

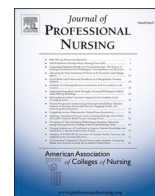


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Telehealth across nursing education: Findings from a national study

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ABSTRACT

Background: The onset of COVID-19 perpetuated the necessity for nursing students to be telehealth savvy upon graduation. There is minimal research regarding the integration of telehealth in nursing curricula across multiple levels.

Purpose: The purpose of this survey study was to determine the current or future use of telehealth content and experiences in prelicensure and graduate nursing program curricula.

Methods: Following vetting, an adapted survey was sent to 386 nursing program or simulation directors in June 2020.

Findings: The survey had a 21 % ($n = 82$) response rate. Fifty-five percent of prelicensure and 40 % of graduate programs had no telehealth curricular content, while 22 % and 45 %, respectively, planned to integrate. The top barrier to integration was a lack of funds.

Discussion: Further research is needed to evaluate telehealth in nursing curricula. Due to many factors, the addition of telehealth curricula in nursing schools is inevitable.

Introduction

Telehealth is defined as the exchanging of information, specifically medical, between two sites using electronic communication to improve patients' health status ([American Telemedicine Association, n.d.](#)). It supports patient care in a variety of settings. Settings where telehealth can be utilized range from the emergency department of major intercity hospitals to small outlying rural clinics to remote home assessments. Additionally, on-demand type visits are also offered to monitor various clinical symptoms ([Centers for Disease Control and Prevention \[CDC\], 2020](#)).

Due to the rapid onset of COVID-19 and the need to “see” patients remotely, telehealth has become a new standard of care for many of these settings ([Bestsenny et al., 2021](#)). Telecommunication technologies, using electronic devices (e.g., computers, smartphones) with and without peripherals, are rapidly becoming a standard in healthcare settings ([Ali et al., 2015](#); [Merritt et al., 2018](#)). The term peripherals in telehealth refer to any device capable of gathering and transmitting biometric data electronically (e.g., heart rate, blood pressure) ([National Telehealth Technology Assessment Resource Center \(TTAC\), n.d.](#)). These innovations allow patients, nurses, and healthcare providers greater access to each other. Consequently, the education of nurses on

the proper use of these technologies and equipment and how to communicate effectively and connect with patients who are not in the same room is vital ([Rutledge et al., 2017](#)). Ultimately, the provider's goal is to support a patient's health and well-being while enhancing outcomes ([Lister et al., 2018](#)).

Background

Need

Educating differing levels of nursing students regarding emerging technologies within healthcare is becoming a standard practice, and there are expected competencies. Current competencies for both the prelicensure (defined as entry-level) and advanced practice programs in nursing include the use of telecommunication technologies ([American Association of Colleges of Nursing \[AACN\], 2021](#); [National Organization of Nurse Practitioner Faculties \[NONPF\], 2018](#)). Although these competencies exist, there is limited research regarding the integration of telehealth throughout the nursing curricula across multiple levels. The newness of telehealth content and the range of available experiences may make it difficult for schools to determine best practices for educating their students. This lack of best practices and consistency to

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deliver telehealth content may create a variation when training the next generation of nurses.

Prelicensure competencies

The current *Essentials* (AACN, 2021) call for prelicensure students to bolster patient care by understanding the basic concepts of telehealth systems. Students in prelicensure programs should be exposed to telehealth usage and be prepared to know when and how to use this technology. Additionally, prelicensure students need educational experiences using telehealth technologies to communicate with other healthcare providers and patients. Training nursing students in telehealth technology to deliver health information, preventative care, remote patient monitoring, and healthcare before graduation is necessary for the delivery of nursing care to all patients, including different populations in diverse settings (AACN, 2021).

Advanced practice competencies

Programs that educate Advanced Practice Nursing (APN) students have been asked to include telehealth technologies in their curricula by the AACN (2021). The AACN *Essentials* (2021) contain multiple competencies for APN students. These include using telehealth and other communication technologies to gather, communicate, and disseminate healthcare information to other providers and patients. APN students should also be competent in the ethics, legal, professional, and regulatory standards concerning healthcare data and the communication of patient data to deliver quality healthcare to patients in a variety of settings, as well as diverse populations (AACN, 2021).

