated in group B. An independent-samples *t* test was used to analyze data for the knowledge quiz and SET-M with subscales. The mean scores of Group A were compared with the mean scores of Group B. The alpha value for the analysis was set at $p \leq 0.05$.

Results

Demographics

The sample included one class of nursing students enrolled in a master's direct entry program and registered for an ambulatory care nursing course. Following IRB approval, 126 students were eligible to participate. Participant age ranged from 20 to 45 years (mean = 26.8), much of the sample was female (83.7%), followed by males (13%) and those answering other (3.25%). The sample included students belonging to diverse backgrounds: Asian (14.5%), Black or African American (8.9%), Hispanic or Latino (7.3%), White (56.5%), multi-racial (11.3%), and other (1.6%). All students in a master's direct entry program have a bachelor's degree. In addition, 18 students had a master's degree (14.4%) and 2 students (1.6%) had above a master's degree. Approximately two-thirds of the participants acknowledged having previous healthcare experience (66.4%). No statistically significant differences were found between groups in any demographic characteristics examined.

Knowledge

Item analyses were conducted on the 25 items of the KQ. Overall reliability for the KQ was analyzed by the Kuder-Richardson Formula 20 (KR-20) statistical test. One item was removed due to lack of clarity with wording, leaving 24 questions for the final analysis. The KR-20 score (r = .54) indicated a low reliability of the instrument to measure the construct of *knowledge* for conducting a COVID-19 case interview. The point biserial index (PBI), or item discrimination, used the Pearson r correlation for analysis; the values ranged from -.09 to 0.54. The item difficulty index (p value) ranged from 0.41 – 0.99. Eleven items were above the acceptable p value range of 0.30 – 0.80, indicating the quiz was easy and should be reevaluated.

An independent-sample *t* test was conducted to determine if differences exist between the KQ scores of the students with traditional prebriefing in the control Group A (n = 48) and students with structured prebriefing in the intervention Group B (n = 66). The Levene's Test indicated unequal variances (F = 4.60; p = 0.03). The test was not significant at the $p < .05$ level, ($t(84.67) = .43$; $p = .67$). Results showed there was no difference on the knowledge scores between the traditional prebriefing group (M = 19.56; SD = 3.13), and the structured pre-brief group (M = 19.33; SD = 2.40). Table 2.1 show the descriptive statistics for knowledge quiz scores.

Perceived Simulation Effectiveness

An independent-samples *t* test was conducted to determine differences in SET-M total scores between the students with traditional prebriefing in the control Group A (n = 56) and students with structured prebriefing in the intervention Group B (n = 68). Table 2.2 show the descriptive statistics for perceived effectiveness, SET-M scores.

The test was significant at the $p < .05$ level, (t (122) = - 4.852; p = < .001). Results showed there was a difference between the traditional prebriefing group (M = 42.857; SD = 9.514), and the structured pre-brief group (M = 49.382; SD = 5.177). The mean score of the group who had structured prebriefing with role modeling and guided reflection had statistically significantly higher perceived simulation effectiveness scores. The four subscales of the SET-M were analyzed with independent sample *t* tests. All subscales showed statistically significant differences between groups at the $p < .05$ level, prebriefing (t (122) = -6.453; p = < .001); learning ($t(122) = -3.957$; $p = .009$); confidence ($t(122) = -4.012$; $p = .001$); and debriefing ($t(122) = -3.957$; p = <.001).

Discussion

To answer research Question 1, *What is the difference in knowledge scores, as measured on a knowledge quiz (KQ), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?* there are several perspectives to consider. The KQ findings with no differences contrast with a study by Gandhi et al (date) that found significant knowledge gain following an influenza pandemic simulation. One possible reason for the nonsignificant findings in this study may be due to the simulation design. The material being tested on the quiz was provided before the simulation for all students during didactic class. These are not unexpected findings as no new content was provided during prebriefing. The purpose of the simulation was to apply the knowledge delivered in class. In the institution where the research took place, students are not typically given a quiz during simulations and may have been unfamiliar with the format of a quiz on Qualtrics. It is possible that survey fatigue occurred since the KQ was the last and the longest of four post-simulation surveys on Qualtrics.

Other possible reasons there were no differences between groups on KQ scores is that the instrument had low reliability. The item analysis explains the low reliability score found in the KR-20. Green and Salkind (2017) suggested that several narrowly defined constructs may be included in a measure and that combining them may lower reliability (p. 242). On the KQ instrument, narrower concepts of a COVID-19 prevention measures, patient safety, and communication are all included under the broad construct of *knowledge* for COVID-19 case interview. McDonald (2018) noted that when there are heterogenous items on an exam, the reliability coefficient will be lower than an exam with homogenous content (p. 238-239). The items for the KQ represent important concepts and help learners meet simulation objectives;

however, a separate scale for each concept could be developed to assess these separately and increase reliability. Multiple items on the KQ fell outside of the acceptable *p* value range. Homogeneity of the test items may contribute to the low reliability score. In the study, students are at the same grade level with prior degrees in higher education. McDonald (2017) explained that when students are similar, their scores on an exam have less variability (p. 239). All students were expected to attend the simulation with the same knowledge gained from lecture and simulation preparation materials. No new content was presented to either group as the simulation was intended for application of knowledge which may also explain the low reliability, high scores, and the lack of difference between them. It may be better to measure learning or application of knowledge with a clinical competency instrument.

Examining knowledge further, learning, as measured on the *learning* subscale of the SET-M, was found to be greater for those in the intervention group. Each subscale resulted in significant differences, with higher scores for those who viewed the video and guided reflection. The five areas of *learning* on the subscale were feeling prepared to respond to changes in a patient's condition, a better understanding of pathophysiology, more confident with assessment skills, feeling empowered to make clinical decisions, and an opportunity to make clinical decisions (Leighton et al., 2018).

To answer research Question 2, *what is the difference in perceived effectiveness of a telehealth simulation, as measured on the Simulation Effectiveness Tool - Modified (SET-M), between learners in the structured prebriefing group and learners in the traditional prebriefing group*? there are several considerations. The findings show that overall, telehealth simulation is effective in increasing student perception of the simulation teaching strategy was for prebriefing, learning, confidence, and debriefing. This is consistent with a study by Okatch et al. (2016)

where undergraduate nursing students found a simulation for an outbreak investigation feasible and effective to teach epidemiology. The prebriefing part of a simulation was the focus of the current study and significant differences were noted between groups. Role modeling expectations of a case interview during a short video and teaching students to plan their approach by thinking through guided reflection questions were more effective with respect to meeting students' learning needs than traditional prebriefing with narration. These results illustrate simulation design, as identified in the NLN Jeffries Simulation Theory, is an important consideration and impacts learning outcomes. Online telehealth simulation is an effective teaching strategy for clinical learning with entry-level nursing students for case interviewing.

Implications

The study has several implications for nursing education within entry-level programs. This case interview simulation offers a new option to teach public health topics for infection prevention through online learning. SP methodology is effective to teach PHN case interviewing online. To enhance population health curricula further, other nationally notifiable infectious disease topics could be substituted for the COVID-19 exemplar. The results indicate the prebriefing part of the simulation made a significant difference, which reinforces that combining role modeling and guided reflection helps novice students learn. Establishing a reflective practice with nursing students early in the curriculum may establish a way for continued reflection after simulation during clinical to ultimately improve decision-making and patient care. Additional prebriefing activities could be explored when designing simulations for different levels of learners. Nurse educators need to consider the best methods to prepare students for new clinical experiences in the telehealth setting.

Suggestions for research are to repeat the study with a larger sample, different levels of learners and other populations. It may be beneficial to examine how SPs could contribute to learner knowledge development by giving feedback at the conclusion of the simulation. Since telehealth is newer for entry-level nursing curricula, there are opportunities to further study new public health nursing topics in online environments. Simulations can be designed to introduce entry-level nursing students to additional public health nursing situations. Examples include: epidemics, pandemics, and emergency preparedness with a focus on vulnerable populations who may not have access to or abilities with telehealth.

Limitations

The researcher acknowledges the study had limitations. A convenience sample from one institution served as the participants, which decreases the generalizability of the results to other populations. MDE nursing programs' entrance requirements are different from those for baccalaureate programs. For example, the mean age of the population was 26.8 years with a previous bachelor's degree or higher which may not be the same as other entry-level programs. The KQ was not deemed to be reliable or an adequate measure for knowledge necessary to conduct a COVID-19 case interview. Finding a better method for measuring knowledge, such as a reliable instrument, is recommended. The study took place during the COVID-19 pandemic and due to the nature of the case interview, results may differ under non-pandemic circumstances. One suggestion is to change the exemplar to a different infectious disease.

Conclusions

Nurses play an instrumental role in epidemic and pandemic responses to help stop the spread of infections. One way to respond is through telehealth case interviewing. Public health nursing clinical experiences are highlighted by *The Essentials* (AACN, 2021), but are often

missing from simulation curricula. This study describes an effective telehealth clinical simulation for infection prevention which also supports nursing student learning. This telehealth simulation, with SP modality, brings public health nursing to life in a fully online format. Structured prebriefing designed at the novice nursing student's level is more effective than traditional narrated prebrief. Role modeling video and guided reflection activities are recommended as a prebriefing design with entry-level nursing students to help prepare them for a successful telehealth simulation experience. It will also help students recognize the critical role nurses play in responding to crises and providing care during pandemic emergencies.

References

Aebersold, M. (2018, May). Simulation-based learning: No longer a novelty in undergraduate education. *Online Journal of Issues in Nursing, 23*(2). Retrieved from https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-23-2018/No2-May-2018/Articles-Previous-Topics/Simulation-Based-Learning-Undergraduate-Education.html

Akselbo, I., Olufsen, V., Ingebrigtsen, O., & Aune, I. (2018, November 20). Simulation as a learning method in public health nurse education. *Public Health Nursing, 36*(2), 226-232.

Ali, N. S., Carlton, K. H. & Ali, O. S. (2015). Telehealth education in nursing curricula. *Nurse Educator, 40* (5), 266-269. doi: 10.1097/NNE.0000000000000149.

American Association of Colleges of Nursing. (2021, April 6). The essentials: Core competencies for professional nursing education. Retrieved from https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf

Centers for Disease Control. (2020, October 21). Key information to collect during a case interview. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/training-investigators.html

Coram, C. (2016, September). Expert role modeling effect on novice nursing students' clinical judgment. *Clinical Simulation in Nursing, 12*(9), 385-391. http://dx.doi.org/10.1016/j.ecns.2016.04.009

Foster, M., Lioce, L., & Howell Adams, M. (2021). Telehealth in nursing education: A systematic review. *The Journal of Nursing Education, 60*(11), 633–635. Web.

Gandhi, S., Yeager, J., & Glaman, R. (2021). Implementation and evaluation of a pandemic simulation exercise among undergraduate public health and nursing students: A mixed-methods study. *Nurse Education Today, 98.* https://doi.org/10.1016/j.nedt.2020.104654.

Green, S.B. & Salkind, N.J. (2017). *Using SPSS for Windows and Macintosh* (8th edition). Pearson.

INACSL Standards Committee, McDermott, D.S., Ludlow, J., Horsley, E. & Meakim, C. (2021, September). Healthcare simulation standards of best practice™ prebriefing: Preparation and briefing. *Clinical Simulation in Nursing, 58,* 9-13. https://doi.org/10.1016/j.ecns.2021.08.008.

Institute of Experiential Learning. (2021). *What is experiential learning?* Retrieved from https://experientiallearninginstitute.org/resources/what-is-experiential-learning/

Jeffries, P. (2021). *The NLN Jeffries simulation theory*. (n.p.): Wolters Kluwer Health.

Kolb, D.A. (2015). *Experiential learning: Experience as the source of learning and development*, (2nd edition). Person Education, Inc.

Leighton, K., Ravert, P., Mudra, V., & Macintosh, C. (2015, September/October). Updating the simulation effectiveness tool: Item modifications and reevaluation of psychometric properties, *Nursing Education Perspectives*, 36(5), 317-323.

Leighton, K, Ravert, P., Mudra, V., & Macintosh, C. (2018). *Simulation effectiveness tool – modified.* Retrieved from https://sites.google.com/view/evaluatinghealthcaresimulation/set-m

Lewis, K.L., Bohnert, C.A., Gammon, W.L., Hölzer, H., Lyman, L., Smith, C., Thompson, C.M., Wallace, A., Gliva-McConvey, G. (2017). The Association of standardized patient educators (ASPE) Standards of best practice (SOBP). *Advances in simulation.* https://doi.org/10.1186/s41077-017-0043-4

Matsuda, Y., Valdes, B., Salani, D.A., Foronda, C.L., & Sarik, D.A. (2022, Month). Baby steps program: Telehealth nursing simulation for undergraduate public health nursing students. *Clinical Simulation in Nursing, 65*, 35-44. https://doi.org/10.1016/j.ecns.2022.01.001.

McDonald, M.E. (2018). *A nurse educators guide to assessing learning outcomes* (4th edition). Jones & Bartlett Learning.

Monaghesh, E., & Hajizadeh, A. (2020). The role of telehealth during COVID-19 outbreak: Systematic review based on current evidence. *BMC Public Health, 20,*1193. DOI

Okatch, H., Sowicz, T. J., Teng, H., Pilling, L., Harmon, M., Brewer, C., & Buttenheim, A. (2016, February). Nursing students as epidemiologists: A simulation approach. Clinical Simulation in Nursing, 12(2), 51-61. http://dx.doi.org/10.1016/j.ecns.2015.12.001.https://doi.org/10.1186/s12889-020-09301-4

Polit, D.F. & Beck, C.T. (2008). *Nursing research: Generating and assessing evidence for nursing practice* (8th edition). Wolters Kluwer, Lippincott Williams & Wilkins.

Reaves, RP, McEwing, EM, Matsuda, Y, Everett-Thomas, R. Using simulation to evaluate exam scores in a public health nursing course. *Public Health Nursing*. 2020; 37: 596–601. https://doi.org/10.1111/phn.12747

U.S. Department of Health and Human Services.gov. (2021). New HHS study shows 63-fold increase in Medicare telehealth utilization during the pandemic. Retrieved from https://www.hhs.gov/about/news/2021/12/03/new-hhs-study-shows-63-fold-increase-in-medicare-telehealth-utilization-during-pandemic.html

Table 2.1

Descriptive Statistics of Knowledge Quiz Scores

Group		Score	
	n	M	SD
A	48	19.56	3.13
B	66	19.33	2.40
Difference		0.23	

Table 2.2

Descriptive Statistics of Perceived Effectiveness (SET-M)

Scores

Group	Score		
	n	M	SD
A	56	42.86	9.51
B	68	49.39	5.18
Difference		6.53	

Chapter 3:

Patient Safety in Telehealth Simulation for Entry-Level Nursing Students

Nursing education made a rapid shift to online learning as the COVID-19 pandemic unfolded in the spring of 2020. Simultaneously, in nursing practice and medical practice, monitoring of patients remotely through telehealth increased dramatically to prevent the spread of infection (AHRQ, date). The US Department of Health and Human Services (2021) reported a 63-fold increase in the use of telehealth services for Medicare and a 32-fold increase in behavioral health telehealth during the pandemic. Consequently, nurses in all practice settings were using a form of telehealth for clinical learning. As nursing education continues to teach clinical learning through telehealth, an awareness of the unique and fundamental safety issues associated with patient care delivered from a remote location is vital.

Background

Patient safety is embedded in all nursing clinical simulations as a commitment to the ethical principle of nonmaleficence, or to do no harm. It has been documented that new graduate nurses make mistakes in the first year after transitioning to practice (Africa & Shinners, 2019). It is a nurse educator's responsibility to ensure entry-level nurses understand the concepts surrounding patient safety and safety culture upon transition to practice. Focusing on patient safety early in an entry-level nursing curriculum emphasizes its importance and can be reinforced throughout the program. Quality care and patient safety are most often discussed in entry-level programs surrounding face-to-face patient care visits, at the bedside, or during homecare visits. This study endeavors to place quality care and patient safety at the forefront of patient care from a distance during telehealth nursing visits.

Quality and Safety Education for Nurses (QSEN) and AACN's *The Essentials* (2021) both integrate patient safety as a critical concept. Domain 5 of *The Essentials* designate quality and safety as a broad area where nursing students must achieve competence to minimize risks to patients (AACN, 4-5). The QSEN initiative is an overarching framework for nursing education that was established in 2005 in response to the landmark report, *To Err is Human* (2000) which highlighted the high rate of preventable errors by health care workers that resulted in harm or patient death. The QSEN mission is to prepare future nurses with quality and safety knowledge, skills, and attitudes to develop continuous quality improvement and safety at health care systems in which they work. There are six QSEN competencies including patient-centered care, teamwork and collaboration, evidence-based practice (EBP), quality improvement (QI), safety, and informatics (QSEN, 2020b). The competencies are broad and apply in all patient care settings–inpatient, outpatient, and during telehealth visits. For this study, nursing students participated in simulated telehealth visits in the role of a public health nurse conducting a case interview for a nationally notifiable disease, COVID-19. Telehealth case interviews have unique safety considerations that were reinforced with learners during the simulation at the individual and population levels.

