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Perception of the Benefits of an Interprofessional Communication Offering Among Nurse Residents

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Abstract

Interprofessional communication occurs at all levels during the provision of health care. Studies have shown that ineffective communication between healthcare providers often results in delayed treatments, misdiagnoses, medication errors, patient injuries, or even death. A nurse residency program is a professional development program designed to help develop and support new nurses through their transition from student nursing, into professional nursing. Communication skill development is an important aspect of the nurse residency program. The purpose of this study was to explore the question: Do nurse residents, who were enrolled in a local nurse residency program between August 2019 and August 2021, perceive that the nurse residency program facilitated and supported the development and growth of the nurse residents' interprofessional communication skills? A mixed-method, convergent design was utilized to gain clear, comprehensive insight into the nurse residents' perceptions regarding the development of their interprofessional communication skills. Data was collected through an anonymous web-based survey which was sent to 197 nurse residents. There were 20 usable responses to the survey. The results of the study indicated that the respondents perceived that they possess good interprofessional communication skills but, based on the answers to the survey, they did not give much credit for the development of those skills, to the residency program. Secondly, while most of the survey respondents felt somewhat comfortable initiating clinical conversations with individuals within other disciplines, they were more comfortable initiating conversations with other nurses. Physicians were one of the groups that participants felt the most uncomfortable contacting.

Keywords: interprofessional communication, nurse residency program, nurse residents

Introduction and Background

Interprofessional communication is at the heart of medical care. Studies have shown that ineffective communication between healthcare providers often results in delayed treatments, misdiagnoses, medication errors, patient injuries, or even death (Geraghty & Paterson-Brown, 2018; Foronda et al., 2019; Matziou et al., 2014). Studies have further shown that effective communication between healthcare professionals, or interprofessional communication, can lead to increased quality of patient care (Geraghty & Paterson-Brown, 2018; Foronda et al., 2019). In both inpatient and outpatient practice, interprofessional communication is affected by multiple factors including education, organization, hierarchy, and structure (Matziou et al., 2014). In addition, low-quality communication leads to poor communication and mistakes, such as medication errors (Foronda et al., 2016). Interprofessional communication occurs at all levels of medical care; nurse to nurse, nurse to physician, nurse to physical therapist or pharmacist, and many others. These are examples of interprofessional communications that may occur daily within the medical setting (Matziou et al., 2014). Interprofessional communication can be challenging to navigate due to the differences in professional socialization and the historical role of the physician as decision-maker in the clinical setting (Matziou et al., 2014). Many nurses report communication difficulties with physicians and describe physician and nurse conflicts as significant workplace stressors (Foreda et al., 2016; Matziou et al., 2014).

To improve interprofessional communication in the medical setting, standardized communication tools have been developed and these effectively enhance communication skills between healthcare professionals (Müller et al., 2018). One such tool is SBAR (Situation, Background, Assessment, and Recommendation). SBAR is utilized to provide structure for interprofessional communication to ensure accurate, timely, and essential information is

transferred among participants. The SBAR communication tool is well organized and useful for improving clinical communication and decreasing sentinel events, such as medication errors (Geraghty & Paterson-Brown, 2018). Another mechanism offered by many medical facilities to improve communication is a nurse residency program.

A nurse residency program is a professional improvement program which is designed to help develop and support new nurses through their transition from student nursing, into professional nursing. This supportive network program is geared towards the specific needs of new nurses (Blevins, 2016; Delack et al., 2015; Walsh, 2018). One aim of nurse residency programs is the development and improvement of their interprofessional communication skills (Blevins, 2016; Delack et al., 2015; Walsh, 2018). Unlike the evidence for SBAR, there is scant literature which focuses solely on the efficacy of nurse residency communication education on interprofessional communication. To help address this gap, the focus of this scholarly project was to examine nurse residency communication programs from the perspective of the nurses who have completed them.

Problem Statement

Nurse residency program success is most often evaluated by measuring the retention rates of nurses in the institutions that provide the residency programs (Asber, 2019). While there are a few studies which have examined the perceived support nurse residents received from the nurse residency program they attended, these same studies have not specifically evaluated how nurse residents perceived the program facilitated the development of their interprofessional communication skills (Fowler et al., 2018; Sledge et al., 2016). Moreover, other studies have examined interprofessional communication within the broad context of the healthcare community (Bardach et al., 2017; Foronda, 2016; Verhaegh et al., 2017). However, a lack of

research exists regarding specifically how nurse residents' perception of their residency program facilitated and supported their interprofessional communication skills.

Purpose

Communication is one of the most critical aspects of healthcare. Nurse residencies exist to facilitate and support new nurses during their transition from the nursing student role to the professional role (Asber, 2019; Blevins, 2016; Walsh, 2018). Therefore, communication skill development is an important aspect of the nurse residency program. However, the lack of research regarding how nurse residents perceive the residency program changed or developed their professional skills, is concerning. Research needs to be conducted regarding the perceptions of nurse residents on their respective nurse residency programs' success in supporting professional development and specifically the role it played in facilitating their interprofessional communication growth. To create greater understanding in this area, this study explores the question: do nurse residents, who were enrolled in a local nurse residency program between August 2019 and August 2021, perceive that the nurse residency program facilitated and supported the development and growth of the nurse residents' interprofessional communication skills?

The findings of this study will provide nurse educators and nurse leaders, who have developed and currently operate this nurse residency program, a deeper understanding of how the nurse residents and graduates of the program perceive it facilitated the development of their interprofessional communication. Further, the study may inform the practices of other facilities and educators which utilize this same nurse residency curriculum. Finally, a clearer understanding of the perceptions of the nurse residents could also aid management and nurse

administrators of the nurse residency program in analyzing the cost-benefit ratio of the nurse residency program.

Review of Evidence

Communication

Working in the healthcare profession has many challenges. Communication is a foundational component of healthcare, and its importance is often underestimated when discussions center around improving healthcare and caregiving. There is some confusion over what percentage of medical errors can be attributed to communication issues. However, estimates of sentinel events caused by communication errors range from 30-70% (Clapper & Ching, 2019). Regardless as to whether the errors are 30% or 70%, these communication errors contribute significantly to sentinel events in the healthcare profession.

Communication in healthcare is complex for several reasons. These reasons include the presence of various categories of professionals, resource limitations, uncertain health pathways, information management, and high-stakes outcomes (Butler & Fox, 2018; Dean et al., 2016). Effective communication is key to the caregiving, management, and provision of safe, high-quality care (Dean et al., 2016; Foronda et al., 2019; Kreps, 2016).