In 2018, the National Organization of Nurse Practitioner Faculties (NONPF) produced a white paper stating that nurse practitioner (NP) programs should complete healthcare skills using technologies, including telehealth. NONPF (2018) competencies consist of the understanding and use of etiquette, privacy of health information, peripherals, documentation, billing, and the capability to collaborate with other providers during telehealth visits. APN students should also be able to perform a telehealth visit consisting of an appropriate history and physical examination and develop accurate differential diagnoses (NONPF, 2018). Programs can prepare APN students to utilize telehealth technologies through lectures, simulations, direct care experience, and virtual clinic visits (Rutledge et al., 2017).

Pandemic

The first quarter of 2020 had 50 % more telehealth visits than the same quarter in 2019 (Centers for Disease Control and Prevention [CDC], 2020). By July of 2021, telehealth visits had increased 78 times that of February in the year prior (Bestsenny et al., 2021). This sharp increase in telehealth visits left many providers struggling to quickly learn how to complete a successful online visit with patients. In addition, the emergent use of telehealth, because of COVID-19, led to the need for both providers and patients to embrace the technology (Bestsenny et al., 2021). Therefore, both prelicensure and APN students need to be exposed to facilitating and conducting telehealth visits to ensure quality patient outcomes.

Literature review

A scan of the literature identified only one study evaluating telehealth technology educational trends in 43 nursing schools in 2014 in the United States (U.S.) (Ali et al., 2015). Programs included prelicensure, master's, as well as Doctor of Nursing Practice (DNP). Results from deans and directors surveyed revealed that about 88 % agreed telehealth education should be a part of the curriculum at some level. However, a small percentage did not think telehealth education was appropriate for undergraduates. Slightly over 70 % included any

telehealth content, and just over 40 % had some telehealth learning experience. While 52 % reported having support from their institution, surveyed participants also elicited barriers to telehealth integration. The most significant identified barrier was a lack of faculty training in telehealth technology, followed by an already packed curriculum, lack of faculty knowledge regarding telehealth, and time for students to learn. Follow-up interviews with four of the participants showed that having a champion was important. Limitations included the small sample size (Ali et al., 2015).

A second survey-based study looked at what encouraged or inhibited telehealth in nursing education within New Zealand (Prendergast & Honey, 2019). Of the 19 respondents in one regional area, the majority (68 %) rated themselves as a novice in telehealth. To engage in telehealth, educators felt the equipment should be simple, training should be provided, and there should be a champion, among others (Prendergast & Honey, 2019).

Prelicensure and graduate nursing programs integrate telehealth simulation-based education (SBE) experiences to prepare students to use telehealth technologies after graduation. Prelicensure students may use simulation experiences as part of hands-on requirements (DeFoor et al., 2020) to allow experience in telehealth situations. These SBE experiences include communication and/or assessment skills (Lister et al., 2018; Victor et al., 2021). To prepare APN students, graduate programs are now incorporating or encouraging to include telehealth SBE experiences that focus on telehealth etiquette, use of peripherals or other equipment, and communication via videoconferencing or other telehealth methods (Chike-Harris, Garber, et al., 2021; Eckhoff et al., 2022; Smith et al., 2018). Other telehealth SBEs, for a variety of healthcare professional students, use standardized patients (SPs) (Chike-Harris, 2021; Chike-Harris, Durham, et al., 2021; Davis et al., 2022; Emerson et al., 2021; LaManna et al., 2021; Ochs et al., 2022; Quinlin et al., 2021; Smith et al., 2018) and for nurse practitioner (NP)/APN students, these SBEs with or without SPs, may include skills such as assessment, interviewing, diagnostics, patient management, and/or referral (Davis et al., 2022; Emerson et al., 2021; LaManna et al., 2021; Merritt et al., 2018; Quinlin et al., 2021; Smith et al., 2018). However, some authors do not describe the telehealth simulations in great depth (Chike-Harris, 2021). Although telehealth SBE experiences are being offered to both prelicensure and graduate nursing students, there is no current comprehensive study including both prelicensure and graduate students and the type of telehealth education and experiences.

While there was only one survey available for review that evaluated the overall use of telehealth content and experiences in nursing programs in the U.S. (Ali et al., 2015), it appears to be increasing with the pandemic, as revealed in an article by Rutledge et al. (2020). With the start and continuation of the COVID-19 pandemic and the release of the new AACN *Essentials* (2021), changes to curricula may have occurred. Therefore, a more recent survey on prelicensure and graduate nursing programs seemed relevant to properly appraise the current trends of telehealth integration into nursing curricula.