Literature Review

Patient safety is a complex yet fundamental topic in nursing education and nursing practice. The literature review consists of books, editorials, qualitative studies, quantitative studies, systematic reviews, and leading agency reports. This review section describes the concept of safety and then reviews literature with a focus on simulation and patient safety.

Defining Safety in Telehealth

Schlachta et al. (2008) point out that patient safety issues during telehealth visits result from patient management decisions, misinformation, and inaccurate assessments and can be complicated by patient or caregiver errors. Telehealth safety also involves a nurse being able to conduct a thorough assessment, provide adequate health teaching, and make critical decisions such as determining when a patient needs to be examined in person by a provider. Guise, Anderson, and Wiig (2014) conducted a systematic review to identify and describe categories of patient safety risks due to telehealth in-home care services. They included homecare nursing tasks, person-centered characteristics and capabilities, problems with the technology or devices, organizational issues, and environmental factors. Knowing what the patient safety risks consist of helps to determine educational activities to address them.

Individual patient safety considerations that fall within the scope of practice for entry-level nurses include patient identification, securing confidentiality, conducting appropriate nursing assessments of a patient with COVID-19, providing evidenced-based health education, and asking key questions that may impact health. On a population level, safety considerations involve addressing how to prevent the spread of infections to others in the home and the community, particularly those who are more vulnerable. Other population-level considerations for nurses include slowing the spread of infection by educating clients on timely COVID-19 testing, vaccinations, screenings, and outreach. A public health safety concern arises if an inadequate case investigation takes place or there is a failure to provide outreach to vulnerable populations (Issel & Bekemeier, 2010). Technological interruptions or lack of access to technology may put vulnerable patient populations at risk for delayed contact tracing or

symptom management. Table 3.1 summarizes and aligns the quality and safety considerations for a telehealth case interview with QSEN Competencies which emphasizes population level care.

Simulations and Patient Safety

Nurse educators are responsible for preparing students to enter practice with the knowledge, skills, and attitudes to safely care for patients and to prevent errors. Simulation is a teaching strategy to foster this development throughout a nursing program that is offered online or on campus. Amid the initial wave of the COVID-19 pandemic, the editorial board of *Clinical Simulation in Nursing* reported that simulation has been shown to be a successful teaching strategy for developing safety competencies in students around the globe; however, there is a need for more high-quality research to develop sound educational interventions (Levett-Jones, et al., 2020). Historically, simulations have been an effective teaching strategy to address public health education needs. The Agency for Healthcare Research and Quality (AHRQ) has funded projects to promote patient safety. For example, during the Ebola public health emergency, simulation played a key role in identifying gaps in Ebola safety protocols and assisting with safety training in response to serious infectious diseases (AHRQ date).

Simulations are effective for on-campus and online clinical learning in entry-level nursing programs to teach a range of patient safety topics. An integrative review by Berndt (2017) found that simulation, as an educational technique for teaching patient safety competencies, is strongly supported by evidence in 17 studies, especially when traditional clinical experiences may not be accessible. Berndt expressed the importance of continuing to study the effectiveness of simulations. In an on-campus study, Mariani, Ross, Paparella, and Allen (2017) conducted a medication administration simulation and found that students in a simulation with enhanced safety gained significantly higher safety knowledge and competency,

showing that these students were better equipped to administer medication. A quality improvement project by Tanz (2018) found that through student-designed safety simulations, learners significantly improved safety knowledge, skills, and attitudes. The healthcare safety topics students chose for the scenarios were medication errors, critical team communication, prioritization, and handoff reporting. This study highlights the effectiveness of simulation as a teaching strategy for fostering students' understanding and engagement with safety that can be applied to other areas of practice.

Powers et al. (2020) conducted a qualitative study with baccalaureate nursing students framed by Experiential Learning Theory and aligned with QSEN competencies. The study involved telehealth collaboration after two standardized patient telehealth simulations. The researchers found that several themes emerged including the learner's feelings of anxiety when communicating with others, more confidence to transition to practice, better ability to communicate, appreciation of having "real world" practice, and enhanced clinical reasoning (Powers et al.). The authors recommended that nurse educators consider telehealth simulation with standardized patients to provide students with an engaging experience to develop intra and interprofessional collaboration as well as other QSEN competencies, communication, and patient-centered care.

Emphasizing quality and safety with any clinical experience is fundamental for nurses as they transition to clinical practice. Though simulation has been a successful way to teach, there remains a need for continued study regarding what is most effective. Considering the rapid expansion of telehealth, this study was designed for entry-level nursing students and explored confidence with fundamental quality and safety competencies during a fully online telehealth simulation.

Theoretical Framework

Kolb's Experiential Learning Theory (ELT) (2020) was applied to the educational experience for this study. The premise of Kolb's Theory of Experiential Learning is that learning takes place in a four-step, ongoing process: experiencing (concrete experience), reflecting (reflective observation), thinking (abstract conceptualization), and acting (active experimentation). The learning cycle begins with an experience, followed by reflecting on the experience, then abstract thinking to make meaning of the experience, and finally actively engaging in an experience to try applying what one has learned (https://experientiallearninginstitute.org/).

In the current study, students in the structured prebriefing group learned by working through the experiential learning cycle. By watching a video with expert role modeling, guided reflection, and participating in questions and answers, structured prebriefing interactions served as an experience. The reflecting and thinking steps were evident when students engaged in asking and answering questions during the briefing phase of the simulation. Participating in a standardized patient interaction was the last step, active engagement. Once the interaction was over, reflection took place during the debrief. The telehealth simulation emphasized reflection throughout which helped to prepare students for future experiences in clinical settings with patients.

Reflection was highlighted again during simulation debriefing using the Promoting Excellence and Reflective Learning in Simulation (PEARLS) debriefing method, developed by Eppich and Cheng (2015). This approach to debriefing has scripted language to help facilitate reflective thinking through three debrief phases: self-assessment, discussion, educator feedback, and teaching (Eppich & Cheng, 2015). In summary, the ELT posits that people learn or build

knowledge best through experiences (Kolb date). The telehealth simulation was designed for each student to be actively involved in the learning cycle and for a continuation of thought development and learning in future patient interactions. The intervention offered an extra cycle of experience, prior to a student's first telehealth visit, through observation of a role modeling video and guided reflection during prebrief.

Purpose

This study aimed to determine the effect of prebriefing design, for a simulated telehealth case interview on nursing students' confidence in quality and safety competencies. The research question was, *what is the difference in self-reported confidence with quality and safety competency scores, as measured on the Nursing Quality and Safety Self-Inventory (NQSSI), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?*

Methods

Design

This study was a randomized, two-group, post-test control group design, that explored the effect a structured pre-brief component of a telehealth simulation, has on nursing students' confidence with quality and safety competencies. Block randomization was applied. According to Polit and Beck (2008), rather than having the entire sample randomized from the beginning, randomization occurs for blocks of even sizes, and this helps to ensure appropriate distribution across conditions (p. 259). In this current study, the simulation sessions took place over several months. Participants independently signed themselves up for a simulation session that fit their schedule and could rescheduled themselves as needed; thus, there were no preassigned blocks. Each simulation session or block had 24 slots. On the day of the simulation, up to 24 participants

were randomized into two groups, control, or intervention, using an internet-based process on randomizer.org. This randomization method helped to prevent an uneven number of participants in the control or intervention groups. Findings reported in this paper are part of a larger study; findings for knowledge of public health case interviewing, therapeutic communication skills, and simulation effectiveness are presented in other chapters.

Participants

The study participants were a convenience sample of entry-level nursing students enrolled in a master's direct entry (MDE) nursing program, at a private university, located in the northeastern United States. The study was aligned with an ambulatory care nursing course where infectious disease and telehealth were part of the curricular content. Inclusion criteria were nursing students enrolled in the ambulatory care nursing course. A total of 126 students were eligible to participate in the study and the final number of participants was 123. Excluded from the study were nursing students not enrolled in this nursing course at the time.

Instruments

The study uses two instruments: (1) a demographics survey and (2) Nursing Quality and Safety Self Inventory (NQSSI) to measure confidence with safety competencies. The demographic data was collected using a 6-item researcher-developed survey. The demographic survey included age, gender, race, country, experience in health care, and highest degree completed. The study did not discriminate based on race, sexual orientation, gender identity, or expression.

The NQSSI is an 18-item, positively worded, self-rated instrument designed to measure nursing students' confidence with knowledge, skills, and attitudes, on each of the six QSEN competencies developed by the QSEN Institute (Piscotty et al., 2013). Construct validity was

established with exploratory factor analysis using principal axis factoring with direct oblimin rotation (cite). Reliability was strong with an internal consistency coefficient, Cronbach's alpha, of 0.93 for the total score. Two subscales are knowledge and attitudes with Cronbach's alpha of 0.88 and 0.92, respectively (cite). The 18 items on instrument are rated on a 7-point Likert-type scale with 7 being strongly agree, 1 being strongly disagree, and a neutral choice (Piscotty et al., 2013). Scores are totaled for all 18 statements by calculating a mean score which provides a global understanding of a student's confidence in safety competence. The total range of scores is from 18, indicating lowest level of confidence, to 126, indicating the highest level of confidence. A mean score can also be calculated for knowledge, skills, or attitudes, and each of the six QSEN competency areas (Piscotty et al., 2013).

Procedure

Permission was obtained for use of the NQSSI instrument and presented in Appendix. Next the NQSSI and demographic survey were prepared for electronic access on Qualtrics. Consent was granted by the ambulatory care nursing course faculty and from the simulation center director for implementation during the fall 2021 semester. Once the simulation scenario was designed, reviewed by content experts, and finalized, it was pilot tested. For the pilot test, a group of five current students was recruited during a voluntary open lab session to participate in and trial the simulation. After the pilot test, the prebriefing intervention, scenario, and instruments were assessed and adjusted for the current study. The role modeling video was developed in collaboration with the Columbia University Center for Teaching and Learning. A storyboard was written, then filming took place. One SPs actor portrayed the role of the patient, and an SP actress portrayed the role of the public health nurse in the video. The video was recorded in the simulation center by the technology manager. A pilot test of the simulation

offered improvement information for the learner, standardized patient (SP), and simulation educator.

Standardized Patients

Nine SPs were recruited through an established SP program. To serve as an SP, each actor was previously oriented and trained for face-to-face and online cases. Training for the simulation addressed physical appearance, level of the learner, feedback rubric, emotional engagement, and psychological safety considerations for learners and SPs. Confidentiality was reinforced to protect the learner. SP training for the study was conducted over a one-hour Zoom session. The agenda for the training included: coordination of Zoom simulations, use of breakout rooms, the timing of interactions, and a description of learners' educational level. Finally, character development and acting were reviewed. The SPs were coached to practice the signs and symptoms of the patient with COVID-19 and directed on how to respond to the potential questions' students might ask. The patient's tone of voice, mood, and expressions were also practiced. To decrease the potential bias of SP influence on the results, nine SPs were divided into three groups. A schedule was made for each group to rotate weekly through Group A (control), Group B (treatment), and then a week off.

Recruitment and Scheduling

The telehealth simulation was a clinical learning experience for all students regardless of participation in the study. The simulation was formative, and no grade was associated with participation. IRB approval was granted by the researcher's institution and the institution where the research took place. Nursing students were introduced to the study at the end of a didactic Zoom session of the fully online ambulatory care nursing course. Written information was emailed to the learners in the course to explain the experiment and recruit participants. Informed

consent was administered when students initiated and completed the demographic survey on a Qualtrics link. Students who chose to participate in the study were able to drop out at any time. Four $50 gift cards were raffled after the intervention as an incentive to those who completed the study.

Sign-up Genius scheduling software was used so that each student could choose a simulation session that fit with their schedule. Students signed up for a simulation date that was convenient for their schedules with up to 24 students per day. Each day served as a block. Random assignment was conducted for each block using a web-based program, Research Randomizer (https://www.randomizer.org/). Students were randomly assigned to Group A (control) or Group B, (intervention). Respective Zoom links were sent to the student via course management system email. Simulations took place concurrently.

Simulation

The simulation was a fully online, formative learning experience designed for nursing students to develop knowledge, skills, and attitudes needed for patient care during a telehealth video conference visit. This was a clinical experience where learners, in the role of public health nurses, engaged one-on-one with patients who had been diagnosed with an infectious disease, COVID-19. Learners gained experience with public health nursing interventions at the primary and secondary levels of prevention through case interviewing and contact tracing for a nationally notifiable disease. The learning objectives of the simulation are below. At the conclusion of the simulation learners would:

1. Demonstrate therapeutic communication skills of building trust and rapport, power sharing, and empathy during a telehealth visit.

2. Discuss the application of patient safety competencies that relate to the use of telehealth technology in public health settings.
3. Estimate the number of people exposed to the infectious disease in the family and community.
4. Explain to the patient three ways to reduce the risk of spreading COVID-19 within their family and/or community.

The following case summary was provided to students before the simulation:

> A learner plays the role of a county public health nurse (PHN) assigned to the communicable disease office. There is an outbreak of a new strain of COVID-19 in the local county. A nationally notifiable disease report was submitted to the state health department yesterday. In response, the state has contacted the county health department today to follow up on the report of a patient with a positive COVID-19 PCR test and experiencing moderate symptoms. As the PHN, you will need to contact the patient via telehealth to conduct an interview, monitor COVID-19 symptoms, elicit close contacts, and connect the patient with resources. (The complete simulation scenario is presented in Appendix K)

On the day of the simulation, an experienced simulation educator hosted the Zoom sessions. Faculty and SPs arrived on Zoom 30 minutes before participants to allow time for questions, technology troubleshooting, and getting SPs positioned in breakout rooms. The control group and the experimental group followed the same format of attending prebriefing, one-on-one interaction with an SP for a telehealth case interview, and debriefing with an instructor.

As defined by the *Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing*, prebriefing refers to "the activities PRIOR to the start of the simulation including the preparation and briefing aspects of the simulation-based experience" (INACSL Standards Committee, 2021, p. 9). In the study, both Group A and Group B followed the standards. The main difference was that the experimental group, Group B, had a structured

briefing portion. This design included observation of a 6-minute role modeling video and guided reflection learning activities. These activities added 20 minutes to the experimental group briefing. The control group had a traditional brief, which included a narrated script and time for questions and answers.

The exam flow of the simulation went as follows: learners entered the Zoom main room and pre-briefed together. Then, half the learners moved into a breakout room for a one-on-one 12-minute telehealth interaction. There was no SP feedback. The next three students rotated into the breakout room for their patient interaction. Students returned to the main room for a group debriefing following the PEARLS method. The session ended with the completion of the NQSSI posttest instrument available on a Qualtrics link. When simulations were completed, the control group was offered an opportunity to try the structured prebriefing intervention and one student attended. A drawing for the four $50 gift cards took place.

Data Analyses

Data were analyzed using SPSS version 28.0.0 software. The total number of eligible students was 126. Three students chose not to complete the surveys. Demographic variables were analyzed using descriptive statistics. The traditional prebriefing, control Group A (n = 53) was compared to the structured prebriefing intervention Group B (n = 70). There were unequal group sizes due to faculty absence on one day and all students participated in group B with one instructor. An independent-samples *t* test was used to analyze data for this study. The mean scores of Group A were compared with the mean scores of Group B. The alpha value for the analysis was set at $p \leq 0.05$.

Results

Demographics of Participants

The sample characteristics included one class of nursing students enrolled in a master's direct entry program and registered for an ambulatory care nursing course. Following IRB approval, 126 students were eligible to participate. The final number of participants who completed the study was N = 123. Participant age ranged from 20 to 45 years (mean = 26.8). The participants were mostly female (83.7%), followed by males (13%) and those answering other (3.25%). The sample included students belonging to diverse backgrounds: Asian (14.5%), Black or African American (8.9%), Hispanic or Latino (7.3%), White (56.4%), multi-racial (11.3%), and other (1.6%). All students in the master's direct entry program had a bachelor's degree. In addition, 18 students had a master's degree (14.4%) and 2 students (1.6%) had above a master's degree. Two-thirds of the participants acknowledged having previous healthcare experience (66.4%).

Confidence with Nursing Quality and Safety

An independent-samples *t* test was conducted to determine differences in confidence in quality and safety scores between the control group (n = 53) and intervention group (n = 70). Levene's test for equality of variances was significant at .011, therefore equal variances were not assumed. The *t* test was significant at the $p < .05$ level, ($t(81.55) = -2.67$, $p = 0.009$). The mean of the traditional prebriefing group (M = 102.90; SD = 18.85), was lower than the structured pre-brief group with role modeling and guided reflection (M = 110.76; SD = 11.71). Therefore, the group with structured prebriefing with role modeling and guided reflection had significantly higher confidence in nursing quality and safety than the traditional group. Table 3.2 shows the descriptive statistics for NQSSI scores.