Interprofessional communication

Overlap of professional roles and collaboration between multiple professions occurs in many aspects of healthcare. This overlap and collaboration require both interprofessional and group communication skills and an understanding of professional roles and responsibilities (Kreps, 2016). Interprofessional communication is important for patient care and safety and may involve prioritizing the many inputs at any given time to make the most timely and effective decision (Butler & Fox, 2018; Foronda et al., 2019; Kreps, 2016). Interprofessional

communication is further complicated by the presence of multiple administrative and professional hierarchies, professional status, education levels, perception of healthcare, expertise diversity, and the physical settings wherein these conversations occur (Butler & Fox, 2018; Dean et al., 2016; Kreps, 2016; Matziou, 2014). The appropriateness of the type of interprofessional communication varies depending on the specific setting and the professionals directly involved in the conversation (Foronda et al., 2016; Overbeck, 2019). For example, intraprofessional communication, or communication within a single profession, can be vastly different from interprofessional communication, or communication between various professions, creating the need for different approaches to communication for different groups (Overbeck et al., 2018). This can become a barrier to implementing quality interprofessional collaboration in the overall healthcare team when a lack of understanding of the dynamics exists (Butler & Fox, 2018; Overbeck, 2019).

Communication between nurses and other healthcare professionals

During the formative educational period for nurses, and prior to clinical practice, there is limited cross-training in communication with other healthcare professions; with each professional group learning in isolation from other groups (Kreps, 2016; Matziou, 2014). This profession-specific learning model does not adequately prepare new healthcare professionals to actively participate in interprofessional healthcare (Kreps, 2016). While differences in healthcare professional communication strategies are increasingly recognized, many barriers still exist between healthcare professionals in terms of quality communication (Foronda et al., 2016; Foronda et al., 2019). These barriers include, but are not limited to, lack of confidence, inexperience, the complexity of healthcare, distractions in physical communication settings, and inconsistent use of structured and standardization tools (Foronda et al., 2016; Foronda et al.,

2019). While many undergraduate nursing programs have strategies in place that aim to introduce students to the concepts of interprofessional communication, this introduction is usually limited to the didactic setting, with little real application (Sowko et al., 2019). Without continued reinforcement and practice of taught concepts, there are few opportunities for nursing students to fully apply these complex concepts (Sowko et al., 2019). Further, with the continued expansion of the nursing role, increasing nurse autonomy, and mounting responsibilities in specific medical specialties, quality interprofessional communication is now more important than ever (Settani et al., 2017, Verhaegh et al., 2017).

Tools for interprofessional communication

Several tools have been designed to improve the structure and standardize interprofessional communication. While there are widely available and often employed tools, such as Closed Loop Communication, I-PASS (Illness severity, Patient summary, Action list, Situation awareness and contingency plans, Synthesis by receiver), SBAR, and CUS (I am concerned, Uncomfortable, this is a Safety issue); they are not universally used within the medical community, limiting the ability to solve potential situations of miscommunication and medical errors (Matzke et al., 2021; Müller et al., 2018; Shahian et al., 2017). Nurse residencies are another possible solution that are available to new nurses, through many large medical sites.

Nurse residency programs

A nurse residency program is a professional growth opportunity, that occurs concurrently with new work experience. Nurse residencies contain didactic sessions, skills acquisition sessions, guided experiences with preceptors, and open discussions with peers and leaders (Blevins, 2016; Delack et al., 2015). Participants have the supportive network of a program geared toward the specific needs of new nurses (Blevins, 2016; Delack et al., 2015; Walsh,

2018). Nurse residency programs are typically 4-12 months in duration with an overarching goal of assisting a new nurse's smooth transition into clinical practice (Walsh, 2018; Wildermuth et al., 2020). However, not all residency programs are built and developed around the same goals, and therefore may differ in content and length.

New nurses have the educational foundation but often lack the clinical experience to build quality interprofessional communication (Walsh, 2018). The transition from student to practicing clinician can be a chaotic and disorganized time in the new nurse's career, making it difficult for the new nurse to develop the necessary interprofessional communication skills for success in their field (Goode 2016; Walsh, 2018). The healthcare profession has increasingly acknowledged the difficulty many new nurses have with this transition and have developed nurse residency programs to facilitate the development of needed nursing skills while also smoothing the transition period for new nurses (Goode, 2016; Walsh, 2018).

One of the foundational skills that nurse residency programs facilitate is the development of communication. Nurses must have mastery of quality interprofessional communication skills to collaborate effectively with the entire healthcare team (Asber, 2019; Walsh, 2018). To accomplish this goal, many nurse residency programs use didactic instruction, role playing, debriefing of real-time situations, and incorporation of clear communication with preceptors and units, along with residency leadership to build self-confidence in the nurse resident's ability to communicate (Blevins, 2016; Cline et al., 2017; Fowler et al., 2018; Medas et al., 2015; Tyo et al., 2018; Walsh, 2018; Ziebert et al., 2016). Previous studies have shown that to increase communication skills, nurse residency programs should implement teaching techniques such as role playing to improve communication between nurse residents and other healthcare providers (Fowler et al., 2018; Medas et al., 2015).

In summary, since interprofessional communication is pivotal to effective healthcare, any miscommunication, or complications with interprofessional communication, may result in negative outcomes. New nurses often have difficultly transitioning from the student role to that of a clinical professional. Further, interprofessional communication is an area where new nurses have difficulty adjusting to their clinical professional role. Therefore, utilizing a fundamental aspect of the nurse residency program to develop and improve interprofessional communication skills among nurse residents is key. However, there is a lack of research regarding how nurse residents perceive that the nurse residency program facilitated the development of their interprofessional communication.

Theoretical Model

This scholarly project utilized Donabedian's Structure, Process, & Outcome (SPO) Model as a framework (Donabedian, 1966). The model provided a lens for examining the degree to which nurse residents perceived that their interprofessional communication skills were improved by the nurse residency program at a large, local medical center. The Donabedian model has been used in many settings to evaluate the quality of programs, such as the management of pesticide poisoning patients in hospitals in Uganda, developing surveys for patient satisfaction in hospitals, and COVID-19 response from a hospital in Westchester County, NY. (Binder et al., 2021; Semyonov-Tal & Lewin-Epstein, 2021; Ssemugabo et al., 2019).

The Donabedian SPO model was developed by Avedis Donabedian, a physician and professor at the University of Michigan School of Public Health. Donabedian was contracted by the United States Public Health service in 1965 to review research on quality assessment data (Ayanian & Markel, 2016). Based on his 1966 evaluation of the research data, Donabedian developed a triad approach to evaluate data quality (Ayanian & Markel, 2016; Donabedian,

1966). The triad approach consisted of the three domains of structure, process, and outcomes (Ayanian & Markel, 2016; Donabedian, 1966). The general assumption of the Donabedian model is that structure, processes, and outcomes are bi-directionally related (Donabedian, 1966). The triad can be described through a visual representation, as depicted in Figure 1. The triad of domains within the Donabedian model create a chain of causation that is conceptually useful for understanding systems (Donabedian, 1966).

According to the Donabedian model, structure is described as the characteristics of the space where the health program or healthcare occurs (Donabedian, 1966). Structure includes the program architecture, available supplies, staff, and organizational hierarchy.