Purpose

The purpose of this study was to determine if, where, how, and what (types of) telehealth content and experiences are integrated into the curricula of current prelicensure and graduate nursing programs.

Methods

Design

After approval by the university's Institutional Review Board (IRB), this descriptive study was developed in two parts: 1) survey development/adaptation, and 2) survey deployment. The final survey had descriptive questions and two open-ended responses.

Survey development/adaptation

The first part of this study was the development of the survey. The principal investigator (PI) used a survey from work by [Badowski et al. \(2018\)](#), developed initially to survey schools regarding electronic health records within simulation, and adapted it for this study with permission. The survey consisted of 12 multiple choice questions regarding each school's demographic information, 14 multiple choice questions regarding the school's telehealth program in the prelicensure department, and the same 14 multiple choice questions related to their NP program. Additional seven-multiple choice questions were asked regarding their satisfaction with their telehealth program and support from their school in using telehealth. The questions and adaptations included queries regarding the use of education and different types of telehealth equipment, including use in simulation.

Before releasing the survey to schools and colleges of nursing in the U.S., a recruitment email explaining the study was sent via a secure server to a total of twelve experts in the field of simulation, telehealth, and statistics. Names and email addresses of these experts were gathered in consultation with peers who are experts in the above fields (via word of mouth). The email also contained a link to an anonymous online survey through [Qualtrics^{XM}](#) (Provo, UT). Two weeks after the initial email, a follow-up email with an Explanation of the Research and the [Qualtrics^{XM}](#) (Provo, UT) link was sent.

The study remained open for an additional two weeks before closing. The online-delivered survey was redacted in English, and responses were gathered anonymously. Each expert had the opportunity to comment, via a text box, on each item regarding relevance to the research question (highly relevant, quite relevant, somewhat relevant, or not relevant) and offer suggestions (if any) for changes to the survey. A total of six experts gave suggestions for the improvement of the survey. Changes were made to the survey based on the comments and suggestions of these experts. Some changes included better wording and definitions of words related to telehealth.

Additional changes included using skip-logic to avoid participants having to click or answer questions that did not pertain to them. Skip-logic, a setting in [Qualtrics^{XM}](#) (Provo, UT), was activated by the researcher on certain questions. This setting, using if/then statements, skips questions that are irrelevant to the participant based on their response to the previous question in [Qualtrics^{XM}](#) (Provo, UT). For instance, if the participant selected “no” for the question, “Do you have an undergraduate program?”, all questions pertaining to undergraduate programs were skipped and the participant would not see these questions. This also saved participants time by skipping questions that were not applicable instead of taking time and effort to answer with “n/a”. After expert changes were completed, the survey remained at 48-questions.

Survey deployment

Participants

The revised survey was entered into [Qualtrics^{XM}](#) (Provo, UT), and an anonymous link was procured. An email containing a link to the anonymous online survey through [Qualtrics^{XM}](#) (Provo, UT), along with the Explanation of the Research, was sent to 386 nursing experts (program or simulation directors who work at colleges or schools of nursing throughout the U.S.) in June of 2020. Directors of undergraduate and graduate and/or simulation programs in a school or college of Nursing in the U.S. were selected by the principal investigator (PI) in consultation with peers which included their suggestion to review public-accessible online lists of accredited nursing programs/colleges (i.e., [Commission on Collegiate Nursing Education \[CCNE\], n.d.](#)).

A follow-up email with an Explanation of Research and [Qualtrics^{XM}](#) (Provo, UT) link was sent two weeks following the initial email. The study remained open for an additional two weeks before closing. The online-delivered survey was redacted in English, and responses were

gathered anonymously.

Instrument contents

The instrument included demographics and telehealth usage survey items. Each respondent did not receive all questions, as specific questions were given based on a previous answer (i.e., skip-logic built into [Qualtrics^{XM}](#) [Provo, UT]). For example, the participant was asked to answer only the questions related to their institution's program(s). Items included those related to institutional and school demographics, telehealth equipment/peripherals owned, telehealth content presented per program (prelicensure and graduate), and methodology of content per program.