Discussion

This telehealth simulation study explored two different simulation prebriefing methods to prepare students for developing confidence with knowledge, skills, and attitudes about quality and safety competencies during a simulated telehealth clinical experience. The answer to the research question is that there is a difference between methods; students who participated in the structured prebriefing had significantly higher self-reported confidence with quality and safety competencies than nursing students with traditional prebriefing. This finding suggests that novice nursing students learn from watching a short role modeling video, which is a visual learning technique, and by having time to reflect before engaging in a simulated patient interaction. On the contrary, learners who did not have the chance to experience role modeling with time for reflection were less confident in the telehealth simulation. Consequently, a learner without this preparation may progress with a lack of confidence or understanding in the fundamentals of knowledge, skills, and attitudes surrounding patient safety during telehealth including patient centered care, teamwork and collaboration, evidenced based practice, quality improvement, and informatics.

Implications for Nursing Education

Teaching nursing students about safety begins at the foundational level, extends throughout the curriculum, and continues when students transition into practice. Understanding the learner's needs at various levels of the program may help build a confident progression throughout a program. Due to the high rates of errors made by new graduate nurses, it would be important to recognize that as new nurses move through an entry-level program, and telehealth becomes more prevalent, it is imperative to continue to develop patient safety knowledge, skills, and attitudes in this area. Simulation is an effective teaching strategy; however, different

prebriefing designs may be useful further along in an entry-level program or for more advanced students. Establishing reflective practices as a novice, before a simulated patient interaction, has the potential to be an important self-regulatory process, which could be reinforced throughout a student's educational progression.

The study's findings are challenging to compare with other studies, as this is the first type of study to examine telehealth safety with entry-level students through the lens of a public health nurse during a pandemic. It is recommended that addressing safety competencies include public health nursing fundamental knowledge skills and attitudes. This study is consistent with other studies that support the use of simulation for teaching patient safety and building confidence (Tanz, 2018; Mariani, et al., 2014). The results are consistent with the study by Lister et al., (2018) where simulation using a telepresence robot and simulated patient increased student nurses' confidence in communication skills needed for telenursing during a home visit.

In keeping with the premise of ELT additional experiences early in a nursing program, which continue to promote patient safety during telehealth encounters, may further develop a student's confidence. Knowledge, skills, and attitudes related to the unique safety concerns of patient care through telehealth video conferencing and public health case interviewing could be deepened by additional clinical experiences.

Implications for Future Research

Since telehealth was rapidly employed by most schools of nursing during the pandemic, additional simulation research in this area is needed to determine what is most effective. Novice nursing students, although educated at the bachelors' level, responded favorably to role modeling and reflection prompts before simulation. Additional research on prebriefing for various levels of learners and multi-site research could help simulation educators learn more about prebriefing to

empower them to design the most effective scenarios for building confidence and competence with quality and safety competencies for different telehealth experiences.

It is noted that the NQSSI is a self-report instrument. It may be beneficial to have an objective scoring method for quality and safety issues during telehealth. As *The Essentials* have called for nursing education to move to competency-based education, it is important to have safety competencies measured by outside raters such as clinical instructors or simulation educators, and to measure safety and clinical competency throughout a program. Conducting a study from a SP feedback perspective is another method for gathering outside rater information to assess student learning.

Future studies could measure student progress by building safety confidence and competencies throughout a curriculum by collecting longitudinal data. Extending measures of student progress throughout the program may lend insight into how to prevent errors as students transition to practice. Researchers could more thoroughly examine the significant findings to determine if the confidence were related to a specific QSEN competency or the instrument's knowledge, skills, or attitudes subscales.

Limitations

The study had limitations. A convenience sample from one institution served as the participants, which decreased the generalizability of the results to the population. The master's direct entry program students are different from those for baccalaureate programs. For example, the mean age of the population was 26.8 years with a previous bachelor's degree or higher, which might differ from other entry-level programs. Caution is recommended for generalizing the results to advanced practice nursing students as they have much more clinical experience and may not need role modeling.

Response bias is a limitation due to the self-reporting of the NQSSI instrument. This could be improved by adding objective measures for quality and patient safety. The researcher was the faculty member teaching the simulation which might have presented bias. The study was expensive and time-consuming to develop, upon evaluation, adjusting the simulation schedule would decrease costs and improve efficiency.

Conclusion

Patient safety is a broad and complex topic to teach nursing students. Combined with the rapid technological advances in healthcare and expanded use of telehealth, novice nursing students have a great deal to learn before safely transitioning into clinical practice. Telehealth is an additional area of practice for the new generation of nurses and requires special consideration added to the curriculum. To address these changing needs in the healthcare system, nursing programs are incorporating telehealth competencies into entry-level curricula. Online simulations with SPs offer a realistic and straightforward way to provide students with realistic clinical experiences and measure attainment of competencies. Findings from this study show that the teaching strategies of role modeling and guided reflection are beneficial for novice entry-level nursing students. Quality and patient safety are fundamental for clinical nursing practice. In conclusion, educating entry-level nurses with simulations that focus on patient safety may be important in preventing errors and saving lives.

References

Africa, L., & Shinners, J. (2019, November). Tracking medical errors and near misses in the new graduate registered nurse. *Nursing Forum*, *55*(23). DOI:10.1111/nuf.12412

AHRQ, Patient Safety Network. (2020, May 14). Telehealth and patient safety during the COVID-19 response. Retrieved from https://psnet.ahrq.gov/perspective/telehealth-and-patient-safety-during-covid-19-response

Berndt, J. (2014). Patient safety and simulation in prelicensure nursing education: An integrative review, *Teaching and Learning in Nursing, 9*(1), 16-22. https://doi.org/10.1016/j.teln.2013.09.001.

Cronenwett, L., Sherwood, G., Barnsteiner J., Disch, J., Johnson, J., Mitchell, P., Sullivan, D., Warren, J. (2007). Quality and safety education for nurses. *Nursing Outlook*, 55(3)122-131.

Foster, M., Lioce, L., & Howell Adams, M.. (2021). Telehealth in nursing education: A systematic review. *The Journal of Nursing Education, 60*(11), 633–635. Web.

Giddens, J., Douglas, J.P. & Conroy, S. (2022). The revised AACN Essentials: Implications for nursing regulation. *Journal of Nursing Regulation, 12*(40), 16-22. doi.org/10.1016/S2155-8256(22)00009-6

Guise, V., Anderson, J. & Wiig, S. Patient safety risks associated with telecare: a systematic review and narrative synthesis of the literature. *BMC Health Serv Res* **14,** 588 (2014). https://doi.org/10.1186/s12913-014-0588-z

Hamilton, H., Iradukunda, F., & Aselton, P. (2021). The integration of telehealth in nursing education: A new frontier. *Journal of Informatics Nursing*, *6*(1), 18+. https://link.gale.com/apps/doc/A665179429/AONE?u=columbiau&sid=summon&xid=0ee3aa42

INACSL Standards Committee, McDermott, D.S., Ludlow, J., Horsley, E. & Meakim, C. (2021, September). Healthcare simulation standards of best practice™ prebriefing: Preparation and briefing. Clinical Simulation in Nursing, 58, 9-13. https://doi.org/10.1016/j.ecns.2021.08.008.

Institute of Medicine (US) Committee on Quality of Health Care in America, Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To Err is human: Building a safer health system*. National Academies Press (US).

Issel, M. & Bekemeier, B. (2010). Safe practice of population-focused nursing care: Development of a public health nursing concept. *Nursing Outlook, 58*(5), 226-232, https://doi.org/10.1016/j.outlook.2010.06.001.

Kolb, D.A. (2015). *Experiential learning: Experience as the source of learning and development, 2nd edition*, Person Education, Inc.

Levett-Jones, T., Bogossian, F., Cooper, S., Kelly, M., McKenna, L., & Seaton, P. (2020). Progress in the quest to improve patient safety through simulation. *Clinical simulation in nursing*, *44*, 1–2. https://doi.org/10.1016/j.ecns.2020.05.009

Lister, L. Vaughn, J., Brennan-Cook, J., Molloy, M., Kuszajewski, M., Shaw, R.J. (2018). Telehealth and telenursing using simulation for pre-licensure USA students. *Nurse Education in Practice, 29*,59-63, https://doi.org/10.1016/j.nepr.2017.10.031.

Mariani, B., Ross, J. G., Paparella, S., & Allen, L. R. (2017, May). Medication safety simulation to assess student knowledge and competence. Clinical Simulation in Nursing, 13(5), 210-216. http://dx.doi.org/ 10.1016/j.ecns.2017.01.003.

Powers, K., Neustrup, W., Thomas, C., Saine, A., Sossoman, L.B., Ferrante-Fusilli, F.A., Ross, T.C., Clark, K., & Dexter, A. (2020). Baccalaureate nursing students' experiences with multi-patient, standardized patient simulations using telehealth to collaborate. *Journal of Professional Nursing, 36*(5), 292-300. https://doi.org/10.1016/j.profnurs.2020.03.013.

QSEN Institute. (2020). QSEN Competencies. Retrieved from https://qsen.org/competencies/pre-licensure-ksas/

Seaton, P, Levett-Jones, T., Cant, R., Cooper, S., Kelly, M., McKenna, Ng, L., & Bogossian, F. (2019). Exploring the extent to which simulation-based education addresses contemporary patient safety priorities: A scoping review, *Collegian*, 26, (1), 194-203. https://doi.org/10.1016/j.colegn.2018.04.006.

Schlachta et al. (2008) Schlachta-Fairchild, L., Elfrink, V., & Deickman, A. (2008). Patient safety, telenursing, and telehealth. In R. G. Hughes (Ed.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Agency for Healthcare Research and Quality (US).

Tanz, M. (2018). Improving safety knowledge, skills, and attitudes with a good catch program and student-designed simulation. *Journal of Nursing Education, 57*(6), 379-384. doi: http://dx.doi.org/10.3928/01484834-20180522-11

U.S. Department of Health and Human Services.gov. (2021). *New HHS study shows 63-fold increase in Medicare telehealth utilization during the pandemic.* Retrieved from https://www.hhs.gov/about/news/2021/12/03/new-hhs-study-shows-63-fold-increase-in-medicare-telehealth-utilization-during-pandemic.html

Table 3.1

Entry-Level Nursing Quality & Safety Considerations Public Health Nursing Case Interview via Telehealth

Competency	QSEN Definition*	Individual level	Population Level
Patient Center Care	Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.	Elicit client's needs and values Complete and accurate nursing physical assessment Complete and accurate list of household contacts and close contacts. Identify contacts at elevated risk. Therapeutic communication that builds a trusting relationship. Verify and maintain confidentiality	Populations with limited access to telehealth technology or no Wi-Fi connections cannot participate in telehealth. Some populations are left out, such as the those who may not have technology abilities to use telehealth.
Teamwork and Collaboration	Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care.	Describes nurse scope of practice and role in telehealth Recognize contributions of other healthcare providers and services that supports clients. The lab and doctor's office reporting process. Accurate and timely reporting from PHN to patients and to primary provider. Ensure providers and specialists are available for individual referrals.	Timing of communication from positive test to PHN to patient. Implementing Infection prevention measures in client workplaces, will prevent spread. If notification takes longer, more people can become infected. Organizations have collaborations in place for referral purposes.
EBP	Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.	Acknowledge lack of evidence in emerging infectious diseases in care and treatment. Best practices for disease management at home, COVID 19 testing, isolation vs. quarantine Immunization facts and updates Home cleaning and disinfecting Monitoring and Education on medications and immunizations.	Infection prevention measures outside the home for communities masking, social distancing, handwashing, cough etiquette.
Quality Improvement	Use data to monitor the outcomes of care processes and use improvement methods to design and assess changes to continuously improve the quality and safety of health care systems.	Recognize a public health nurse is part of a system of care that affects clients and families.	The health department or healthcare organization will have telehealth quality measures in place. Public health nurse will acknowledge that quality improvement is essential for telehealth services.
Safety	Minimize risk of harm to patients and providers through both system effectiveness and individual performance.	Demonstrate effective use of technology. Identify limitation of telehealth use HIPAA compliance maintained on telehealth Report and address errors that occur during telehealth.	Provide educational announcements to communities with outbreaks at a literacy level all community members understand. Identify cyber security threats. Use telehealth platform that is HIPAA compliant.
Informatics	Use information and technology to communicate, manage knowledge, mitigate, error, and support decision-making.	Determine client's ability to use technology to find test results, Acknowledge skill, time, and training necessary for effective use of technology in delivering patient care via telehealth	Documentation of immunizations and infection rate data to determine clusters of the spread of infection rates and geographic impact.

Note: *QSEN Institute. (2020). QSEN Competencies. Retrieved from https://qsen.org/competencies/pre-licensure-ksas/

Table 3.2

Descriptive Statistics of Nursing Quality and Safety Self Inventory (NQSSI) Scores

Group	Score		
	n	M	SD
A	53	102.91	18.85
B	70	110.76	11.71
Difference		7.85	

Chapter 4: Therapeutic Communication Skills for Telehealth Nursing

Therapeutic communication skills are important across all areas of nursing. These are key skills for nurse educators to teach early on and throughout a nursing program. The Executive Summary of the AACN Essentials (2021) lists communication as one of eight concepts that are "central to professional nursing practice and are integrated within and across the domains and competencies" (p. 2). Quality and Safety Education for Nurses (QSEN) states that effective communication is an important part of compassionate, safe, patient-centered care (QSEN, 2020). In telehealth nursing, therapeutic communication is a core competency, and presents new communication challenges as well as opportunities while caring for patients (van Houwelingen, 2016). Communication is a foundational requirement during telehealth encounters and was the focus of a case interview simulation created for this study.

Background

The concept of therapeutic communication is complex and has many definitions. Therapeutic communication has been defined as "an interaction between a health care professional and a patient that aims to enhance the patient's comfort, safety, trust, or health and well-being" (medicaldictionary.thefreedictionary.com). Interpersonal communication is a reciprocal process between a nurse and client that can establish a human connection and convey compassion, or function as a barrier to effective communication (Riley, 2016, p. 4). Therapeutic communication between a patient and nurse is a two-way transmission of information through verbal, non-verbal, and written methods. For example, on a telehealth call, greeting the patient, making eye contact, fostering conversation, and listening attentively creates an open and accepting space where a patient would be more likely to share information about their illness and living situation. This enables a nurse to uncover critical information to individualize care and

help a patient recover and heal. If a patient over telehealth does not trust a nurse, they may dismiss critical health guidance, withhold details about contact tracing, or quickly end the visit.

For conceptual clarity in this study, therapeutic communication is based on the description presented by Campbell and Aredes (2019) as a "culturally appropriate, empathetic, equal sharing of power, and helps build trust and rapport" (p. 31). Therapeutic communication focuses on safe, high-quality patient-centered care to promote health, comfort, and well-being (Campbell & Aredes). The storyboard for the role modeling video was written based on therapeutic communication criteria identified by content experts who developed the Global Interprofessional Therapeutic Communication Scale (GITCS©). In addition, nursing students' skills were measured by the GITCS© criteria.

Telehealth video conferencing adds another layer of complexity to nurse-patient communication. Due to technological mediation, connecting with patients and maintaining an open, trusting relationship that fosters communication presents numerous challenges. For example, introductions, confirming confidentiality, reading body language, interpreting facial expressions, internet access, and technological fluency all impact transmission of information. Confidentiality must be verbalized because the nurse is not able to view the patient's surroundings, it is more difficult to confirm that the patient is in a private setting.

due to not being able to view the patient's surroundings, and to confirm for the patient that the nurse can also maintain confidentiality in their location. Reading body language and interpreting facial expressions on the computer camera is more limited than in a face-to-face office visit. Over telehealth video conferencing, only a person's head and shoulders are visible, this limits a nurse's view of a patient's subtle changes in posture, gait, body positioning, and hygiene. In an office setting a nurse moves around to examine a patient, whereas over telehealth

nurses may need to ask a patient to reposition themselves to gain a more accurate assessment. The Centers for Disease Control (2021) emphasized that excellent and tactful interpersonal skills, cultural sensitivity, and language skills are necessary for public health nurses to help build and maintain trust with clients during case interviews. Since communication is subjective and contingent on cultural associations, therapeutic communication can be a difficult topic to describe and teach. The simulation in the study is a synchronous online teaching strategy. It offered nursing students the opportunity to actively participate in a realistic telehealth visit, apply knowledge, and practice communicating with a patient.