The Donabedian model describes the process as workflows. These workflows include the health provider and patient relationships, and the delivery of care (Donabedian, 1966). Process commonly includes diagnosis, treatment, and preventive care but can also include patient education, technical processes, delivery of care, and interpersonal processes (Donabedian, 1966).

According to the Donabedian model, outcomes are measurable changes or effects that are observed as a result of the implemented process (Donabedian, 1966). Outcomes can be fed into the structure to create a feedback loop for process improvement and improved future outcomes.

The triad of components that the Donabedian model offers were helpful for examining and understanding how the nurse residency program facilitated and developed interprofessional communication among the nurse residents. Each of these three constructs; structure, process, and outcomes, were important elements and individually provided unique, necessary information.

The structural component of this scholarly project included the healthcare facility, the nurse residency program, the educational module provided through the nurse residency program, the nurse residents, nurse educators, and the units where the nurse residents work. The process

identified within this scholarly project was the educational module on communication delivered to the nurse residents by the nurse residency program. Additionally, other processes would be the teaching and learning that occurred within the educational module provided to the nurse residents. In this scholarly project, important outcomes included how nurse residents perceived their interprofessional communication changed and how they perceived the nurse residency program supported or developed their interprofessional communication skills. The information gained from each construct must be considered in light of the context of the other constructs to facilitate a complete understanding of the entire cycle.

In addition, the Donabedian SPO model was used as a framework for this scholarly project through the utilization of an online survey. Participants were asked about the development and status of their personal interprofessional communication. Through survey results, the principal investigator examined the perceptions of the nurses, who had completed the nurse residency educational module, regarding whether the educational module was helpful in the development of their interprofessional communication skills. The survey results provided insight into the current process utilized by the nurse residency program. Therefore, the principal investigator could disseminate the results of the study to nurse educators and administrators, who designed this specific nurse residency program (or the structure, as defined by the Donabedian model). The survey results provided the nurse educators and administrators information about their learning module, such as the nurse residents' perceptions regarding their interprofessional communication skills development (or outcomes as defined by the Donabedian model).

Project Design

A mixed-method, convergent design was utilized to gain a clear, comprehensive insight into the nurse residents' perceptions regarding the development of their interprofessional

communication skills. Both qualitative and quantitative data were collected through an anonymous web-based survey. The mixed-methods convergent design involved collecting both types of questions simultaneously for the purpose of gaining a more complete understanding of the participants' perspectives (Creswell & Creswell, 2018).

A survey link was emailed, by the principal investigator, to the nurse residency coordinator at the medical center. The nurse residency coordinator then distributed the survey to eligible participants, via email, maintaining the confidentiality of participant identifiers. Additionally, the nurse residency coordinator emailed a survey flyer with a QR code to the medical center's nurse educators for distribution (Appendix B). Nurse educators distributed the flyers with the QR codes during nursing education meetings to eligible nurses who had completed the nurse residency between 2019 and 2021. In addition, the flyers with a survey access QR code were placed on unit educational boards throughout the medical center. The QR codes enabled participants to access the survey anonymously. The QR code flyers and the emails sent by the nurse educators provided multiple opportunities for nurse residents to access the survey. Survey data was collected from September 22, 2021, to December 1, 2021.

The academic Institutional Review Board (IRB) at Belmont University deemed the project exempt from full review on May 5, 2021. Further, the medical center educational IRB granted permission for the project on April 22, 2021.

Clinical Setting

Between 2019 and 2021, approximately 400 nurse residents were enrolled in a one-year nurse residency program at a large local medical center. The large volume of nurses who completed the residency program made this institution an ideal location to examine how nurse residents perceived the degree to which the nurse residency program facilitated the development

of their interprofessional communication skills. The health care corporation that developed the nurse residency curriculum for this specific medical center distributes the curriculum to acute care facilities throughout the United States. Each facility must submit any changes they wish to make to the curriculum to the health care corporation for approval prior to changes being made. The widespread use of the nurse residency curriculum through many facilities speaks to the amount of time and money that was used to develop this curriculum.

During the nurse residency program, nurses were provided face to face education regarding how to model communication with other healthcare professionals, patients, and families. With the onset of the COVID-19 pandemic in March of 2020, the medical center decided, for the safety of their nurse residents, to transition the in-person communication learning module to an online format. The online modules were completed concurrently with a residency education book and assignments with specific due dates. Nurse residents were individually responsible for completing the learning module on time.

A nursing educator was assigned to each nurse residency cohort. The nurse educator was responsible for assigning the learning module, checking in with each resident to determine how they were navigating the learning modules, and addressing any questions or concerns the nurse residents had during their time in the program. The meetings were conducted through instant message, GroupMe application, or in-person, depending on the needs and availability of the individual nurse resident and their educator. The residency program also provided the nurse residents with several in-person learning simulations throughout the onboarding procedure.

Project Population

The sample population for this scholarly project was nurse residents enrolled in a nurse residency program at a large medical center located in the southeastern United States. Purposive

convenience sampling was used to recruit potential participants for the project as the principal investigator wanted to obtain a large study sample in a relatively short period of time.

To be considered for inclusion, participants were required to be enrolled in the medical center's nurse residency program between August 2019 and August 2021 and to have completed the communication learning module from the medical center's nurse residency program.

Exclusion criteria included any nurse who was not enrolled in the nurse residency program between August 2019 and August 2021. Additionally, nurses were excluded if they had been enrolled in the nurse residency program between August 2019 and August 2021 but had not completed the communication learning module.

Approximately 427 nurse residents were enrolled in the residency program between August 2019 and August 2021. However, the attrition rate of nurses who had graduated from the nurse residency program and left the employment of the medical center was unknown. The nurse residency program administrators noted that there were 197 nurse residents enrolled in the residency program at the time of the study.

Sources of Data/Data Collection Instruments

The principal investigator created the survey that was used in the scholarly project to measure demographics and nurse residents' perceptions about interprofessional communication (Appendix B). The principal investigator was unable to find a valid or reliable tool to measure the perceptions being sought. Therefore, in conjunction with the faculty supervising the project, the principal investigator developed the survey as a tool for the project. The principal investigator had the assistance of a statistician for the quantitative questions and was supervised in the qualitative review by an experienced qualitative researcher. The survey has not been established to be valid or reliable, as validity and reliability testing had not occurred.

The survey questions pertained to interprofessional communication as it relates to current and recently graduated nurse residents from a nurse residency program at this specific medical center. Both qualitative and quantitative sections were included in the survey. Further, a section for demographics, including gender, age, education, and professional experience, along with a 9 question 5-point Likert scale (1 = strongly positive, 5 = strongly negative), two close-ended questions, and five open-ended questions were included. The open-ended questions were designed to be answered narratively and analyzed using qualitative techniques. Questions included in the survey were geared toward nurse residents' perceptions regarding the facilitation of their interprofessional communication skills by the nurse residency program, nurse residents' comfort initiating communication with other health professionals, use of standardized tools for communication, and the method by which the nurse resident received the communication educational module. Through the inclusion of qualitative questions in the survey, nurse residents were provided more freedom to explain their individual perceptions.