If the institution was currently providing telehealth content, they were asked about telehealth experiences (classroom, skills/simulation lab, clinical) and telehealth equipment used per program (prelicensure and graduate). If not, they were asked why. Questions were also asked about plans to integrate telehealth content and experiences, of who makes decisions about telehealth content and equipment, the support/troubleshooting offered for faculty and students related to the telehealth equipment, and satisfaction (or not) with the amount of telehealth content and equipment. An additional question included whether graduates reported, on average, if they were adequately prepared to use telehealth equipment upon graduation.

Finally, two open-ended questions were incorporated. One was to provide an example of the simulation scenarios or content they were using with telehealth content or experiences. Another was about anything they wanted to share not addressed in the survey about the use of telehealth equipment, telehealth content, and telehealth etiquette in the classroom, skills lab, or simulation lab.

Statistical analysis

This study analyzed non-parametric descriptive quantitative data reported as an aggregate and rounded to a whole number. Respondents were also offered the opportunity to answer questions regarding simulations and barriers with short-answer responses. These responses were tabulated according to themes and included in the findings.

Findings

Demographics

A total of 82 participants out of 386 (21 %) answered the survey. Eighty-one responded to the question about the state the program physically resides in, with respondents from 37 states plus Washington DC. All regions of the U.S. were represented, although not equally, with most respondents in the West and Northeast. Half of the institutions ($n = 41$) were public, while the other half ($n = 41$) were private. Student enrollment for institutions ranged from 48 to 60,000. The average total number of students in the prelicensure program ranged from 25 to 10,000 across 22 campuses. The graduate nursing program's average number of students (including master's, post-master's, doctoral, and certificate programs) ranged from 10 to 25,870. The average number of students in any other nursing program (such as a diploma or associate degree; not registered nurse to Bachelor of Science in Nursing [RN to BSN]) spanned from 0 to 500. Further demographic results are provided in [Table 1](#).

Telehealth equipment

Respondents ($n = 82$) were asked to select all types of telehealth equipment their school currently had in-house. The largest type of telehealth equipment available to respondents' programs were iPads, tablets, or computers (57 %, $n = 47$). Thirty-seven percent ($n = 30$) had telehealth carts, kiosks, or kits, while 30 % ($n = 25$) had cellular phones available. Less than 15 % of schools ($n = 11$) had telehealth robots with

Table 1
Institutional and program demographics.

Question (total answered) <i>N</i> = 82	Number/ percentage (%)
	(Where applicable)
Academic degrees offered ^a	
Diploma	0
Associate degree in nursing	7
Bachelor's	73
Master's	52
Doctoral	40
Academic term	
Semester	78(95 %)
Other	4(5 %)
Average weeks/academic term ^a	
<10	1(1 %)
10–12	4(6 %)
13–15	62(76 %)
>15	26(32 %)
Delivery method of curriculum prelicensure	
On-campus (in-seat only)	36(44 %)
Both on-campus and online (hybrid)	35(43 %)
Online program only	1(1 %)
Other	10(12 %)
Delivery method of curriculum graduate	
On-campus (in-seat only)	6(7 %)
Both on-campus and online (hybrid)	36(44 %)
Online program only	18(22 %)
Other	22(27 %)
Name of accrediting agency ^a	
ACEN (Accreditation Commission for Education in Nursing)	9
ACNM (The American College of Nurse-Midwives Division of Accreditation)	3
COA (Council on Accreditation of Nurse Anesthesia Educational Program)	4
CNE (Commission on the Collegiate Nursing Education)	72
Society for Simulation in Healthcare Accreditation of Healthcare Simulation Program	9
Other	8

^a Total *n* reflects the respondent's ability to select more than one option; therefore, may not equal 100 %.

or without peripherals. Of the six schools with peripherals, the majority had stethoscopes and otoscopes (6 and 5, respectively). Most schools that did not have telehealth equipment or peripherals reported via text box as lack of funding or lack of administrative support as the major barriers.

Although only one school noted that there was telehealth equipment available for use in simulation, less than half of the schools were currently using the equipment. The same number of prelicensure and graduate respondents (*n* = 24 each) noted the current use of telehealth equipment. Both programs noted that iPad, tablets, or computers were used (*n* = 20 respectively) as well as mobile phones (*n* = 15 respectively). Additionally, nine prelicensure and nine graduate respondents currently utilized telehealth carts, kiosks, or kits.