Literature Review

Successful development of therapeutic communication skills with standardized patient (SP) methodology has been well documented in nursing education to build self-efficacy and self-confidence in face-to-face and synchronous online simulations. Nursing students' communication skills were enhanced after participation in mental health simulation scenarios (Blake & Blake, 2019; Doolen et al., 2014). Blake and Blake examined therapeutic communication skills with senior nursing students in a capstone course. Results showed that students attending role-play simulation developed self-efficacy in their ability to communicate with patients following a simulation on the topic of a patient hospitalized for a suicide attempt (Blake & Blake, 2019). Doolen et al. (2014) conducted a mental health simulation study using SP methods to help lessen the feelings of intimidation often reported by nursing students during an initial mental health clinical day. The SPs were trained to act out the signs and symptoms of three diagnoses: bipolar disorder, anxiety, and schizophrenia. The results showed that nursing students significantly improved therapeutic communication and interviewing skills as measured on a researcher-developed questionnaire after working with the SPs (Doolen et al., 2014).

Simulation helped to develop communication skills in specialty courses for entry-level students and nurses during face-to-face simulations. Hsu et al. (2015) conducted a randomized controlled trial comparing a didactic communication course to simulation training for communication competence and self-efficacy of novice nurses. During the study, the experimental simulation group interacted with SPs in an objective structured clinical exam format (OSCE) and showed a significantly higher improvement in communication competence and self-efficacy than learners in the instructional class (Hsu et al., 2015). Hsu et al. recommended simulation-based training for improving nursing students' communication skills. Riley-Baker et al. (2020) applied a National League for Nursing (NLN) unfolding case study simulation to measure the progress of communication involving a patient from a military background who has complex healthcare needs and comorbidities. The complex, unpredictable nature of communicating with patients from vulnerable groups is indicative of what nursing students will encounter when they transition to clinical practice. Results showed that nursing students were most likely to improve their communication skills as the simulation progressed over three different care settings: a mental health unit, a home visit, and an obstetrics unit (Riley-Baker et al., p. 39).

In an online simulation, Matsuda et al. (2022) conducted a descriptive, mixed methods study for a telehealth simulation, titled *Baby Steps,* for a public health nursing course with undergraduate nursing students. Students played the role of a telehealth nurse assisting a new parent after their newborn was discharged from the neonatal intensive care unit. The results from the qualitative analysis revealed therapeutic communication was particularly important to the students. Lister et al. (2018) conducted a study about telenursing using telepresence technology

and found that students modified communication and significantly improved confidence in their ability to communicate over video technology.

In summary, development of communication skills through SP simulation methodology is well documented, however, there are few studies examining competency with therapeutic communication for telehealth simulation for entry-level nursing students. Furthermore, during the literature search, no studies were found that examined how the prebriefing portion of a simulation may impact student learning outcomes of therapeutic communication skills.

Theoretical Framework

The simulation was designed using the Healthcare Simulation Standards of Best Practice™ (INACSL, 2021). Kolb's Experiential Learning Theory (ELT) was applied by the researcher to the educational experience. The premise of Kolb's Theory of Experiential Learning is that learning takes place in a four-step ongoing process: experiencing, reflecting, thinking, and acting. It begins with an experience, followed by reflecting on the experience, then abstract thinking to make meaning of the experience, and finally actively engaging in an experience to try what one has learned (https://experientiallearninginstitute.org/).

Students learned by moving through the experiential learning cycle during simulations by practicing real world situations and applying knowledge and skills. Prebriefing during a simulation was an important part of the experience. In the current study, watching a video with expert role modeling, and participating in guided reflection conversations enhanced the learning experience. The reflecting and thinking steps of the ELT were evident when students listened and asked questions in the briefing. Engaging in a standardized patient interaction was active engagement, the last step. Once the interaction was over, reflection took place during the debrief.

The telehealth simulation emphasized reflection throughout, which helped to prepare students for their next experience in a clinical setting with patients. Reflection was underscored again in the simulation by the choice of the debriefing method, The Promoting Excellence and Reflective Learning in Simulation (PEARLS), developed by Eppich and Cheng (2015). PEARLS is an approach to debriefing that has scripted language to help facilitate reflective thinking through three debrief phases: self-assessment, discussion, and educator feedback and teaching (Eppich & Cheng, 2015). The PEARLS structured debriefing tool helped to ensure consistency of debriefing during the study.

Purpose

The purpose of the current study was to explore how to prepare second-semester nursing students with therapeutic communication skills through participation in a simulated telehealth visit. The first aim of the study was to determine the effect of prebriefing design, in a telehealth simulation, on nursing students' therapeutic communication skills during an infectious disease case interview. Research Question 1 was, *what is the difference in therapeutic communication scores, as measured on the GITCS© (Global Interprofessional Therapeutic Communication Scale), between nursing students who participate in a telehealth simulation with structured prebriefing, compared with nursing students who participate in a traditional prebriefing?*

The second aim was to evaluate the relationship between therapeutic communication skills, nursing students' age, and healthcare experience. Research Question 2 was, *what is the relationship of student therapeutic communication scores to nursing student age, gender, race and ethnicity, and healthcare experience?* Therapeutic communication is a fundamental nursing skill. Preparing students early in a nursing program, through realistic simulations, may come more easily to those with more extensive healthcare experience or life experience. Results of this

study will help nurse educators think about the level of a learner when making decisions on future simulation designs.

Methods

Design

This randomized, control-group, pretest-posttest design explored the effect that the structured pre-brief component of a telehealth simulation has on nursing students' therapeutic communication skills. Block randomization was used. According to Polit and Beck (2008), rather than having the entire sample randomized from the beginning, block randomization occurs for small groups or blocks of even sizes, and this helps to have appropriate distribution across conditions (p. 259). In this study, the simulation sessions took place over 3 months. Presimulation content was delivered during ambulatory care class lecture and the Qualtrics link for pretests were shared. Participants independently signed themselves up for a simulation session that fit their schedule and could reschedule themselves as needed; thus, there were no preassigned blocks. Each simulation session or block had 24 slots. On the day of the simulation, up to 24 participants were randomized into two groups, control or intervention, using an internet-based process on randomizer.org. This randomization method helped to prevent an uneven number of participants in the control or intervention groups. This paper is part of a more extensive study. Findings for knowledge of public health case interviewing, confidence in quality and safety, and simulation effectiveness are presented by the author in other chapters.

Participants

The study participants were a convenience sample of nursing students enrolled in a master's direct entry (MDE) nursing program at a private university located in the northeastern United States. The study aligned with an ambulatory care nursing course for second-semester

students where infectious disease and telehealth were part of the curricular content. Inclusion criteria were nursing students enrolled in the ambulatory care nursing course. A total of 126 students were eligible to participate in the study and the final number of participants was 114. Excluded from the study were nursing students who were not enrolled in this nursing course at the time.

A power analysis using G-Power 3.1 was conducted to determine the smallest sample necessary for detecting statistical significance. Estimates were calculated for a mixed ANOVA, within and between the interaction. It was determined that 90 subjects were needed for a small (.15) effect size. This was calculated using an alpha level of 0.05, which indicates a 5% probability of rejecting the null hypothesis if the null hypothesis were true. A power of 0.8 was chosen, indicating an 80% probability of finding a significant effect if there were one. One cohort of 126 entry-level students in the ambulatory care course at the institution was adequate to power the study. IRB approval was granted by the researcher's institution and the institution where the research took place.

Instruments

The study used two instruments: (1) A demographics survey and (2) Global Interprofessional Communication Scale© (GITCS©) to measure skills in therapeutic communication. The demographic data were collected using a six-item researcher-developed survey. The demographic survey was confidential and included age, gender, race, experience in health care, and highest degree completed.

Therapeutic communication was measured using the Global Interprofessional Therapeutic Communication Scale (GITCS©). To address gaps in the ability of faculty to assess communication in clinical settings and academic environments, the GITCS© measures culturally

appropriate patient–provider communication (Campbell & Aredes, 2019, p. 30). The authors granted permission for use of the instrument. The instrument was developed following DeVellis' eight-step instrument process. Face validity was established by having an expert panel of 16 nursing and medical faculty experienced with simulation, watch three professionally developed videos on communication (Campbell & Aredes, p. 33). Content validity, feasibility, and usability were affirmed by a panel of 16 interdisciplinary faculty experts (Campbell & Aredes, p. 33). Initial internal consistency reliability was established with an expert panel of 10 faculty who reviewed instrument items and identified constructs with a high final intraclass correlation (ICC) of 0.99. Interrater reliability was established through crowdsourcing with 592 participants, compared with 10 expert panel reviewers, based on three professionally developed videos. The coefficient alpha for the GITCS© scale was excellent (0.95).

The GITCS© instrument has 28 questions divided into six subscales: setting the stage, building trust, active communication, communication skills, patient-centered care, and potential barriers (See Appendix C). Items 26, 27, and 28, in the potential barriers subscale, are reverse scored. Four questions of the instruments, 3, 5, 21, and 22, were identified by the researcher as not applicable and removed for the current study. Cronbach's alpha of .88 was calculated for the 24 items in this study. Therefore, the scores for the final 24 items from the instrument range from 120 (the highest possible score and better skills) to 24 (lowest score and weaker skills). Students completed the instrument pre- and post-simulation. The faculty completed the instrument post simulation.

Faculty rated students on the GITCS© by a video recording post-simulation. Intra-rater reliability was established by one faculty member scoring students in ten randomly selected videos, waiting two weeks, and rescoring the same videos. The interclass correlation coefficient

(ICC) with a two-way mixed effects model was good (r = .733, *p* = .005). Inter-rater reliability was established by two different faculty members scoring the same 10 videos. The interclass correlation coefficient (ICC) with a two-way mixed effects model was excellent (*r* = .928, *p* = < .001).

Procedure

Permissions were obtained for use of the GITCS© instrument, and the demographic survey was prepared for electronic access on Qualtrics. Consent was granted by the ambulatory care nursing course faculty and from the simulation center director for implementation during the fall 2021 semester. Once the simulation scenario was designed, reviewed by content experts, and finalized, it was pilot tested. For the pilot test, a group of five current students was recruited during a voluntary open lab session to participate in and trial the simulation. After the pilot test, the prebriefing intervention, scenario, and instruments were assessed and adjusted for the current study. The role modeling video was developed in collaboration with the Columbia University Center for Teaching and Learning. A storyboard was written, then filming took place. One SPs actor portrayed the role of the patient, and an SP actress portrayed the role of the public health nurse in the video. The video was recorded in the simulation center by the technology manager. A pilot test of the simulation offered improvement information for both learner, SP, and simulation educator.

Standardized Patients

Nine SPs were recruited through an established SP program. They were oriented and trained for face-to-face and online cases. Training for the simulation addressed physical appearance, level of the learner, feedback rubric, emotional engagement, and psychological safety considerations for learners and SPs. Confidentiality was reinforced to protect the learner.

SP training for the current study was a one-hour Zoom session. The agenda for the training included the use of Zoom breakout rooms, the timing of interactions, and a description of learners' educational levels. Finally, character development and acting were reviewed. The SPs were coached to practice the signs and symptoms of the patient with COVID-19 and how to respond to the potential questions students might ask. The patient voice tone, mood, and expressions were also practiced. To decrease the potential bias of SP influence on the results, nine SPs were divided into three groups. A schedule was made for each group to rotate weekly through Group A (control), Group B (treatment), and then a week off.

Recruitment and Scheduling

The telehealth simulation was a clinical learning experience for all students regardless of participation in the study. The simulation was formative, and no grade was associated with participation. IRB approval was granted by the researcher's institution and the institution where the research took place. Nursing students were introduced to the study at the end of a Zoom lecture session of the fully online ambulatory care nursing course. Written information was emailed to the learners in the course to explain the experiment and recruit participants. Informed consent was administered when students initiated and completed the demographic survey on a Qualtrics link. Students who chose to participate in the study were able to drop out at any time. Four $50 gift cards were raffled after the intervention as an incentive to those who chose to participate.

Sign-up Genius scheduling software was used so that each student chose a simulation session that fit with their schedule. (https://www.signupgenius.com). Each day served as a block. Random assignment was conducted for each block using a web-based program, Research Randomizer (https://www.randomizer.org). On the day of the simulation, participants were

randomly assigned to Group A (control) or Group B (intervention). Respective Zoom links were sent to the student via course management system email. Both simulations took place concurrently.

Simulation

The simulation was a synchronous fully online, formative learning experience designed for nursing students to develop knowledge, skills, and attitudes needed for patient care during a telehealth video conference visit. The simulation was a clinical experience where learners, in the role of public health nurses, engaged one-on-one with patients who had been diagnosed with an infectious disease, COVID-19. Learners gained experience with case interviewing and contact tracing for a nationally notifiable disease. The learning objectives of the simulation are listed below.

1. Demonstrate therapeutic communication skills of building trust and rapport, power sharing, and empathy during a telehealth visit.
2. Discuss the application of patient safety competencies that relate to the use of telehealth technology in public health settings.
3. Estimate the number of people exposed to infectious disease in the family and community.
4. Explain to the patient three ways to reduce the risk of spreading COVID-19 within their family and/or community.

The following case handoff report was provided to students before the simulation:

> A learner plays the role of a county public health nurse (PHN) assigned to the communicable disease office. There is an outbreak of a new strain of COVID-19 in the local county. A nationally notifiable disease report was submitted to the state health department yesterday. In response, the state has contacted the county health department today to follow up on the report of a patient with a positive COVID-19 PCR test and experiencing moderate symptoms. As the PHN, you will need to contact the patient via

telehealth to conduct an interview, monitor COVID-19 symptoms, elicit close contacts, and connect the patient with resources. (The complete simulation scenario is presented in Appendix K)

On the day of the simulation, an experienced simulation educator hosted the Zoom sessions. Faculty and SPs had a call time 30 minutes before participants arrived to allow time for questions, troubleshooting technology, and positioning SPs in breakout rooms. The control group and the intervention group followed the same format: attending prebriefing, engaging in a one-on-one interaction with an SP for a telehealth case interview, and finally debriefing with an instructor.

As defined by the Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing, *prebriefing* refers to "the activities before the start of the simulation including the preparation and briefing aspects of the simulation-based experience" (INACSL Standards Committee, 2021, p. 9). In the study, both Group A and Group B followed the healthcare standards of best practice. The main difference was that the intervention group, Group B, had a structured briefing. This design included observation of a 6-minute role modeling video and a guided reflection learning activity. This added 20 minutes extra for the intervention group briefing. The control group had a traditional brief, which included a narrated script and time for questions and answers.

The facilitation of the simulation went as follows: learners in a session entered the Zoom main room for prebriefing. Then, half the learners moved into a breakout room for a one-on-one 12-minute telehealth interaction while the other learners waited with cameras off. There was no SP feedback. SPs provided general feedback at the end of the semester that was shared with the class. The next three students rotated into the breakout room for their patient interaction. Students returned to the main room for a group debriefing following the PEARLS method. The

session ended with the completion of the GITCS© post-test instrument available on a Qualtrics link. After simulations were completed, the control group was offered an opportunity to try the structured prebriefing intervention and one student attended

Data Analyses

Data were analyzed by the researcher using SPSS version 28.0.0 software. The total number of eligible students was 126. Twelve students chose not to participate. The total number of participants who completed the demographic survey and the GITCS© pre-simulation and post-simulation instruments was N =114. Demographic variables were analyzed using descriptive statistics. One-way ANOVAS were used to analyze the relationships between categorical variables and the GITCS©. Pearson *r* was used to analyze the relationship between age of the students and the GITCS©. Chi-square analyses were used to examine the relationship between group assignment and categorical variables. The alpha value for the analysis was set at .05.

The traditional prebriefing experienced by the control Group A (n = 47) was compared to the structured prebriefing experienced by intervention Group B (n = 67). There were unequal group sizes due to faculty absence on one day and all students participated in group B. A two-way mixed ANOVA was used to assess for within and between group differences in student GITCS© scores in response to the intervention. In addition, an independent samples *t* test was used to analyze data for the GITCS© completed by the faculty after watching a recorded video of students during simulation. The mean scores of Group A were compared with the mean scores of Group B. However, due to loss of video recordings, only 43 GITCS© scores, completed by two faculty members, were available for analysis. Intra-rater reliability was established by one faculty member scoring students in 10 randomly selected videos, waiting two weeks, and rescoring the same videos. The interclass correlation coefficient (ICC) with a two-way mixed

effects model was good (r = .733, p = .005) for intra-rater reliability. Inter-rater reliability was established by two different faculty members scoring the same 10 videos. The interclass correlation coefficient (ICC) with a two-way mixed effects model was excellent (r = .928, p = < .001) for inter-rater reliability.