Data Collection Process/Procedures

The survey links were emailed to eligible nurse residents on September 22, 2021. The survey links were active until December 1, 2021, to optimize the response window for nurse residents to complete the survey. In addition, the nurse residents received a quick response (QR) code during a meeting with their supervising nurse educator. They also had the opportunity to access the survey through a QR code on nursing education boards throughout the medical center. Nurse residents were able to participate or opt out of the survey without pressure from supervisors. The survey was completely voluntary and confidential.

Data Analysis

Data from the surveys was collected on the Qualtrics website. At the conclusion of the data collection period, the data was exported to IBM Statistical Packages for Social Sciences (SPSS) software for processing and cleaning of the quantitative data. Two surveys were excluded due to the respondents declining to consent to the survey. Five additional surveys were excluded due to a 0% completion rate. Ten surveys were excluded due participants having completed only 8% of the survey. Finally, seven surveys were excluded due to a 12.5% completion rate. After cleaning the data, the sample returned 20 usable surveys; thus, quantitative data analysis was limited to descriptive statistics. Descriptive analysis was used to determine the distribution of the items and variables. Open coding was used to analyze data (Corbin and Strauss, 2015). Repeated and particularly relevant codes were identified and elevated to the level of themes. Analysis was performed by the primary investigator and the scholarly project advisor, who has expertise in qualitative research methods, until mutual agreement concerning the identified themes was reached. Data analysis of the surveys occurred from December 2021 through January 2022. Finally, survey results were shared with the nurse residency program leadership in aggregate form only.

Results

Participant Demographics

There were a total of 44 participants who submitted a response to the survey. Twenty-four of those responses were excluded as mentioned in the data analysis section. Fifteen participants were female, one participant was male, and three participants did not answer the question regarding gender. Fourteen participants (70%) were between 20-30 years old. Eleven participants (55%) were baccalaureate degree prepared nurses, five participants (25%) were associate degree prepared nurses, and four participants (20%) declined to answer the question

concerning education. Three participants (15%) reported less than one year of experience as a nurse. Nine participants (45%) report 1-2 years of experience as a nurse. Four participants (20%) reported 2-3 years of experience as a nurse. One participant reported longer than three years of experience as a nurse. Three participants (15%) declined to answer how many years of experience they had as a nurse. Sixteen participants (80%) identified their ethnicity as Caucasian, one participant identified their ethnicity as "Other", and three participants (15%) declined to identify their ethnicity (Table 1).

Nurse Residency Demographics Specific to this Sample

Twelve participants (60%) completed the interprofessional communication learning module between August of 2019 and August of 2020. The remaining eight participants (40%) completed the interprofessional communication learning module between August of 2020 and August of 2021. Seventeen participants (85%) took the interprofessional communication learning module online, the remaining three participants (15%) took the interprofessional communication learning module in person. Eleven participants (55%) reported having a previous job in healthcare, including nursing assistant (n = 7). One participant worked previously as an administrator of medication. One participant reported a previous job in mental health counseling. One participant reported having a job in respiratory therapy. Two participants declined to answer the question regarding having a previous job in healthcare (Table 2).

Nurse Residents' Perceptions of their Interprofessional Communication Skills

Participants were asked a series of nine Likert scale questions regarding their perceptions of their interprofessional communication skills. Most of the participants (n = 15, 75%) perceived they had strong interprofessional communication skills prior to the completion of the nurse residency communication learning module. Eleven participants (55%) perceived that the nurse

residency program facilitated the growth of the participants' personal interprofessional communication skills. Five participants (25%) perceived that the nurse residency program did not facilitate the growth of their interprofessional communication skills.

Most of the participants (n = 18, 90%) agreed that they feel comfortable when initiating clinical conversations with physicians, with eight participants (40%) strongly agreeing and ten participants (50%) somewhat agreeing. Sixteen participants (80%) agreed that they felt comfortable contacting physicians on-call after business hours. A majority of participants (n = 14) agreed that they felt comfortable initiating clinical conversations with other nursing staff, with fourteen participants (70%) strongly agreeing and four participants (20%) somewhat agreeing. Thirteen participants (65%) strongly agreed that they felt comfortable initiating clinical conversations with healthcare providers of other disciplines in the hospital, such as pharmacists or physical therapists. An additional five participants (25%) somewhat agreed that they felt comfortable initiating clinical conversations with other disciplines in the hospital. Eight participants (40%) strongly agreed that they used a communication tool to direct their clinical conversations. Eight participants (40%) somewhat agreed, three participants (15%) neither agreed nor disagreed, and one participant (5%) strongly disagreed to using a communication tool.

Four participants (20%) strongly agreed that the communication learning module provided by the nurse residency program included sufficient material specific to interprofessional communication, while seven participants (35%) somewhat agreed, five participants (25%) neither agreed nor disagreed, and four participants (20%) somewhat disagreed. Four participants (20%) perceived that the communication learning module provided by the nurse residency program, directly facilitated the development of their interprofessional

communication. Seven participants (35%) somewhat agreed that the communication learning module facilitated the development of their interprofessional communication, while four participants (20%) neither agreed nor disagreed, four participants (20%) somewhat disagreed, and one participant (5%) strongly disagreed (Table 3).

Qualitative Data

Through the qualitative analysis of the data provided from the survey responses, several themes emerged regarding the nurse residents' perceptions of the residency program and their interprofessional communication skills. The first theme to emerge was that participants felt most uncomfortable initiating conversations with *consulting services* (*n* = 6), *physicians* (*n* = 6) and *after hours call services* (*n* = 2). A second theme that emerged was that participants felt most comfortable initiating conversations with other *nurses* (*n* = 7), *physical/occupational therapy* (*n* = 4), and *hospitalists* (*n* = 3). *Pharmacy* (*n* = 2), *nursing management* (*n* = 1), and *speech therapy* (*n* = 1) were also mentioned as disciplines which participants felt comfortable with initiating conversations.

When asked what participants perceived as having helped to develop their interprofessional communication skills, themes emerged around *practice* (*n* = 7), *experience* (*n* = 3) and *preceptor support* (*n* = 3). Notably, one participant stated that "Making mistakes when I call" helped develop their interprofessional communication skills. Other participants noted that *having confidence* (*n* = 2), *nursing knowledge* (*n* =1), and *nursing colleague advice* (*n* = 2) also contributed to the development of their interprofessional communication skills. When asked if/how the nurse residency program helped to facilitate the development of participants' interprofessional communication skills, themes emerged that the nurse residency program provided *educational tips* (*n* = 2), *confidence building* (*n* = 2), opportunity for *practice* (*n* =4),

and encouragement for *initiating communications* (*n* =2). Conversely, one participant was *unsure* how the nurse residency program facilitated the development of their interprofessional communication skills, and six participants reported that it *did not help*. When asked how the nurse residency program could better facilitate the development of participants' interprofessional communication skills, themes of *more practice* (*n* = 3), *teamwork* (*n* = 1), *in person classes* (*n* = 1), and *more examples* (*n* = 1) emerged. One respondent replied that *communication classes* would help. However, this response was unclear as to whether the participant meant additional communication classes or improved communication classes (Table 4).