Results

Demographics

The sample includes one class of nursing students enrolled in a master's direct entry program and registered for an ambulatory care nursing course. The final number of participants who completed the study was 114. Participant ages ranged from 20 to 55 years (mean = 27.08). Most of the participants were female (82.5%), followed by males (12.3%) and those answering other (5.3%). The sample included students belonging to diverse backgrounds: Asian (14.9%), Black or African American (7.9%), Hispanic or Latino (7.9%), multi-racial (11.4%), Native American (1.8%), other (1.8%), and White (55.3%). All students in the master's direct entry program have a bachelor's degree. In addition, 18 students had a master's degree (14.4%) and two students (1.6%) had above a master's degree. Approximately two-thirds of the participants acknowledged having previous healthcare experience (64.9%). No statistically significant relationships were found between groups in demographic characteristics examined by chi-square analyses. Table 4.1 shows the frequency of demographic characteristics reported and the chi-square statistical analysis that examined differences between groups.

Therapeutic Communication Scores

Research Question 1 asks, *what is the difference in therapeutic communication scores, as measured on the GITCS© (Global Interprofessional Therapeutic Communication Scale), between nursing students who participate in a telehealth simulation with structured prebriefing,*

compared with nursing students who participate in a traditional prebriefing? Responses from students and faculty were analyzed. A two-way mixed ANOVA was conducted to explore within-group differences (time as indicated by pretest and posttest) and between-group differences (traditional prebriefing Group A or structured prebriefing Group B) in therapeutic communication skills as measured on the students' self-assessed GITCS©. Students were given the GITCS© before the simulation and at the end of the simulation. A total of 47 participants completed the instrument in Group A, and 67 participants completed the instruments in Group B. The interaction of time and group was not significant, F (1, 112) = .417, p = .52. There were statistically significant differences between pre and posttests within groups? (F (1, 112) = 17.25, p = <0.01). This effect is collapsed over groups. There was no statistical difference between groups. This test did not support that the effect for traditional prebriefing was different from structured prebriefing. The graph in Figure 4.1 illustrates the findings with respect to time and group. Table 4.2 shows the means of the groups for pretests and posttests.

An independent-samples t test to determine differences in faculty-assessed GITCS© scores between the control Group A (n = 23) and intervention Group B (n = 20) was significant at the $p < .05$ level, (t (41) = -8.76; $p < .001$). There was a difference between the traditional prebriefing group (M = 95.78; SD = 5.76); and the structured pre-brief group (M = 111.15; SD = 5.696). The mean GITCS© score of the group with structured prebriefing with role modeling and guided reflection was statistically significantly higher than the mean score for traditional debriefing. Table 4.3 presents the results of the descriptive statistics of the faculty assessed GITCS© scores from the t test analysis.

Relationship Between Demographics and Therapeutic Communication

Research Question 2 asked, what is the relationship between student therapeutic communication scores, nursing student age, gender, race, and healthcare experience. A Pearson product-moment correlation (Pearson *r*), and ANOVAs were conducted to answer the question. A Pearson *r* correlation coefficient examining the relationship between student assessed GITCS© post scores and demographic variable of age revealed a correlation of -0.16, which was nonsignificant. Three one-way analyses of variance (ANOVA) examined the relationship between student GITCS© post scores and demographic variables of gender, race, and healthcare experience. The results showed no significant correlation between student GITCS© post scores and the demographic variables. Table 4.4 shows the results of the ANOVAs.

Discussion

The findings show that there were differences in prebriefing methods on faculty-assessed student learning outcomes related to therapeutic communication skills. Role modeling expectations and guided reflection resulted in higher faculty assessed GITCS© scores than traditional narrative prebriefing, indicating structured prebriefing was a superior method of developing communication skills during a telehealth case interview. The student GITCS© scores from both the control group and intervention group improved from pre-test to post-test, and the intervention group scored slightly but not significantly higher than the control group at posttest. This suggests the overall simulation, including both structured prebriefing and traditional prebriefing methods, is positive for improving communication skills and safe care of patients from a distance. The findings suggest that role modeling and guided reflection before a telehealth simulation are beneficial for faculty assessed learning with entry-level nursing students.

Implications for Nursing Education

The study has implications for nursing education related to teaching and learning within entry-level nursing programs. Consistent with former studies, this telehealth simulation demonstrated that SP methodology continues to be valuable for teaching and improving communication skills with entry-level nursing students (Riley et al., Matsuda et al.). The results indicate that prebriefing with role modeling and guided teaching strategies helped novice students develop therapeutic communication skills for telehealth. The design of prebriefing for various levels of learners is an important consideration with simulation.

It is notable that student GITCS© post scores had non-significant findings while faculty GITCS© post scores showed significant findings. These findings are comparable to a previously published experimental study by Coram (2016) where role modeling as a prebriefing strategy found a discrepancy between student and faculty scores on a clinical judgment rubric. One reason for the difference could be related to learners' lack of understanding of how to complete the GITCS© instrument. When teaching a simulation and measuring therapeutic communication, it is recommended to review the rubric scoring instructions in detail prior to use in simulation. Another explanation for the discrepancy is that entry-level learners may have been unsure of their strengths and areas needing improvement. The self-report nature of the scale may have affected its validity. Students who completed such scales may want to believe they have improved and may be unaware that they have not. Additional teaching strategies for prebriefing can be explored for developing therapeutic communication skills for telehealth early in a nursing program.

Implications for Research

Findings from this study have implications for further research in telehealth simulations and therapeutic communication for entry-level nursing students. Telehealth simulations have expanded in entry-level nursing programs; however, therapeutic communication competency, in the context of public health nursing, has not been well studied in this population. Nursing education researchers call for more rigor and sophisticated methods (O'Connell & Kaur, 2020). Additional quantitative research is needed with communication simulations for telehealth. This could include multi-site studies and additional studies with strong power. This study measured learners at one point in the second semester of their program; adding simulation experiences or measuring learners in clinical courses following simulation may help with communication development. It is suggested that entry-level students' communication skills may improve when additional telehealth simulations are offered during a nursing program. This suggestion would align with a longitudinal study by Riley-Baker et al. (2020) who found students' performance and communication skills improved over time as they completed three scenarios of an unfolding NLN simulation case.

Nurse educators may gain a more distinct understanding of nursing students' abilities with therapeutic communication skills for telehealth through additional uses of the GITCS©. Standardized patient ratings of students on the full scale or global rating scale portion would add another objective rating and viewpoint. Standardized patients are uniquely positioned to provide feedback and insight from the patient perspective. Since telehealth is newer for entry-level nursing curricula, there are opportunities to research additional simulation teaching strategies to develop nurse-patient communication in remote environments for additional public health nursing concepts such as culture, health literacy, or social justice communication.

Limitations

The researcher acknowledges that the study had limitations. First, a convenience sample from one institution served as the participants, which decreased the generalizability of the results to other populations. MDE nursing programs' entrance requirements are different from those for baccalaureate programs. For example, the mean age of the population was 26.8 years and students had a previous bachelor's degree or higher, which may differ from other entry-level programs. Advanced practice nursing students have more clinical experience; therefore, the generalizability of results to advanced practice nursing students is a limitation. Second, response bias is a limitation due to the self-reporting of the student GITCS©. Third, there is a potential risk of testing threats due to different time intervals between the pre-test and post-test. Participants who did not complete the pre-simulation survey during lecture were able to complete the pretest prior to the simulation. Taking the pre-test on the same day as the post-test may have sensitized students to the test. The GITCS© was new for students and they may have had difficulty interpreting the meaning of the survey questions and evaluating themselves accurately. Lastly, video recordings were missing for 62% of the sample. Video recordings did not show names or indicate a learner's assignment to Group A or Group B, it is noted that the study researcher was one of the simulation educators and scored the faculty GITCS©, which may present expectancy bias.

Conclusions

It is essential that nursing students develop therapeutic communication skills throughout a nursing program. The rapid expansion of telehealth in healthcare, emphasizes the need to address therapeutic communication skills necessary for patient care during remote visits, keeping in mind that there are technology related challenges when meeting with patients for telehealth

over video conferencing. Nurse educators must design teaching strategies to measure competencies at the appropriate learner level (AACN, 2021). SP methodology has shown to be a positive way to develop the essential skills of therapeutic communication. In conclusion, this study supports the use of role modeling and guided reflection as a superior prebriefing strategy to teach entry-level students the basics of therapeutic communication skills for telehealth simulations. Online simulations with standardized patients present a realistic and straightforward way to offer students online clinical experiences and measure attainment of competencies.

References

Abdolrahimi, M., Ghiyasvandian, S., Zakerimoghadam, M., & Ebadi, A. (2017). Therapeutic communication in nursing students: A Walker & Avant concept analysis. *Electronic physician, 9*(8), 4968–4977. https://doi.org/10.19082/4968

Ali, N. S., Carlton, K. H. & Ali, O. S. (2015). Telehealth education in nursing curricula. *Nurse Educator, 40* (5), 266-269. doi: 10.1097/NNE.0000000000000149.

American Association of Colleges of Nursing. (2021, April 6). The essentials: Core competencies for professional nursing education. Retrieved from https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf

American Association of Colleges of Nursing. 2021, April). The essentials: Core competencies for professional nursing education executive summary. Retrieved from https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-Executive-Summary.pdf

Blake, T., & Blake, T. (2019). Improving therapeutic communication in nursing through simulation exercise. *Teaching and Learning in Nursing, 14*, (4), 260-264, https://doi.org/10.1016/j.teln.2019.06.003.

Campbell, S. H., & Angelo Aredes, N.D. (2019, September). Global interprofessional therapeutic communication scale©. (GITCS©): Development and validation. *Clinical Simulation in Nursing, 34*(C), 30-42. https://doi.org/10.1016/j.ecns.2019.05.006.

Centers for Disease Control. (2020, October 21). Key information to collect during a case interview. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/training-investigators.html

Coram, C. (2016, September). Expert role modeling effect on novice nursing students' clinical judgment. *Clinical Simulation in Nursing, 12*(9), 385-391. http://dx.doi.org/10.1016/j.ecns.2016.04.009

Doolen, J., Giddings, M., Johnson, M., Guizado de Nathan, G., & Badia, L.O. (2014). An evaluation of mental health simulation with standardized patients. *International Journal of Nursing Education Scholarship,* 11(1), 55-62.

Eldred, S. H. (1960). Improving nurse-patient communication. *The American Journal of Nursing*, *60*(11), 1600–1602. https://doi.org/10.2307/3418421

Foster, M., Lioce, L., & Howell Adams, M. (2021). Telehealth in nursing education: A systematic review. *The Journal of Nursing Education, 60*(11), 633–635. Web.

Goldin, P., & Russell, B. (1969). Therapeutic communication. *The American Journal of Nursing*, *69*(9), 1928–1930. https://doi.org/10.2307/3454085

Hamilton, H., Iradukunda, F., & Aselton, P. (2021). The Integration of telehealth in nursing education: A new frontier. *Journal of Informatics Nursing*, *6*(1), 18+. https://link.gale.com/apps/doc/A665179429/AONE?u=columbiau&sid=summon&xid=0ee3aa42

Hsu, L., Chang, W., & Hsieh, S. (2015). The effects of scenario-based simulation course training on nurses' communication competence and self-efficacy: A randomized control trial. *Journal of Professional Nursing, Vol* 31(1), 37–49. http://dx.doi.org/10.1016/j.profnurs.2014.05.007

INACSL Standards Committee, McDermott, D.S., Ludlow, J., Horsley, E. & Meakim, C. (2021, September). Healthcare simulation standards of best practice™ prebriefing: Preparation and briefing. *Clinical Simulation in Nursing, 58*, 9-13. https://doi.org/10.1016/j.ecns.2021.08.008.

Kardong-Edgren, S. (2010). Striving for higher levels of evaluation in simulation. *Clinical Simulation in Nursing, 6*(6), e203-e204. https://doi.org/10.1016/j.ecns.2010.07.001.

Kolb, D.A. (2015). *Experiential learning: Experience as the source of learning and development, 2nd edition*, Person Education, Inc.

Matsuda, Y., Valdes, B., Salani, D.A., Foronda, C.L., & Sarik, D.A. (2022, Month). Baby steps program: Telehealth nursing simulation for undergraduate public health nursing students. *Clinical Simulation in Nursing, 65*, 35-44. https://doi.org/10.1016/j.ecns.2022.01.001.

O'Connell, K.A. & Kaur, T. (2020). Experimental and quasi-experimental studies of teaching methods in nursing education, 1972–2017, *Nursing Education Perspectives, 41* (6), 358-360. doi: 10.1097/01.NEP.0000000000000586.

QSEN Institute. (2020). QSEN competencies. Retrieved from https://qsen.org/competencies/pre-licensure-ksas/

Riley, E. McCance, C., Ward, N., deGravelles, P. (2022). Evaluation of a simulation-based learning experience using a prenatal telehealth scenario with prelicensure nursing students. *Teaching and Learning in Nursing, 17*(2), 220-224. https://doi.org/10.1016/j.teln.2022.01.006.

Riley-Baker, J.K., Flores, B.E., & Young-McCaughan, S. (2020, February). Outcomes educating nursing students using an evolving, simulated case scenario. *Clinical Simulation in Nursing, 39*(C), 7-17.

Rutledge, C. M., O'Rourke, J., Mason, A. M., Chike-Harris, K., Behnke, L., Melhado, L., Downes, L., & Gustin, T. (2021). Telehealth competencies for nursing education and practice: The four Ps of telehealth. *Nurse educator*, *46*(5), 300–305. https://doi.org/10.1097/NNE.0000000000000988

U.S. Department of Health and Human Services.gov. (2021). New HHS study shows 63-fold increase in Medicare telehealth utilization during the pandemic. Retrieved from https://www.hhs.gov/about/news/2021/12/03/new-hhs-study-shows-63-fold-increase-in-medicare-telehealth-utilization-during-pandemic.html

Table 4.1

Frequencies and Chi-Square Results of Demographic Variables to Groups

Demographic	Group A (n = 47)		Group B (n = 67)		Total		X^2
	n	%	*n*	%	*n*	%	
Gender							.28
female	39	83	55	82.1	94	82.5	
male	4	8.5	10	14.9	14	12.3	
other	4	8.5	2	3.0	6	5.3	
Race							.08
Asian	10	21.3	7	10.4	17	14.9	
Black or African American	1	2.1	8	11.9	9	7.9	
Hispanic or Latino	5	10.6	4	6.0	9	7.9	
Multiracial	8	17.0	5	7.5	13	11.4	
Native American	0	0.0	1	1.5	1	0.9	
Other	0	0.0	2	3.0	2	1.8	
White	23	48.9	40	59.7	63	55.3	
Experience							.16
No	13	27.7	27	40.3	40	35.1	
Yes	34	72.3	40	59.7	74	64.9	

Note. X^2 = Pearson Chi-Square significance 2-sided set at .05 level.
Experience = previous experience in healthcare

Table 4.2

Descriptive Statistics of Student Assessed GITCS© Scores

Group	Pretest			Posttest			Difference
	n	M	*SD*	*n*	M	*SD*	
A	47	101.11	10.13	47	104.53	12.63	3.42
B	67	101.18	9.38	67	105.82	10.7	4.64
Differences		0.07			1.29		

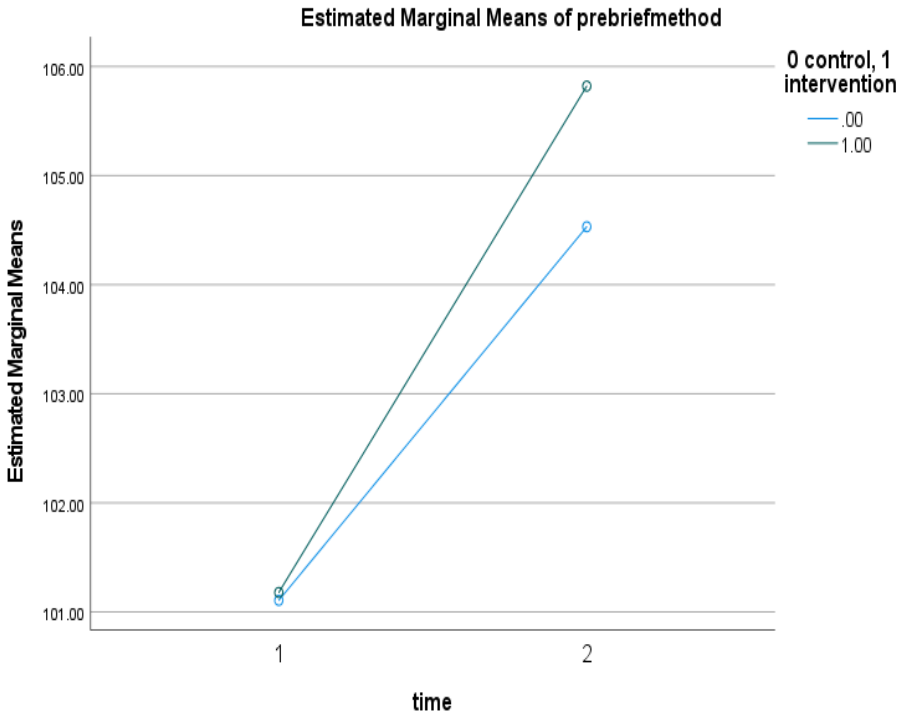
Table 4.3

Descriptive Statistics of Faculty Assessed GITCS© Scores

Group	Score		
	n	M	SD
A	23	95.78	1.20
B	20	111.15	1.27
Difference		15.37	

Figure 4.1

Differences Between Time and Group of Student Assessed GITCS© Post Score



Note: 0 = control group, Group A, Blue line. Pretest mean 101.11; Post-test mean 104.53
1 = intervention group, Group B, Green line. Pretest mean 101.18; Post-test mean 105.82

Table 4.4

Relationship of Demographics Variables to Student Assessed GITCS© Post Scores

Demographics	ANOVA		
	df	F	*p*
Gender	2, 111	.193	.83
Race	6, 107	.66	.69
Experience	1, 112	.02	.88

Note. N= 114. ANOVA = analysis of variance.