Discussion

The primary investigator of this scholarly project explored the perceptions of nurse residents regarding their interprofessional communication skills and if the nurse residency program, in which they were enrolled, was able to facilitate the development of those communication skills. The primary investigator was interested in the perceived impact the nurse residency program had on the nurse residents' interprofessional communication skills and if the residency program could be adapted to better facilitate the development of those skills.

The results of the study indicated that while most of the survey respondents felt comfortable initiating clinical conversations with individuals within other disciplines, they were most comfortable when initiating conversations with nursing colleagues. Only 40% of respondents strongly agreed that they felt comfortable initiating clinical conversations with physicians. In contrast, 70% of respondents strongly agreed that they felt comfortable initiating clinical conversations with other nurses. One of the three groups that respondents felt most uncomfortable contacting included physicians. While perhaps not surprisingly, the findings are

further supported by current literature which reveals the challenges and communication difficulties that exist between nurses and physicians (Foreda et al., 2016; Matziou et al., 2014).

These communication differences are further revealed in the qualitative responses. Respondents felt more comfortable with physicians with which they were familiar, such as hospitalists, while they were most uncomfortable in their communications with physicians with which they were unfamiliar - such as those who work under the label “consulting services.” Some of this discomfort may be directly related to professional socialization and how, in many clinical settings, the physician is still viewed as the decision-maker (Matziou et al., 2014). The lack of professional socialization and the historical hierarchical clinical setting can expose feelings of inadequacy and inferiority in nurse residents that make them feel uncomfortable in their communication skills with physicians while further increasing the possibility of miscommunication (Foreda et al., 2016; Matziou et al., 2014). Some studies have focused on encouraging medical resident and nurse collaborations to better the understanding of roles and contributions provided by different interprofessional team members within the hospital setting (Foreda et al., 2016; Lowe et al., 2021; Monroe et al., 2021; Walsh et al., 2017). While many of these studies were done with physician residents and established nurses, similar programs for nurse residents may obtain similar positive results. Improving team member awareness of roles and contributions provided by other disciplines may lead to an overall improvement in interprofessional communication.

The majority of survey respondents perceived that they possessed strong interprofessional communication skills prior to completing the nurse residency program. Only 55% of respondents felt the nurse residency program facilitated the growth of their interprofessional communication skills. The respondents perceived they possess good interprofessional communication skills but,

based on the answers to the surveys, they did not give much credit for the development of those skills to the residency program. These findings were repeated in the qualitative results for the question asking how the nurse residency program helped to facilitate participants' interprofessional communication skills, 41% of responses contained themes such as *unsure* and *did not help*. Overall, the Likert scale responses that specifically related to the evaluation of the residency program were poorer than the rest of the questions.

When reviewing the survey responses from the nurses in the residency program, the advent of COVID-19 was a factor that must be taken into consideration. With the rapid rise of COVID-19 cases and the resulting measures taken to curb the spread of COVID-19, the nurse residency program moved to an online format, and in-person classes stopped. One of the primary investigator's questions in the survey asked respondents if they took the learning module in-person or online. A majority (85%) of the respondents had taken the interprofessional communication learning module online. This format change therefore may have had a detrimental effect reflected in the nurse residents' perceptions of the support provided by the residency program.

When the residency program is offered in-person, nurses not only may be more engaged, but they also create close connections with other nurses in the program. However, since the majority of the nurses during the pandemic were only offered the program in an on-line format, the learning may have been less effective and there may have been less networking, personal and peer social connections established. This may have resulted in a decreased sense of belonging among the nurse residents and could have contributed to perceptions that the residency program was not supportive (Blevins, 2016). The lack of belonging and resulting loose connection to the residency program could have attributed to the low response rate of this study's survey. COVID-

19 has had an undeniable and lasting effect on nursing education, and it is important to understand how nurse residency programs will continue to respond moving forward.

Limitations

The primary investigator acknowledges several limitations to this scholarly project. As the primary investigator was unable to find a valid or reliable tool to measure the perceptions being sought, a survey was created and used that has not been shown to be valid or reliable. Further, to ensure anonymity of survey respondents, the survey was accessed through both email-based links and QR codes. There was no tracking of individual response data, so individual respondents could have accessed and taken the survey multiple times. Finally, QR codes to the survey were distributed on nursing education boards throughout the medical center to optimize responses. This wide distribution could have allowed completion by respondents who did not meet the survey criteria.

Additionally, the attrition rate of nurses who graduated from the medical center's nurse residency program and left the employment of the facility was unknown. This led to a smaller participant pool than was originally expected. The low response rate (approximately 10%) to the survey and the limited number of qualitative responses may not accurately represent the collective body of nurse residents' perceptions, thus limiting the generalizability of this scholarly project. Additionally, the sample was quite homogenous, with most participants reporting Caucasian race (n = 16; 80%) and female gender (n = 15; 75%). Due to COVID-19 and the change from in-person nurse residency classes to online learning modules, the primary investigator could not meet with any nurse resident cohorts, which may have further contributed to the low survey response rate. Future research with a larger participant sample may be helpful to determine the generalizability of this scholarly project's findings.

Conclusion

Ineffective interprofessional communication among healthcare professionals is an important issue observed in many different clinical settings. Nurse residency programs constitute one useful tool that can be used to appropriately address the issue of ineffective communication. By improving interprofessional communication in nurse residents, there may be a decrease in treatment delays, misdiagnoses, medication errors, patient injuries, and even patient death. While nurse residency programs alone cannot correct ineffective communication, they can positively impact communication between health care professionals. Measuring the effectiveness of nurse residency programs or any individual part of the program is challenging. Most programs are deemed successful based on one and two-year nursing staff retention numbers. Soliciting the perceptions of the nurse residents themselves can provide greater insight into the relevance and impact of the program beyond solely measuring the retention numbers. There has been a major shift in how nurse residency programs, and nursing education, have operated the past two years, due largely in response to a global pandemic and post-global pandemic environment. More research needs to be conducted into how nurse residency programs must be adapted and changed in order to remain effective in this environment. Finally, professional socialization with other disciplines, especially with physicians, may be an area of future research in the residency program structure.