Chapter 5: Dissertation Summary

This dissertation explored the effect of prebriefing on entry-level nursing students' learning outcomes for a fully online telehealth simulation with standardized patients. The learning outcomes measured by participants were knowledge related to conducting a COVID-19 case interview, skills with therapeutic communication, and confidence with quality and safety competencies. Overall simulation effectiveness, as perceived by the learners, was explored due to the novelty of using telehealth for clinical learning with entry-level nursing students. This experiment compared two ways of facilitating prebriefing for telehealth simulation - traditional prebriefing with a narration script vs. structured prebriefing with role modeling video and guided reflection activities. The NLN Jeffries Simulation Theory and Kolb's Theory of Experiential Learning guided the simulation development and study, respectively.

The study participants were a convenience sample of 126 entry-level nursing students enrolled in a master's direct entry (MDE) nursing program, at a private university in the northeastern United States and registered in an ambulatory care nursing course. The dissertation study was a randomized, control-group, pretest posttest design. The scores of nursing students' knowledge and simulation effectiveness are detailed in Chapter 2, confidence with quality and patient safety is reported in Chapter 3, and therapeutic communication skills are reported in Chapter 4.

Findings

The manuscript for Chapter 2 explored overall perceived simulation effectiveness and knowledge needed for conducting a COVID-19 case interview between Group A, the traditional prebriefing with narration, and Group B, the structured prebriefing with role modeling and guided refection. Results revealed that participants in the structured prebriefing group perceived

the simulation to be significantly more effective than participants in the traditional prebriefing group. These results indicate that the overall simulation designed with structured prebriefing is an effective teaching strategy for public health nursing case interviewing. Although the results of the knowledge quiz were the same between groups, learning was significantly higher with the structured prebriefing group as reported by the simulation effectiveness subscale. This study provides evidence that telehealth simulations with standardized patients are an effective method to teach fundamental public health nursing skills of case interviewing and that such activity prepares students to care for their patients remotely.

The manuscript for Chapter 3 explored the influence of two simulation prebriefing methods on students' confidence with quality and safety concepts of patient-centered care, teamwork and collaboration, EBP, quality improvement, safety, and informatics. Results demonstrated that mean scores on the Nursing Quality and Safety Self Inventory were significantly greater for the structured prebriefing group who participated in the video and guided reflection than for students who experienced prebriefing with only a narration script. These findings reveal that confidence with quality and patient safety concepts is significantly higher for students who experienced structured prebriefing than students who experienced traditional prebriefing. Safety concerns during virtual patient visits differ from face-to-face patient care. Recognizing that errors can occur on the individual patient, nurse, and system levels during telehealth is essential for entry-level students to understand. Telehealth simulation with standardized patients is one way for students to gain valuable clinical experience.

The manuscript for Chapter 4 explored therapeutic communication skills as well as changes over time, and the differences between the traditional prebriefing and structured prebriefing groups. Students assessed themselves and faculty assessed a sample of the students

on the same instrument. Results of student scores showed that both groups improved significantly from pre-test to post-test. However, there were no differences between groups; meanwhile, the faculty scores showed significant differences between groups. These findings demonstrate there are inconsistencies between students and faculty scoring. While it is possible that nursing students did not understand the criteria for a rubric, additional research is necessary to further explore development of therapeutic communication skills for telehealth.

Implications and Future Research

Nurse educators have experienced drastic changes in healthcare delivery and clinical nursing education since the COVID-19 pandemic began in 2020. The internet has offered solutions by expanding patient care telehealth services and by offering nurse educators an online clinical learning option. The results of this study provide nurse educators with valuable information on the overall effectiveness of a public health nursing simulation and the design of prebriefing to help prepare learners for a successful telehealth simulation. Further research is necessary to help guide nurse educators as they prepare nursing students for situations they will experience when transitioning to clinical practice including telehealth patient care and responding to infectious disease outbreaks. This study has the following implications for nursing education:

1. Different simulation modalities may call for different prebriefing approaches. Additional studies on other prebriefing methods with entry-level nurses would add to the science following the new publication of Healthcare Standards of Best Practice™ Prebriefing.
2. Examine clinical competency and clinical judgment during the simulation. One study may include measuring telehealth competencies for entry-level students. Another may

measure clinical judgment during the case interviewing to further measure application and higher-order thinking related to preventing the spread of a specific infection.

3. The simulation is effective and can be adapted for other nationally notifiable infectious diseases. This will help nurse educators incorporate population-level thinking into clinical learning.

The dissertation study has the following research recommendations:

1. Telehealth simulation research with entry-level learners is new and conducting well-powered, multi-site studies, and studies with different level learners would help to increase generalizability.
2. Explore standardized patients' assessment of student performance as an additional objective rating.
3. Measure learning of therapeutic communication skills and confidence with patient safety over time with additional telehealth simulations and during clinical rotations.

References

INACSL Standards Committee, McDermott, D.S., Ludlow, J., Horsley, E. & Meakim, C. (2021, September). Healthcare simulation standards of best practice™ prebriefing: Preparation and briefing. *Clinical Simulation in Nursing, 58,* 9-13. https://doi.org/10.1016/j.ecns.2021.08.008.

Giddens, J., Douglas, J.P. & Conroy, S. (2022). The Revised AACN essentials: Implications for nursing regulation. *Journal of Nursing Regulation, 12*(40), 16-22. doi.org/10.1016/S2155-8256(22)00009-6

Jeffries, P. (2021). *The NLN Jeffries Simulation Theory.* Wolters Kluwer Health.

Kolb, D.A. (2015). *Experiential learning: Experience as the source of learning and development, 2nd edition*, Person Education, Inc.

Appendix A

IRB Approval from Teachers College

Attachments:
• Expedited Review Approved by Chair - IRB ID: 21-405.pdf

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

Teachers College IRB *Expedited Approval Notification*

To: Nancy Owen
From: Kailee Kodama Muscente Administrative Coordinator
Subject: IRB Approval: 21-405 Protocol
Date: 08/17/2021

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects at Teachers College, Columbia University has given full approval to your study, entitled "*A Telehealth Simulation Experiment: Exploring Prebriefing*," under **Expedited Review** on 08/17/2021: Category (6) Collection of data from voice, video, digital, or image recordings made for research purposes.

The approval is effective until **08/16/2022**.

Due to COVID-19 precautions, any studies that can be conducted online (remotely) should move forward with online procedures and forgo in-person engagement. Following guidance from New York State and Teachers College, the Institutional Review Board is reviewing proposals for in-person data collection on a case-by-case basis.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review report must be submitted to either close the protocol or request permission to continue for another year. Please submit your report by **08/02/2022** so that the IRB has time to review and approve your report if you wish to continue your study. The IRB number assigned to your protocol is **21-405**. Feel free to contact the IRB Office (212-678-4105 or irb@tc.edu) if you have any questions.

Please note that your Consent form bears an official IRB authorization stamp and is attached to this email. Copies of this form with the IRB stamp must be used for your research work. Further, all research recruitment materials must include the study's IRB-approved protocol number.

As the PI of record for this protocol, you are required to:

- Use current, up-to-date IRB approved documents
- Ensure all study staff and their CITI certifications are on record with the IRB
- Notify the IRB of any changes or modifications to your study procedures
- Alert the IRB of any adverse events

You are also required to respond if the IRB communicates with you directly about any aspect of your protocol. Failure to adhere to your responsibilities as a study PI can result in action by the IRB up to and including suspension of your approval and cessation of your research.

You can retrieve a PDF copy of this approval letter from Mentor IRB.

When your study ends, please visit the IRB Mentor site. Go to the Continuing Review tab and select "terminate" from the drop-down menu.

Best wishes for your research work.

Sincerely,
Kailee Kodama Muscente
Administrative Coordinator
IRB@tc.edu

Attachments:
• Modification Approved - IRB ID: 21-405.pdf

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

Teachers College IRB *Modification Approval Notification*

To: Nancy Owen
From: Kailee Kodama Muscente Administrative Coordinator
Subject: IRB Modification Approval: 21-405 Protocol
Date: 11/08/2021

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects at Teachers College, Columbia University has approved a *modification* to your study, entitled "*A Telehealth Simulation Experiment: Exploring Prebriefing*" on 11/08/2021 to document CUIMC IRB's approval and request a waiver of documentation of informed consent.

Approval of the request to waive the documentation of informed consent has been granted for this study. This means that the study team must provide a subject with the required consent information and offer participants the option to download a copy of the informed consent for their record-keeping, but the study team is not required to obtain the subject's signature on the informed consent document. As this study is low-risk and involves no procedures for which written consent is normally required outside the research context, it meets the requirements for a waiver of documentation of informed consent. In these cases, the researcher will still provide the participants with the required consent information, and participants will be given a copy of the informed consent document for their record keeping.

The approval remains effective until **08/16/2022**.

Due to COVID-19 precautions, any studies that can be conducted online (remotely) should move forward with online procedures and forgo in-person engagement. Following guidance from New York State and Teachers College, the Institutional Review Board is reviewing proposals for in-person data collection on a case-by-case basis.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review report must be submitted to either close the protocol or request permission to continue for another year. Please submit your report by **08/02/2022** so that the IRB has time to review and approve your report if you wish to continue your study. The IRB number assigned to your protocol is **21-405**. Feel free to contact the IRB Office (212-678-4105 or IRB@tc.edu) if you have any questions.

Please note that your Consent form bears an official IRB authorization stamp. Copies of this form with the IRB stamp must be used for your research work. Further, all research recruitment materials must include the study's IRB-approved protocol number.

As the PI of record for this protocol, you are required to:

- Use current, up-to-date IRB approved documents
- Ensure all study staff and their CITI certifications are on record with the IRB
- Notify the IRB of any changes or modifications to your study procedures
- Alert the IRB of any adverse events

You are also required to respond if the IRB communicates with you directly about any aspect of your protocol. Failure to adhere to your responsibilities as a study PI can result in action by the IRB up to and including suspension of your approval and cessation of your research.

You can retrieve a PDF copy of this approval letter from the Mentor site.

Best wishes for your research work.

Sincerely,
Kailee Kodama Muscente
Administrative Coordinator
IRB@tc.edu

Appendix B

IRB Approval from Study Site: Columbia University Medical Center

Columbia University Human Subjects Protocol Data Sheet

General Information

Protocol:	AAAT8795(M00Y01)	**Protocol Status:**	Approved
Effective Date:	10/26/2021	**Expiration Date:**	10/25/2022
Originating Department Code:		NUR Research (8003103)	
Principal Investigator:		Hessels, Amanda (ah3269)	
From what Columbia campus does this research originate:		Medical Center	
Title:	A Telehealth Simulation Experiment: Exploring Prebriefing		
Protocol Version #:		**Abbreviated Title:**	Telehealth Simulation Experiment
Was this protocol previously assigned a number by an IRB:			Yes
Previous Columbia IRB#:		**Previous External IRB#:**	TC IRB 21-405

Is the purpose of this submission to obtain a "Not Human Subjects Research" determination?

No

Appendix C

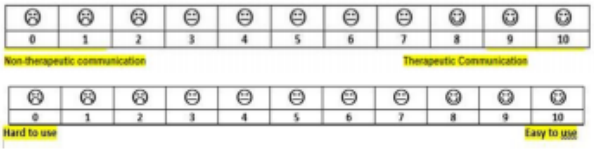
Global Interprofessional Therapeutic Communication Scale (GITCS©)

GITCS

GLOBAL INTERPROFESSIONAL THERAPEUTIC COMMUNICATION SCALE

			Never	Rarely	Sometimes	Usually	Always	
Setting the stage	1	Provides a professional greeting given the context	1	2	3	4	5	NA
	2	Introduces self by name and title without prompting	1	2	3	4	5	NA
	3	Conducts the communication in a culturally safe manner	1	2	3	4	5	NA
	4	Purposefully explains mutually established goals for the visit	1	2	3	4	5	NA
	5	Demonstrates appropriate proximity to the patient or family according to culture and context	1	2	3	4	5	NA
	6	Where possible provides for privacy and minimal interruptions during interaction	1	2	3	4	5	NA
Building trust	7	Verbalizes interest in patient and their perspective, encouraging rapport	1	2	3	4	5	NA
	8	Demonstrates knowledge about patient's case or situation	1	2	3	4	5	NA
	9	Encourages feedback and input from patient	1	2	3	4	5	NA
Active communication	10	Provides accurate information to the patient at the level they understand	1	2	3	4	5	NA
	11	Verifies comprehension (patient understands information)	1	2	3	4	5	NA
	12	Explains differently if necessary according to the patient's feedback	1	2	3	4	5	NA
	13	Uses questions in a balanced way, avoiding patient's passive participation (e.g. only responding to questions)	1	2	3	4	5	NA
	14	Offers patient opportunities to organize and express their thoughts about the messages	1	2	3	4	5	NA
	15	Listens attentively and answers questions	1	2	3	4	5	NA
Communication skills	16	Recognizes and responds to patient's nonverbal reactions	1	2	3	4	5	NA
	17	Speaks in an appropriate tone and volume given the situation	1	2	3	4	5	NA
	18	Sits or remains level with the patient when possible given the context	1	2	3	4	5	NA
	19	Maintains contact appropriate to the culture when talking with the patient and/or family (e.g. eye contact, distance, spatial approximation)	1	2	3	4	5	NA
	20	Describes what they are going to do BEFORE doing it	1	2	3	4	5	NA
	21	Asks permission to touch BEFORE doing anything to the patient (e.g. blood pressure, dressing, palpation)	1	2	3	4	5	NA
	22	Touches the patient in a culturally respectful manner	1	2	3	4	5	NA
Patient-centered	23	Seeks input from the patient regarding their feelings and goals	1	2	3	4	5	NA
	24	Provides balanced time on psychosocial and clinical aspects of patient care depending on the context	1	2	3	4	5	NA
	25	Identifies potential conflict and finds opportunities to gather information to minimize or manage it	1	2	3	4	5	NA
Potential barriers	26	Gives advice rather than explain options and alternatives	5	4	3	2	1	NA
	27	Gives unsupported (false) reassurance	5	4	3	2	1	NA
	28	Infers falsely, jumps to conclusions related to patient's behaviors.	5	4	3	2	1	NA

(1) Never: does not happen while is expected
(2) Rarely: happens once while always expected (1 out of 5 times)
(3) Sometimes: happens more than once but not consistently (2 out of 5 times)
(4) Usually: happens most of the time (3 out of 5 times)
(5) Always: consistently does the behavior as expected
(NA) Not applicable: behavior not expected



Appendix D

Simulation Effectiveness Tool - Modified

Simulation Effectiveness Tool - Modified (SET-M)

After completing a simulated clinical experience, please respond to the following statements by circling your response.

PREBRIEFING:	**Strongly Agree**	**Somewhat Agree**	**Do Not Agree**
Prebriefing increased my confidence (PREBRIEFING)	3	2	1
Prebriefing was beneficial to my learning. (PREBRIEFING)	3	2	1
SCENARIO:			
I am better prepared to respond to changes in my patient's condition. (LEARNING)	3	2	1
I developed a better understanding of the pathophysiology. (LEARNING)	3	2	1
I am more confident of my assessment skills. (LEARNING)	3	2	1
I felt empowered to make clinical decisions. (LEARNING)	3	2	1
I developed a better understanding of medications. (Leave blank if no medications in scenario) (LEARNING)	3	2	1
I had the opportunity to practice my clinical decision making skills. (LEARNING)	3	2	1
I am more confident in my ability to prioritize care and interventions (CONFIDENCE)	3	2	1
I am more confident in communicating with my patient. (CONFIDENCE)	3	2	1
I am more confident in my ability to teach patients about their illness and interventions. (CONFIDENCE)	3	2	1
I am more confident in my ability to report information to health care team. (CONFIDENCE)	3	2	1
I am more confident in providing interventions that foster patient safety. (CONFIDENCE)	3	2	1
I am more confident in using evidence-based practice to provide care. (CONFIDENCE)	3	2	1
DEBRIEFING:			
Debriefing contributed to my learning. (DEBRIEFING)	3	2	1
Debriefing allowed me to communicate my feelings before focusing on the scenario*(DEBRIEFING)	3	2	1
Debriefing was valuable in helping me improve my clinical judgment. (DEBRIEFING)	3	2	1
Debriefing provided opportunities to self-reflect on my performance during simulation. (DEBRIEFING)	3	2	1
Debriefing was a constructive evaluation of the simulation. (DEBRIEFING)	3	2	1
What else would you like to say about today's simulated clinical experience?			