References

Asber, S. R. (2019). Retention outcomes of new graduate nurse residency programs. *JONA: The Journal of Nursing Administration*, *49*(9), 430–435. https://doi.org/10.1097/nna.0000000000000780

Ayanian, J., & Markel, H. (2016). Donabedian's lasting framework for health care quality. The New England Journal of Medicine, 375(3), 205-7

Bardach, S. H., Real, K., & Bardach, D. R. (2017). Perspectives of healthcare practitioners: An exploration of interprofessional communication using electronic medical records. *Journal of Interprofessional Care*, *31*(3), 300–306. https://doi.org/10.1080/13561820.2016.1269312

Binder, C., Torres, R. E., & Elwell, D. (2021). Use of the Donabedian model as a framework for COVID-19 response at a hospital in suburban Westchester County, New York: A facility-level case report. *Journal of Emergency Nursing*, *47*(2), 239–255. https://doi.org/10.1016/j.jen.2020.10.008

Blevins, S. H. (2016). Nurse residency programs: Supporting nurse graduates. *MedSurg Nursing*, *25*(5), 367–368.

Butler, J. I., & Fox, M. T. (2018). Nurses' perspectives on interprofessional communication in the prevention of functional decline in hospitalized older people. *Health Communication*, *34*(9), 1053–1059. https://doi.org/10.1080/10410236.2018.1455141

Clapper, T. C., & Ching, K. (2019). Debunking the myth that the majority of medical errors are attributed to communication. *Medical Education*, *54*(1), 74–81. https://doi.org/10.1111/medu.13821

Cline, D., Frentz, K. L., Fellman, B., Summers, B., & Brassil, K. (2017). Longitudinal outcomes of

an institutionally developed nurse residency program. *JONA: The Journal of Nursing Administration*, *47*(7/8), 384–390. https://doi.org/10.1097/nna.0000000000000500

Corbin, J. M., & Strauss, A. L. (2015). Basics of qualitative research: Techniques and procedures for developing grounded theory. SAGE.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches.* (5th ed.). SAGE Publications, Inc.

Dean, M., Gill, R., & Barbour, J. B. (2016). "Let's sit forward": Investigating interprofessional communication, collaboration, professional roles, and physical space at EmergiCare. *Health Communication*, *31*(12), 1506–1516. https://doi.org/10.1080/10410236.2015.1089457

Delack, S., Martin, J., Mccarthy, A. M., & Sperhac, A. M. (2015). Nurse residency programs and the transition to child health nursing practice. *JONA: The Journal of Nursing Administration*, *45*(6), 345–350. https://doi.org/10.1097/nna.0000000000000210

Donabedian, A. (1966). Evaluating the quality of medical care. The Milbank Memorial Fund Quarterly, 44(3), 166-206. doi:10.2307/3348969

Fowler, S. B., Lind, S. C., Johnson, P. R., & Lewis, J. (2018). Qualitative description of new graduate nurses' experiences in a nurse residency program. *Journal for Nurses in Professional Development*, *34*(6), 319–324. https://doi.org/10.1097/nnd.0000000000000496

Foronda, C., MacWilliams, B., & McArthur, E. (2016). Interprofessional communication in healthcare: An integrative review. *Nurse Education in Practice*, *19*, 36–40. https://doi.org/10.1016/j.nepr.2016.04.005

Foronda, C. L., Walsh, H., Budhathoki, C., & Bauman, E. (2019). Evaluating nurse–physician

communication with a rubric: A pilot study. *The Journal of Continuing Education in Nursing*, *50*(4), 163–169. https://doi.org/10.3928/00220124-20190319-06

Geraghty, A., & Paterson-Brown, S. (2018). Leadership and working in teams. *Surgery (Oxford)*, *36*(9), 503–508. https://doi.org/10.1016/j.mpsur.2018.07.013

Goode, C. J., Ponte, P. R., & Havens, D. S. (2016). Residency for transition into practice. *JONA: The Journal of Nursing Administration*, *46*(2), 82–86. https://doi.org/10.1097/nna.0000000000000300

Kreps, G. L. (2016). Communication and effective interprofessional health care teams. *International Archives of Nursing and Health Care*, *2*(3). https://doi.org/10.23937/2469-5823/1510051

Low, S., Gray, E., Ewing, A., Hain, P., & Kim, L. (2021). Remodeling interprofessional collaboration through a nurse-for-a-day shadowing program for medical residents. *Journal of Multidisciplinary Healthcare*, *Volume 14*, 2345–2349. https://doi.org/10.2147/jmdh.s319728

Matzke, C. M., DeGennaro, R., & Howie-Esquivel, J. (2021). Incorporating TeamSTEPPS training to improve staff collaboration in an academic level I emergency and trauma center. *International Emergency Nursing*, *55*, 100959. https://doi.org/10.1016/j.ienj.2020.100959

Matziou, V., Vlahioti, E., Perdikaris, P., Matziou, T., Megapanou, E., & Petsios, K. (2014). Physician and nursing perceptions concerning interprofessional communication and collaboration. *Journal of Interprofessional Care*, *28*(6), 526–533. https://doi.org/10.3109/13561820.2014.934338

Medas, J. C., Amato, S., Grimm, D., Radziewicz, R., Rhodes, C., Vanhorn, C., & Mcnett, M. (2015). Outcomes of a comprehensive nurse residency program. *Nursing Management*

(Springhouse), *46*(11), 40–48. https://doi.org/10.1097/01.numa.0000469353.71942.5b

Monroe, K. K., Kelley, J. L., Unaka, N., Burrows, H. L., Marshall, T., Lichner, K., McCaffery, H., Demeritt, B., Chandler, D., & Herrmann, L. E. (2021). Nurse/resident reciprocal shadowing to improve interprofessional communication. *Hospital Pediatrics*, *11*(5), 435–445. https://doi.org/10.1542/hpeds.2020-002345

Müller, M., Jürgens, J., Redaèlli, M., Klingberg, K., Hautz, W. E., & Stock, S. (2018). Impact of the communication and patient hand-off tool SBAR on patient safety: A systematic review. *BMJ Open*, *8*(8). https://doi.org/10.1136/bmjopen-2018-022202

Overbeck, G., Brostrøm Kousgaard, M., & Davidsen, A. S. (2018). Enactments and experiences of 'enhanced interprofessional communication' in collaborative care - a qualitative study. *Journal of Interprofessional Care*, *33*(5), 519–527. https://doi.org/10.1080/13561820.2018.1538109

Semyonov-Tal, K., & Lewin-Epstein, N. (2021). The importance of combining open-ended and closed-ended questions when conducting patient satisfaction surveys in hospitals. *Health Policy OPEN*, *2*, 100033. https://doi.org/10.1016/j.hpopen.2021.100033

Settani, S. S., Silva, G. B., Julião, I. H., Silva, M. C., Silva, J. C., Oliveira, D. A., Barbosa, L. M., & Silva, C. D. (2019). Nursing communication and its impact on patient safety. *Journal of Nursing UFPE on Line*, *13*. https://doi.org/10.5205/1981-8963.2019.239573

Shahian, D. M., McEachern, K., Rossi, L., Chisari, R. G., & Mort, E. (2017). Large-scale implementation of the I-PASS handover system at an academic medical centre. *BMJ Quality & Safety*, *26*(9), 760–770. https://doi.org/10.1136/bmjqs-2016-006195

Sledge, J. A., Potter, P., & Stapleton, P. (2016). Participant voices: Making a nurse residency program better. *Nurse Leader*, *14*(5), 358–364. https://doi.org/10.1016/j.mnl.2016.03.010

Sowko, L. A., Fennimore, L. A., & Drahnak, D. M. (2019). Teaching workplace interprofessional communication to undergraduate nursing students. *Journal of Nursing Education*, *58*(9), 538–542. https://doi.org/10.3928/01484834-20190819-08

Ssemugabo, C., MPH, S. N., Halage, A. A., Neebye, R. M., Musoke, D., & Jørs, E. (2019). Doctors experiences on the quality of care for pesticide poisoning patients in hospitals in Kampala, Uganda: a qualitative exploration using Donabedian's model. https://doi.org/10.21203/rs.2.11480/v1

Tyo, M. B., Gundlach, M., Brennan, C., Esdale, L., Knight, A., Provencher, S., & Tardy, K. (2018). Leading the charge. *Journal for Nurses in Professional Development*, *34*(5), 270–276. https://doi.org/10.1097/nnd.0000000000000476

Verhaegh, K. J., Seller-Boersma, A., Simons, R., Steenbruggen, J., Geerlings, S. E., de Rooij, S. E., & Buurman, B. M. (2017). An exploratory study of healthcare professionals' perceptions of interprofessional communication and collaboration. *Journal of Interprofessional Care*, *31*(3), 397–400. https://doi.org/10.1080/13561820.2017.1289158

Walsh, A. L. (2018). Nurse residency programs and the benefits for new graduate nurses. *Pediatric Nursing, 44*(6), 275-279. https://nurseresidencyprogramsandbenefitsfornewgraduatenurses

Walsh, H. A., Jolly Inouye, A. A., & Goldman, E. F. (2017). Improving communication through resident-nurse shadowing. *Hospital Pediatrics, 7*(11), 660–667. https://doi.org/10.1542/hpeds.2017-0001

Wildermuth, M. M., Weltin, A., & Simmons, A. (2020). Transition experiences of nurses as students and new graduate nurses in a collaborative nurse residency program. *Journal of Professional Nursing*, *36*(1), 69–75. https://doi.org/10.1016/j.profnurs.2019.06.006

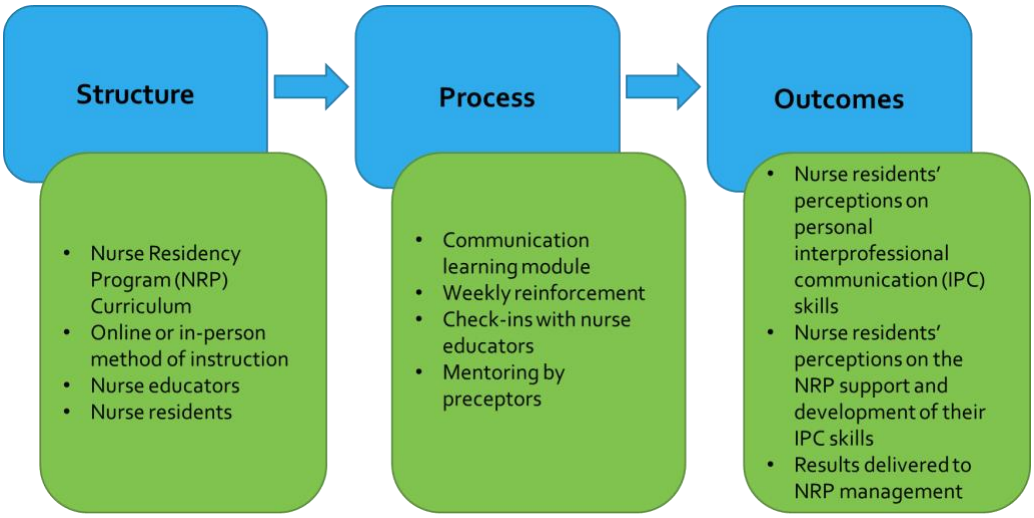
Ziebert, C., Klingbeil, C., Schmitt, C. A., Stonek, A. V., Totka, J. P., Stelter, A., & Schiffman, R.

F. (2016). Lessons learned. *Journal for Nurses in Professional Development*, *32*(5). https://doi.org/10.1097/nnd.0000000000000278

Appendix A

Figure 1

Visual representation of the theoretical framework of Donabedian's SPO Model



Appendix B

Letter of invitation with link

Letter of Invitation to Participate in Research

Nurse Residents' perceptions of interpersonal communication: A Survey

Dear Nursing Colleague,

My name is Emily L. Fritz, a student in the Belmont University School of Nursing Graduate program. I am conducting my capstone project and would like to invite you to be part of this project through a survey. My faculty advisor is Dr. Steven Busby, Associate Professor, School of Nursing.

The purpose of this study is to examine nurse residents' perceptions of the interprofessional communication learning module they participated in as part of a nurse residency program. Do nurse residents perceive that the nurse residency program facilitated and supported the development and growth of their interprofessional communication skill?

You are eligible to participate in this study if you were/are a nurse enrolled in the Centennial Nurse Residency Program between August 2019 and August 2021 and have completed the communications module within the residency program. We will ask you to complete a survey, which should take approximately 10 to 15 minutes to complete. This survey contains questions about your perceptions regarding your communications with other healthcare professionals. Responses will be anonymous and confidential. Please do not enter any identifying information (your name, address, unit, etc.) in your survey.

Your participation in this study is completely voluntary. You may choose to discontinue participation at any time, and you may choose to leave blank any of the survey questions that you do not wish to answer. The first survey question will ask for your consent to participate in the survey. Feel free to contact me at Emily.Fritz@pop.belmont.edu if you have questions.

https://belmont.az1.qualtrics.com/jfe/form/SV_6Dv5FPOyDYaSLps

Sincerely,

Emily L. Fritz

Letter of invitation with QR code

Letter of Invitation to Participate in Research

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Sincerely,

Emily L. Fritz

Appendix C

Survey questionnaire

Thank you for taking this survey. The survey should take approximately 10 to 15 minutes to complete and contains questions about your perceptions regarding your communications with other healthcare professionals. Responses will be anonymous and confidential. Please do not enter any identifying information (your name, address, unit, etc.) in your survey. Your participation in this study is completely voluntary. You may choose to discontinue participation at any time, and you may choose to leave blank any of the survey questions that you do not wish to answer. The first survey question will ask for your consent to participate in the survey.