*revised 4/3/20 for use in virtual debriefing

Leighton, K., Ravert, P., Mudra, V., & Macintosh, C. (2015). Update the Simulation Effectiveness Tool: Item modifications and reevaluation of psychometric properties. *Nursing Education Perspectives, 36*(5), 317-323. Doi: 10.5480/1 5-1671.
Original Simulation Effectiveness Tool (SET) developed by Medical Education Technologies, Inc (METI, now CAE Healthcare) for Program for Nursing Curriculum Integration (PNCI) (2005)

Appendix E

Nursing Quality and Safety Self-Survey (NQSSI)©

Directions:

1. Please rate your level of agreement with each of the QSEN competency area statements listed below by clearing marking the box that corresponds with your level of agreement.

Example:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree
	X					

2. A definition for each competency area has been provided below to enhance your understanding of the area.

3. There are three statements under each competency category which ask you to rate your knowledge, skills, and attitudes in regard to that area.

4. Knowledge, skills, and attitudes are defined as:

    a. Knowledge: Theoretical or practical understanding necessary to provide safe and quality nursing care.

    b. Skill: Abilities, expertise, or dexterity necessary to provide safe and quality nursing care.

    c. Attitudes: A settled way of thinking or feeling regarding the competency area that is necessary to provide safe and quality nursing care.

5. Please use the definitions when rating each statement.

6. Please be honest of your true ratings. This rating will not be shared with your peers and will not be used to determine your grade in the course.

Patient-centered Care

Definition: Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.

1. I feel confident that I have the necessary knowledge to practice patient-centered nursing care:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

2. I feel confident that I have the necessary skills to practice patient-centered nursing care:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

3. I feel confident that I have the necessary attitudes to practice patient-centered nursing care:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care.

4. I feel confident that I have the necessary knowledge to ensure an effective nursing practice based on teamwork and collaboration:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

5. I feel confident that I have the necessary skills to ensure an effective nursing practice based on teamwork and collaboration:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

6. I feel confident that I have the necessary attitudes to ensure an effective nursing practice based on teamwork and collaboration:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

Evidenced-based Practice (EBP)

Definition: Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.

7. I feel confident that I have the necessary knowledge to achieve an evidenced-based nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

8. I feel confident that I have the necessary skills to achieve an evidenced-based nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

9. I feel confident that I have the necessary attitudes to achieve an evidenced-based nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

Quality Improvement (QI)

Definition: Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems.

10. I feel confident that I have the necessary knowledge to participate in quality improvement (QI) in nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

11. I feel confident that I have the necessary skills participate in quality improvement (QI) in nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

12. I feel confident that I have the necessary attitudes to participate in quality improvement (QI) in nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

Safety

Definition: Minimize risk of harm to patients and providers through both system effectiveness and individual performance.

13. I feel confident that I have the necessary knowledge to deliver safe nursing care:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

14. I feel confident that I have the necessary skills to deliver safe nursing care:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

15. I feel confident that I have the necessary attitudes to deliver safe nursing care:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

Informatics

Definition: Use information and technology to communicate, manage knowledge, mitigate error, and support decision-making.

16. I feel I have the necessary knowledge to integrate and utilize technology in nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

17. I feel I have the necessary skills to integrate and utilize technology in nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

18. I feel I have the necessary attitudes to integrate and utilize technology in nursing practice:

Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree

Appendix F

Permission: Global Interprofessional Therapeutic Communication Scale Permission

Campbell, Suzanne <Suzanne.Campbell@ubc.ca> Dec 18, 2020, 1:06 PM
to Suzanne, NATALIA, me

Dear Nancy,

Thank you so much for your interest in our scale! The good news is, since I immigrated to Canada and copyrighted this myself I own it and allow free and extensive use! This email serves as permission for use.

I am attaching some materials for you to consider, please follow me on ResearchGate: https://www.researchgate.net/profile/Suzanne_Campbell3
My UBC website with both communication and lactation materials: https://nursing-sim.sites.olt.ubc.ca

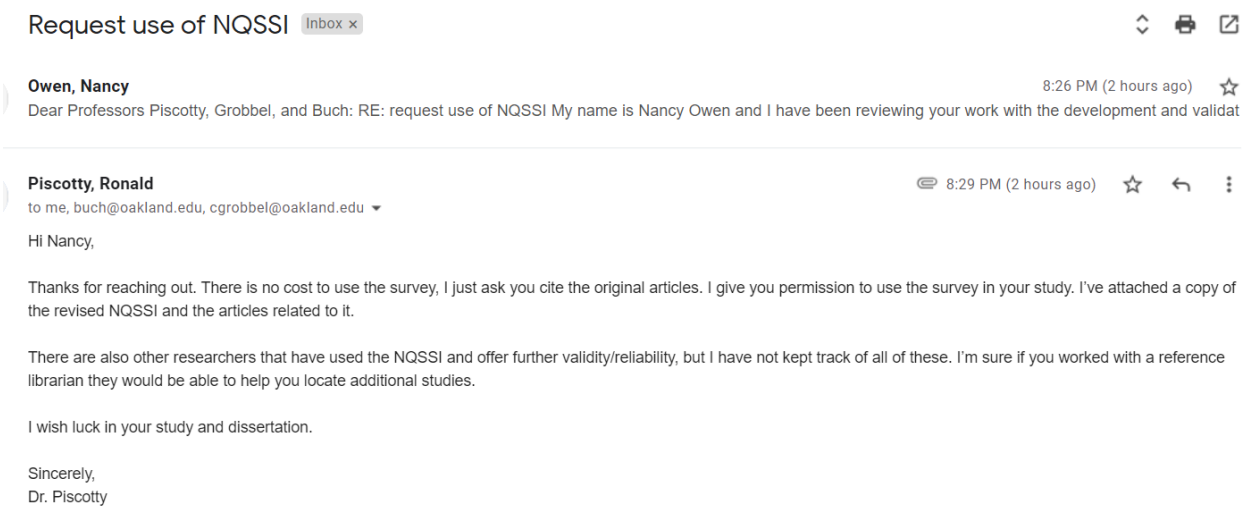
In addition - I've attached the protocol for translation we've proposed to our network. At this point it was translated and validated for use in other countries as well (Portuguese, French, and Korean so far).

I have found for those using the scale in master's theses and dissertations that it really helps to meet with Natalia and I so we can share with you what works or not. Most of your questions are simple answers:

Is it available for use and at what cost? Yes, no cost
What permissions are needed? This email counts as permission for use, we just ask you to share any final results on the psychometrics of the instrument so we can continue reliability/validity testing and reporting.
Is there special training for raters? I am creating this (did one initially for the 35-item instrument https://youtu.be/AM3DaWLyC2c but I need to update for the 28 item, basic concepts the same)
May students use the GITCS as a self report? Yes, this works well – we are doing research right now in British Columbia at 8 of our 19 schools of nursing

Appendix G

Permission: Nursing Quality and Safety Self-Inventory Permission



Request use of NQSSI Inbox ×

Owen, Nancy 8:26 PM (2 hours ago)

Dear Professors Piscotty, Grobbel, and Buch: RE: request use of NQSSI My name is Nancy Owen and I have been reviewing your work with the development and validat

Piscotty, Ronald 8:29 PM (2 hours ago)

to me, buch@oakland.edu, cgrobbel@oakland.edu

Hi Nancy,

Thanks for reaching out. There is no cost to use the survey, I just ask you cite the original articles. I give you permission to use the survey in your study. I've attached a copy of the revised NQSSI and the articles related to it.

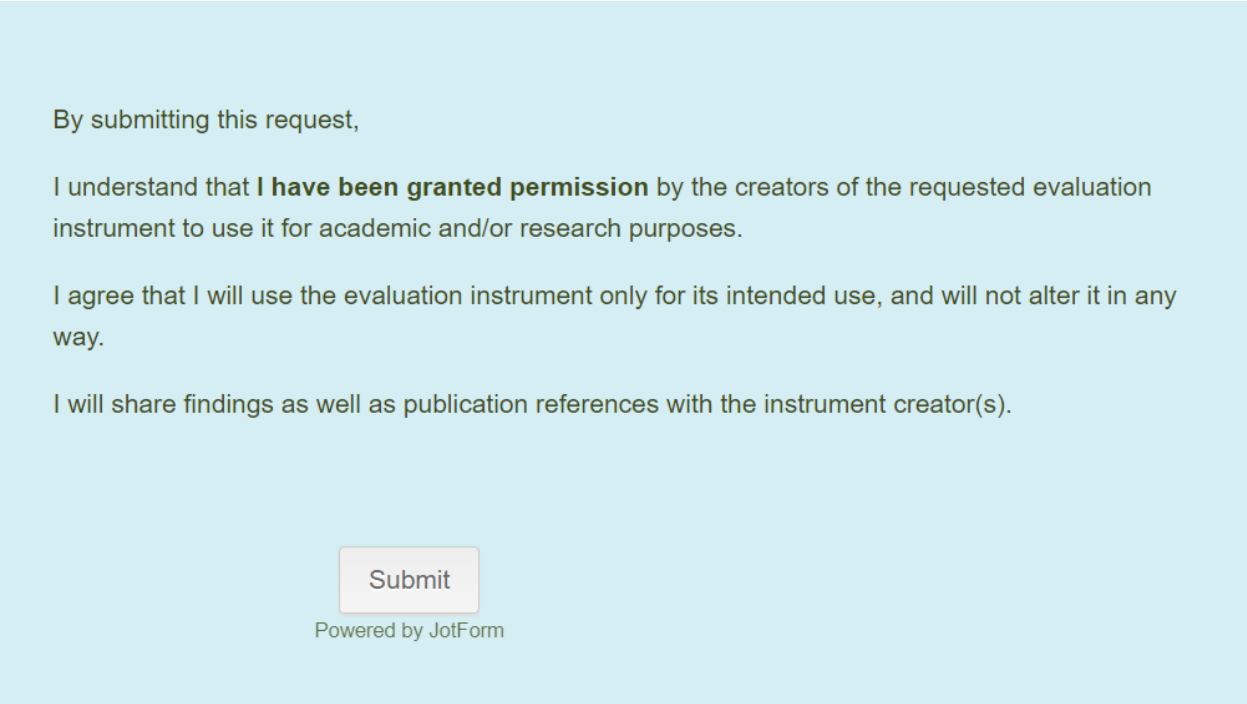
There are also other researchers that have used the NQSSI and offer further validity/reliability, but I have not kept track of all of these. I'm sure if you worked with a reference librarian they would be able to help you locate additional studies.

I wish luck in your study and dissertation.

Sincerely,
Dr. Piscotty

Appendix H

Permission: Simulation Effectiveness Tool – Modified



By submitting this request,

I understand that **I have been granted permission** by the creators of the requested evaluation instrument to use it for academic and/or research purposes.

I agree that I will use the evaluation instrument only for its intended use, and will not alter it in any way.

I will share findings as well as publication references with the instrument creator(s).

Submit

Powered by JotForm

Note: Retrieved from https://sites.google.com/view/evaluatinghealthcaresimulation/obtain-instrument

Appendix I

Permission: Simulation Center Director

Reply Reply All Forward

Mon 2/22/2021 4:14 PM

BK

Bryant, Kellie

RE: Request - Doctoral Permission Statement

To Spear Owen, Nancy

You replied to this message on 2/22/2021 6:00 PM.

Hello Nancy,

I am writing in support of implementing your research study as part of your doctoral requirements. I grant permission to use the Helene Fuld Health Trust center and our Standardized Patient consultants as part of your planned telehealth simulation for the Science of Community and Public Health Nursing course. This is pending IRB approval. Please let me know if you need anything else for your project.

Sincerely,

Dr. Bryant

Kellie Bryant DNP, WHNP, CHSE
Executive Director of Simulation and Assistant Professor
Columbia University School of Nursing
560 W 168th Street Room 300
NY, NY 10032
212-305-2982 (O)
Kdb2146@cumc.columbia.edu
Helene Fuld Simulation Center Website

SSH
Society for Simulation in Healthcare
Accredited Program
Provisional

Appendix J

Permission: Course Coordinator

Reply Reply All Forward

Thu 2/18/2021 1:38 PM

DiBello, Karol

Re: Permission Statement request

To Spear Owen, Nancy

You replied to this message on 2/18/2021 1:48 PM.

Hi Nancy,

Here goes:

I am pleased to have Nancy Owen Spear implement her public health nursing case findings Telehealth simulation in my class. This will be a terrific opportunity for the students to experience an essential nursing service.

Thank you,

Karol DiBello, DNP, FNP-BC, ACHPN
Associate Professor
The Science of Community and Public Health Nursing Course Director
Columbia University School of Nursing
560 West 168th Street
New York, NY 10032

Appendix K

Simulation Scenario

Association of Standardized Patient Educators

Case Development Template

Template Development Team (listed alphabetically)

Carrie Bohnert, University of Louisville

Bob Bolyard, University of Vermont

Howard Gregory, Case Western Reserve University

Karen Lewis, The George Washington University

Robert MacAulay, University of California, San Diego

Joe Miller, University of Minnesota

Jennifer Owens, The George Washington University

Tamara Owens, Howard University

Amelia Wallace, Eastern Virginia Medical School

Table of Contents

Part 1 – Administrative Details 3
Part 2 – Door Chart/Note & Learner Instruction 6
Part 3 – Content for SPs 7
Part 4 – SP Checklist 121
Part 5 – Checklist Guidelines 122
Part 6 – Additional Materials 122
Part 7 – Post-Encounter Activities 122
Part 8 – Note Rubric or Answer Key for Post-Encounter Activities 122
Part 9 – Briefing/Learner Orientation 123
Part 10 - Debriefing 125

Case Study Outline/worksheet:
Symbols terms abbreviations
Diagnosis/medical conditions
Medications
Treatments/interventions/procedures
Public Health Interventions
Lab tests and diagnostic procedures
Cultural issues and significance

This template is intended to be comprehensive in nature, but may not contain every element necessary for an activity or scenario. Conversely, not every activity or scenario will require each part of this template. SP educators may exercise their judgment when selecting which parts of this template are applicable to their activities or scenarios.

Part 1 – Administrative Details

Patient (SP) Name:

Darryl Hudson: 58-year-old

Patient's Reason for the Visit (e.g. why is the patient coming to the doctor today?):

"Sick for 4 days and getting worse each day"

Patient's Chief complaint:

"Coughing fits", that come and go, fever and chills, very tired, and headache.

Differential Diagnosis:

Flu A or B, other viral infection, pneumonia, bronchitis, SARS-CoV-2/COVID-19

Actual Diagnosis:

COVID 19 – Confirmed with PCR test
(Novel Coronavirus is immediately notifiable disease)

Case Purpose or Goal: (e.g. formative, summative, teaching, learner practice, assessment, lecture, demonstration)

Fully online, formative learning experience for learners to develop knowledge, skills, and attitudes needed for providing patient care remotely during a telehealth video conference visit.
This is clinical experience where learners, in the role of a public health nurse, will engage 1 on 1 with a patient who has been diagnosed with an infectious disease. Learner will gain experience with upstream thinking of case interviewing and contact tracing. Students will be assessed on knowledge, communication skills, safety competencies, and participation.

Level of the learner and discipline: (e.g. 3rd year Nursing Learner)

Novice. Masters Direct Entry, second semester entry-level students
Enrolled in The Science of Community and Public Health Nursing Course

Learner's prerequisite knowledge and skills:

Fundamental nursing courses skills, physical assessment. Attendance at public health nursing course lecture on infectious disease.

Case authors:

Nancy Spear Owen
To be reviewed by course coordinator

Date of case development:

2021

Summary of patient story:

There are news reports of an outbreak of a new strain of COVID-19 and there is a cluster in the local county.
The patient, Darryl Hudson, is a 58-year-old has been feeling increasingly sick over the last 4 days with complaints of fever, cough, headache, and fatigue. Darryl goes to the walk-in clinic and tests positive for SARS CoV. The patient is sent home with instructions for isolating, drinking fluids, rest, and over the counter medications for treating symptoms.
The clinic completes a notifiable disease report.
The next day, Darryl, is contacted by the public health nurse for a telehealth visit for a health event investigation interview and contact tracing.

Learning/Case objectives:

Broad Objective:
Apply epidemiologic principles and concepts to care of culturally diverse patients, families, and communities in virtual telehealth visit.
Behavioral outcomes:
At the conclusion of the case investigation interview the learner will:

1. Demonstrate therapeutic communication skills of building trust and rapport, power sharing, and empathy during a telehealth visit.
2. Discuss the application of patient safety competencies that relate to the use of telehealth technology in public health settings.
3. Estimate the number of people exposed to the infectious disease in the family and community.
4. Explain to the patient three ways to reduce the risk of spreading COVID-19 within their family and/or community.