1. Do you wish to consent to participate in the survey?
Yes
No

2. When did you complete the communication learning module?
Prior to August 2019
August 2019 to august 2020
August 2020 to august 2021
After August 2021

3. Did you take the interprofessional communication learning module online?
No
Yes

4. Please answer each statement to the best of your ability.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Prior to completion of the nurse residency communication learning module, I had strong interprofessional communication skills.					
The nurse residency program facilitated the growth of your personal interprofessional communication skills.					
I feel comfortable initiating clinical conversations with physicians.					
I feel comfortable contacting the physicians					

on-call after business hours.					
I feel comfortable initiating clinical conversations with other nursing staff.					
I feel comfortable initiating clinical conversations with other disciplines in the hospital. i.e. Pharmacy or Physical Therapy					
I often use a communication tool, such as SBAR, IPASS or CUS, to direct my clinical conversations.					
The communication learning module provided by the nurse residency program included sufficient specific material on interprofessional communication.					
I feel the communication learning module provided by the nurse residency program directly facilitated the development of my interprofessional communication.					

5. With which healthcare disciplines are you most uncomfortable with initiating conversations?

_____

6. With which healthcare disciplines are you most comfortable with initiating conversations?

_____

7. Please explain if/how the nurse residency program facilitated the development of your interprofessional communication.

_____

8. Did you have a job in healthcare prior to beginning this nurse residency program?
Yes
No

9. What was your healthcare job prior to beginning this nurse residency?

_____

10. Your age?
Under 20
20-24
25-29
30-34
Over 34

11. Your identified gender?
Male
Female
Non-binary

12. Your identified ethnicity?
African American
Caucasian
Hispanic
Other

13. How many years have you been a nurse?
Less than 1 year
1-2 years
2-3 years
Longer than 3 years

14. What is the highest nursing degree you hold?
LPN
Associate degree RN
Bachelor degree RN
Master degree RN

15. How could the nurse residency program better facilitate the development of your interprofessional communication skills?

_____

We thank you for your time spent taking this survey.
Your response has been recorded

Appendix D

Table 1

Participant Demographics	*n*	%
Gender		
Male	2	10.0%
Female	15	75.0%
Non-binary	0	0.0%
Missing	3	15.0%
Age (years)		
Under 20	0	0.0%
20-24	7	35.0%
25-29	7	35.0%
30-35	1	5.0%
over 35	2	10.0%
Missing	3	15.0%
Ethnicity		
African American	0	0.0%
Caucasian	16	80.0%
Hispanic	0	0.0%
Other	1	5.0%
Missing	3	15.0%
Years working as a nurse		
Less than 1	3	15.0%
1-2	9	45.0%
2-3	4	20.0%
Over 3	1	5.0%
Missing	3	15.0%
Highest nursing degree of participants		
LPN	0	0.0%
Associate degree RN	5	25.0%
Bachelor's degree RN	11	55.0%
Master's degree RN	0	0.0%
Missing	4	20.0%

Note. Not all study participants responded to the demographic questions

Table 2

Nurse Residents' Demographics Specific to this Sample	*n*	%
When did you complete the communication learning module?		
Prior to August 2019	0	0.0%
August 2019 to August 2020	12	60.0%
August 2020 to August 2021	8	40.0%
After August 2021	0	0.0%
Did you take the interprofessional communication learning module online?		
Yes	17	85.0%
No	3	15.0%
Did you have a job in healthcare prior to beginning this nurse residency program?		
No	7	35.0%
Yes	11	55.0%
Missing	2	10.0%
What was your healthcare job prior to beginning this nurse residency program?*		
Nursing Assistant	7	58.3%
Medication Administrator	1	8.3%
Mental Health Counseling	1	8.3%
Respiratory Therapy	1	8.3%
Missing	2	16.7%

Note. Not all study participants responded to the demographic questions
* Some participants responded with more than one answer to the prompt, all valid answers were included in the analysis

Table 3

Nurse residents' perceptions on their interprofessional communication skills

	Strongly Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Total
	n (%)	*n* (%)	*n* (%)	*n (%)*	*n* (%)	*n*
Prior to completion of the nurse residency communication learning module, I had strong interprofessional communication skills.	6 (30.0)	9 (45.0)	4 (20.0)	0 (0.0)	1 (5.0)	20
The nurse residency program facilitated the growth of my personal interprofessional communication skills.	2 (10.0)	9 (45.0)	4 (20.0)	3 (15.0)	2 (10.0)	20
I feel comfortable initiating clinical conversations with physicians.	8 (40.0)	10 (50.0)	2 (10.0)	0 (0.0)	0 (0.0)	20
I feel comfortable contacting the physicians on-call after business hours.	6 (30.0)	10 (50.0)	3 (15.0)	1 (5.0)	0 (0.0)	20
I feel comfortable initiating clinical conversations with other nursing staff.	14 (70.0)	4 (20.0)	1 (5.0)	1 (5.0)	0 (0.0)	20
I feel comfortable initiating clinical conversations with other disciplines in the hospital. i.e. Pharmacy or Physical Therapy	13 (65.0)	5 (25.00	2 (10.0)	0 (0.0)	0 (0.0)	20
I often use a communication tool, such as SBAR, IPASS or CUS, to direct my clinical conversations.	8 (40.0)	8 (40.0)	3 (15.0)	0 (0.0)	1 (5.0)	20

The communication learning module provided by the nurse residency program included sufficient specific material on interprofessional communication.	4 (20.0)	7 (35.0)	5 (25.0)	4 (20.0)	0 (0.0)	20
I feel the communication learning module provided by the nurse residency program directly facilitated the development of my interprofessional communication.	4 (20.0)	7 (35.0)	4 (20.0)	4 (20.0)	1 (5.0)	20

Table 4

Qualitative data

Questions	Categories	*n*
With which healthcare disciplines are you most uncomfortable with initiating conversations?		
	Consulting services*	7
	Physicians	5
	After hours call services	2
With which healthcare disciplines are you most comfortable with initiating conversations?		
	Nursing	7
	Physical/Occupational therapy	4
	Hospitalist	3
	Pharmacy	2
	Nursing management	1
	Speech therapy	1
What things have contributed to the development of your interprofessional communication skills?		
	Practice	7
	Experience	3
	Preceptor support	3
	Having confidence	2
	Nursing collogue advice	2
	Nursing knowledge	1
	“Making mistakes when I call”	1
Please explain if/how the nurse residency program facilitated the development of your interprofessional communication		
	Did not help	6
	Practicing	4
	Confidence building	2
	Educational tips	2
	Initiating communications	2
	Unsure	1
How could the nurse residency program better facilitate the development of your interprofessional communication skills?		
	More practice	3
	Communication classes**	1
	Do not know	1
	In person class	1

More examples	1
Teamwork	1

Note. Some participants responded with more than one answer to the prompt, all valid answers were included in the analysis
*Consulting service answers included End of Life, Anesthesia, and specialty services
**Unsure if respondent meant more communication classes or improved communication classes