List of learner assessment instruments used: **(e.g. SP checklist, post-encounter note, quiz)**

1. Nursing Quality and Safety Self Inventory (NQSSI)
2. Global Interprofessional Therapeutic Communication Scale (GITCS)
3. Knowledge Quiz
4. Simulation Effectiveness Tool – Modified (SET-M)

Event format: **(e.g. formative, summative, small group, individual, multi-station OSCE, duration)**

Formative.
The learners will be randomly divided into two different groups and given respective links to zoom.
Group 1= Traditional prebriefing; Group 2 = Structured prebriefing

Simulation Timing: Each simulation will have 8 students, 4 breakout rooms.
Pre-brief – 5 minutes (Group A) 20 minutes (Group B)
Simulation – 15 minutes + rotate 15 minutes (1 student to 1 SP)
Group Debrief - 30 minutes

Demographics of patient/recruitment guidelines: **(e.g. age range, gender, body type, ethnicity, other)**

Patient: 58 y.o. – To play role of Darryl Hudson.

8 SPs are needed: middle age, racially diverse, preferably 4 males, 4 females. Experienced (not first simulation)

Others (no SP needed).
68-year-old - Alex (spouse, retired)
28-year-old female – Jasmine (female, daughter, works as a nurse tech in rehab center)
6-year-old – Derek (grandson - first grade (discussed but not present)
32-year-old – Keith (Father of Derek) electrician apprentice lives outside city

List of special supplies needed for encounter: **(e.g. additional materials *see part 6*, moulage, props, SP attire, physical exam equipment, etc.)**

Stable internet connection; zoom technology; tissues, comfortable clothes

Recommended SP training agenda:

Conducted online. 2 hours.
1. Script Review
2. Telehealth training

3. COVID-19 case portrayal
4. feedback with students
5. Dry Run

SP Training materials needed: **(e.g. documents, video, physical exam equipment, references, images, websites)**

Training takes place on Zoom:
SP Script
Notifiable disease report
Contact Tracing Tool - completed
Signs and symptoms of COVID 19

Instructions for additional staff: **(e.g. sim tech, proctor, sim educator)**

Sim tech – technology and zoom assistance
Sim Instructors – 2 needed – one for Group A and Group B

Preparation Assignment

Part 2 – Door Chart/Note & Learner Instruction

Description & Directions: This is a mandatory clinical activity for the community and public health nursing course. This is an online simulation-based experiences via Zoom with standardized patients (SPs). You will be interacting one on one with a patient in a Zoom breakout room simulating a telehealth (video conferencing) public health nursing case investigation visit. This is a formative learning session. Learners will be expected to prepare by completing work as indicated below.

Broad Objective: Learners will conduct a *Case Investigation* including interviewing clients with COVID-19, eliciting their close contacts, monitoring the clients for COVID-19 symptoms, and connecting clients to resources to support self-isolation

Timing: Please arrive on zoom 5 minutes before your scheduled time. Announcements will be made through zoom broadcasting (electronic message). The flow of the zoom session will be:

- Enter the zoom waiting room.
- Facilitator will open the main zoom room for briefing.
- Click into breakout room for 12-minute interaction with the patient
- Stay in breakout room for 3 minutes of oral feedback from standardized patients.
- Return to the main room and debrief and post simulation survey completion.
- Exit the zoom session.

Professionalism/ Online Etiquette:

A zoom simulation should be treated like any other lab or clinical setting. Please turn your video camera and microphone so that you can participate in the session.

Please review the following guidelines:

- Be professional: Your instructor and classmates can see you, therefore please dress appropriately and look directly into the camera when using video.
- Surroundings: Your client and instructor can see behind you. Please avoid distracting backgrounds such as other people moving about, traffic, etc. when possible. A quiet workspace is ideal.
- Zoom chat is not necessary. Only use to indicate a technical difficulty.

Sign up: Please use Sign Up Genius link for your randomly assigned group.

Pre -Simulation Activities or Assignments: Review course lecture content plus articles or videos below. (Approximately 30 minutes)

PUBLIC HEALTH NURSING information:

Setting (place/time)

Set the Scene:
County Public health communicable disease office. Telehealth Video Conference Visit.

Patient Name: **Darryl Hudson**
Age: **July 1, 1963**
Gender: **Female/male**
Chief Complaint: **"sick" - cough, fever/feel hot, fatigue, headache for 4 days**

Vital Signs: (if applicable) at clinic/office yesterday

Blood Pressure 122/76
Temperature 101.6
Respiratory Rate 18
Heart Rate 92
BMI 25

Lab Results: (if applicable) Type A negative, Type B negative, RT-PCR positive

Image Results: (if applicable) chest x-ray pending

Instructions to Learners:

See prebriefing script in Part 9

Handoff Report/ Communicable Disease Report

Dr. Autumn Roberts, at the Walk-in Clinic submitted a nationally notifiable disease report to the State Health Department. The State is now reporting to the County PHN in the communicable disease office.

Identification:

Patient Name: Darryl Hudson

Age and DOB: July 1, 1963

Patients PCP: Autumn Roberts, DNP

Situation: Patient has a positive PCR test reported to the state health department yesterday.

Part 3 – Content for SPs

Presentation and Resulting Behaviors (e.g. body language, non-verbal communication, verbal characteristics)

Examples:

Affect:	**confused at first, thought it was the providers office; pleasant and cooperative**
Body language:	**tense, exhausted, nervous, occasional dry cough**
Facial expression:	**anxious,**
Eye contact:	**natural**

Tired, weak, occasional dry cough, anxious due to being sick and afraid it could progress to hospitalization.
Patient does not want to go to hospital.

Opening Statement

Hello

Dealing with Open-Ended Questions and Guidelines for Disclosure

- Information offered spontaneously (what the patient can disclose after an open-ended question) Been feeling this way for 3 days; married and live with partner.

- Information hidden until asked directly (what the patient should withhold until specific questioning)
  Live with daughter who works in a nursing home and grandson who attends first grade. Daughters' boyfriend, Keith, attended the birthday party.

History of Present Illness (HPI): **(consider the following)**

Quality/Character Occasional dry cough – thought it was my allergies
Onset 4 days ago
Duration constant
Location Lower respiratory
Radiation everywhere
Intensity Strong
Aggravating Factors (what makes it worse) None noted
Alleviating Factors (what makes it better) Nothing seems to help. Want to stay in bed all day.
Precipitating Factors (does anything seem to bring it on) Cough intermittent; other symptoms constant
Associated Symptoms fever, fatigue , and headache
Significance to Patient (impact on patient's life, patient's beliefs about origin of problem, underlying concerns/fears, expectations for the visit) Patient had a close friend who was hospitalized from COVID-19, hesitant about vaccinations.

Review of Systems: (e.g. pertinent positives and negatives)

Focused Respiratory: cough – comes and goes, sometimes can't stop coughing then it stops. No trouble breathing. No change in skin color, denies chest pain

Past Medical History (PMH): (consider the following)

Illnesses/Injuries healthy
Hospitalizations Only for my pregnancy
Surgical History c-section
Screening/Preventive (if relevant) unknown
Medications (Prescription, Over the Counter, Supplements) n/a – taking Tylenol for fever
Allergies (e.g. environmental, food, medication and reaction) Environmental – at change of seasons, take over the counter allergy meds if it gets bad. I took allergy medication a few days ago and it did not help.
Gynecologic History (if relevant) n/a

Family Medical History: (consider the following)

Family tree (e.g. health status, age, cause of death for appropriate family members) Father died cancer age 75; mother alive independent
Relevant Conditions/Chronic Diseases (management/treatment) Healthy

Social History:

Substance Use (past and present) Drug Use (Recreational and medications prescribed to other people) no Tobacco Use - no Alcohol Use - no
Home Environment 2-bedroom apartment: Lives with Spouse Daughter and Grandson. Daughter moved back in this past year to save money.
Social Supports Family and friends
Occupation

Career counselor at a junior college
Relationship Status Current sexual partners (if relevant) n/a Lifetime sexual partners (if relevant) n/a Safety in relationship (if relevant) n/a
Leisure Activities Going to city parks with grandson and walking the dog (King Charles Spaniel). Like to be outdoors.
Diet Regular, Do not feel like eating
Exercise Usually walk but unable to while sick. Too weak and tired.

Physical Exam Findings: **(may also include instructions on replicating findings)**

Cough Feels Hot (do not have a thermometer at home) Chills Fatigue Headache

Prompts and Special Instructions:

Questions the patient MUST ask/ Statements patient must make (optional) How do I know when to go back to the emergency room? I do not want to get my family sick, what can we do?
Questions the patient will ask if given the opportunity Should I go get the vaccine? When can I go back to work?
What should the patient expect from this visit? Expect learners follow basic telehealth etiquette. Learners will ask about signs and symptoms of COVID-19 that you are experiencing, and then provide education to take care of yourself and prevent the spread of the infection. Learners will offer ideas for community resources and answer patient questions.

Guidelines for Feedback: **(e.g. logistics, content for feedback)**

Focus on communication: (building trust and rapport, power sharing, and empathy)

- How do you feel the simulation experience went?
- One aspect of student communication skills or attitude that was positive (be specific)?
- One aspect that could have been approached differently (be specific).
- Conclude feedback with positive take away

Part 4 – SP Checklist

Learner Name_____Date:_____SP:_____

Grading Scale (LIKERT or Dichotomous):

Please describe the scale to be used for each item in this section (e.g. Yes/No, Done/Not Done, etc.). Include the point values for each. (e.g. Yes = 1, No = 0)

GITCS
NQSSI
Knowledge Quiz

Part 5 – Checklist Guidelines

No Checklist
Guidelines:

- Notes on communication and safety (ID, confidentiality)
- Assess for emergency signs and symptoms (shortness of breath, chest pain or persistent pressure, cyanosis, confusion, inability to stay awake)
- Ask about others in home and what patient did over last three days to elicit other contacts

Part 6 – Additional Learner Materials

(e.g. laboratory results/readings, images, physical exam results cards)

NYS – Contact Tracing Tool (help guide telehealth visit)

Part 7 – Post-Encounter Activities

Describe the type of activity the student will engage after the SP Encounter.
(Write a SOAP Note, Order Labs, Answer Multiple choice questions, etc.)

Group Debriefing

Part 8 – Note Rubric or Answer Key for Post-Encounter Activities (n/a)

Part 9 – Briefing/Learner Orientation – Control Group

Format and timing/Narration:

Welcome to your telehealth simulation experience for Community and Public Health Course. I am _____ and will be your instructor today.

BRIEFING:

Before we begin, I would like to take a moment to get settled.

- If you would like to get paper and paper sometimes it is helpful to write things down.
- Please have a contact tracing form printed out or pulled up on a computer to complete during the simulation
- If you need a headset to hear or block out background noise now is the time to go get those items.
- Please check your technology. We will now test your microphone and video.

Role of Learners: This simulation is considered a clinical experience. learners will be in role of a public health nurse – working in the communicable disease office as a contact tracer.
The Main Purpose of this Zoom session is for you to participate in a simulated telehealth visit.
Your goal is to complete a case interview in 12 minutes.

Logistical information. Please ask questions at any time.

- The simulation is being videotaped just as simulation are on campus. If you have agreed to participate in the study, the videos will be reviewed by the researcher to score the communication scale. The other videos will not be viewed. All videos will be deleted as per simulation policy.
- There are 4 breakout rooms. Each nursing students will be working with one patient. There will be technology support in and out of the breakout rooms – please ignore them. If you have technology connection problems, you may need to log out and log back in.
- Please keep all that happens in the simulation confidential. We will discuss anything you want in debriefing or you can discuss further with the simulation educator or your course professor but not your classmates.
- There is a basic assumption is that you are well prepared and capable of doing and excellent job in the simulation.
- Time of session simulation, feedback in the breakout room, then return to main room for debriefing. The post test will then be completed electronically and submitted.
- Timing: the session
- __10___minutes for interaction
- ____0__ minutes for verbal feedback with the SP.
- __20___ minutes to debrief back in the main room.

- Zoom Broadcast messaging (small and disappears in a few seconds) will be sent
- ____2___minutes left of session and
- ____1___ minutes left of SP feedback.
- Any questions before we get report and begin?

Session objectives: **(as applicable)**

At the conclusion of the case investigation interview the learner will:

1. Demonstrate therapeutic communication skills of building trust and rapport, power sharing, and empathy during a telehealth visit. (application)
2. Discuss the application of patient safety competencies that relate to the use of telehealth technology in public health settings. (application)
3. Estimate the number of people exposed to the infectious disease in the family and community. (analyze)
4. Explain to the patient three ways to reduce the risk of spreading COVID-19 within their family and/or community. (analyze)

Special instructions/Patient Report

- Report: See Part 2 of this document. Read Report
- Breakout rooms will open in just a moment. – when you click on the breakout room the session will immediately begin.

Part 9 – Briefing/Learner Orientation – Experimental Group

Format and timing/Narration:

- SAME NARRATION AS CONTROL GROUP

Session objectives: (as applicable)

- SAME OBJECTIVES AS CONTROL GROUP

Special instructions: (e.g. special equipment)

EXPERIMENTAL GROUP: Structured Prebriefing

Timing	Activity
10 minutes	**Expert Role Modeling Video:** **https://www.youtube.com/watch?v=Bhd2WvmdNA4** Before starting the 6-minute video, review the questions below. The learner will actively observe the nurse and patient in the video. The video illustrates one nurse's approach to a case interviewing. It highlights important aspects of a nurse's organization and patient centered approach to a visit. It does not cover everything. • How does the nurse begin the visit? • What did you notice about how the nurse asks and answers questions? • What did you notice about the client's interactions? • How does the nurse conclude the interview? **Reflection Activity after video: Have all students respond to expert role modeling video questions.**
5 minutes	**Patient Report:** (report is found in Part 2 of this document) **Reflection Activity before you begin the interaction:** • What clinical information do you still need to know about the patient? • What questions or concerns might the patient have during the visit? • What will you need to do for this patient? What are you doing first? Second? • What health teaching might this patient and family need?

Part 10 - Debriefing

Technique to be used: (e.g. Plus-Delta, Advocacy-Inquiry, Debriefing with Good Judgment)

Promoting Excellence and Reflective Learning in Simulation (PEARLS) Method

Discussion questions/topics:

Individual level – telehealth experience, assessment of patient, eliciting household contacts, prevention measures for patient and family, resources, safety.
Population level – total number of potential contacts, preventing spread in community
Key take always
Potential Q.

Q. 1. Identify the source of threat for the 1. Hudson Family 2. Community
Q. 2. Identify cases and their contacts and others at risk?
Q. 3. How will the spread be controlled?
Q. 5. Who is most vulnerable or most at risk?
Q. 5. What control measures will you implement?
Q. 4. Communicate next steps with the patient on how to prevent the spread?

References

Agency for Healthcare Research and Quality. (2020, May). Telehealth and Patient Safety During the COVID-19 Response. Retrieved from https://psnet.ahrq.gov/perspective/telehealth-and-patient-safety-during-covid-19-response

Bajaj K, Meguerdichian M, Thoma B, Huang S, Eppich W, Cheng A. The PEARLS Healthcare Debriefing Tool. Acad Med. 2018, 93(2), 336. Retrieved from https://debrief2learn.org/pearls-debriefing-tool/

Centers for Disease Control. (2020). COVID-19 Facts to apply to patient care https://www.cdc.gov/coronavirus/2019-ncov/your-health/need-to-know.html

Center for Disease Control. (2020, May). How COVID-19 can spread in the community [video]. Retrieved from https://www.youtube.com/watch?v=9pVy8sRC440

Centers for Disease Control. (2020, October). Key Information to Collect During a Case Interview. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/keyinfo.html

Centers for Disease Control. (2020). National Notifiable disease surveillance system. (Infographic) Retrieved from https://www.cdc.gov/nndss/docs/NNDSS-Infographic-508.pdf

Eppich & Chang. (2015, March). Promoting Excellence and Reflective Learning in Simulation (PEARLS) Development and Rationale for a Blended Approach to Health Care Simulation Debriefing. *Simulation in healthcare, 00*(00), 1-10. Retrieved from https://case.edu/nursing/sites/case.edu.nursing/files/2018-05/Article-Eppich-PEARLS.pdf

National Consortium of Telehealth Resources. (2021, May). Telehealth interactions. Retrieved from https://telehealthresourcecenter.org/resources/fact-sheets/telehealth-interactions/

NYS Department of Health. (2020). Contact tracing tool. Retrieved from https://coronavirus.health.ny.gov/system/files/documents/2020/05/13114_covid19_contacttracing_051420_0.pdf