Equipment, content, and experiences decisions

Participants were queried regarding the decision-makers for their program and were able to choose multiple answers. Respondents to this question (*n* = 63) had a prelicensure program, while 55 also had a graduate program. However, no respondents had only graduate programs. The main decision-makers in integrating telehealth content and experiences into the curriculum were individual course faculty (51 %; *n*

= 32) and curriculum committee and simulation faculty/staff (52 %; *n* = 33). When deciding on the type of telehealth equipment the program should purchase, individual course faculty (70 %; *n* = 44) and simulation faculty and staff (63 %; *n* = 40) made the decision.

Prelicensure nursing programs telehealth content and experiences

Eighty-two respondents had a prelicensure program. Forty-five percent of these participants (*n* = 37) reported having some classroom content or learning experience regarding telehealth in their curricula. However, most of these 37 programs (78 %, *n* = 29) reported having less than four times the students were exposed to telehealth content and experiences. Respondents were permitted to select all ways that content and experiences were presented to students. Twenty-three participants reported that most were presented in lecture form, while 17 used an informatics class. Other schools used videos (*n* = 13) and online learning modules (*n* = 12). Prelicensure programs (32 %; *n* = 26) that currently included telehealth experiences in the skills/simulation lab generally offered less than four experiences per semester.

Graduate nursing program telehealth content and experiences

Fifty-five respondents had a graduate program. Classroom content or learning experiences regarding telehealth were present in 60 % (*n* = 33) of their curricula. Of these APN programs with telehealth content and experiences (*n* = 33), 82 % (*n* = 27) reported exposing their students less than four times per semester. Respondents were permitted to select all ways that content and experiences were presented to students. Twenty-one participants reported that most contents were presented in lecture form and online learning modules (*n* = 20) and informatics class (*n* = 19). Other schools reporting using videos (*n* = 16) and hands-on practice (*n* = 14). Simulation or skills labs were used by 44 % of the graduate programs (*n* = 24).

Program and specific telehealth questions

Respondents were asked to answer questions regarding telehealth curricular and equipment integration and purchasing decisions at their college or university, and the type of technical support available to faculty and students. Respondents had the option to select multiple answers that applied to their program. Of the 63 who responded to these questions, the majority (61 % and 70 %) noted that the individual course faculty made telehealth curricular and equipment integration decisions, respectively. Fifty-two percent of respondents (*n* = 82) also noted that simulation faculty and staff or the curriculum committee had decision-making responsibility for curricular integration decisions, but 63 % noted that the simulation faculty and staff were responsible for deciding what telehealth equipment was purchased.

Barriers to content, experiences, and equipment

In this study, the greatest barrier to deploying telehealth content for prelicensure programs was funding, followed by lack of information or technology support and the other category. Respondents who chose the other indicated that administration support, technology support, and faculty buy-in kept the program from including telehealth content in the curricula. Similarly, respondents of graduate programs indicated lack of funding and the other category, as significant barriers to implementing telehealth content in the curriculum. Open text box answers to the response of the other category indicated barriers such as unwillingness from administration and faculty.

Adequate funding was again an issue for the inclusion of telehealth experiences in both prelicensure and graduate nursing programs. Respondents from both prelicensure and graduate programs indicated that the lack of telehealth equipment and a faculty or staff member who was knowledgeable about using it was also a problem.

Type of simulation experiences

Prelicensure and graduate school respondents were offered a drop-down menu to select the types of telehealth experiences offered to students in their programs. Prelicensure students' most frequent telehealth experience was communication (role-play, on-call phone calls, phone triage). History-taking was the most frequent telehealth experience for graduate students, followed by communication and reviewing lab/test results. Complete results are included in Table 2.

Additionally, respondents were allowed to list telehealth simulation experiences offered to their students. Both prelicensure and graduate programs responded. The most offered experience was communication for prelicensure and history-taking for graduate students. However, >63 % (n = 52) did not use any simulation-based education (SBE) experiences for students. From the open-ended questions on types of SBEs, telehealth experiences are being offered for various conditions and in multiple content areas. All responses were grouped into categories and are included in Fig. 1. Open data regarding the students' satisfaction with their telehealth program merited further analysis and is not reported in this article.

Discussion and recommendations

Like the Ali et al. (2015) study, the results of this work showed that telehealth continues to be integrated into prelicensure and graduate curricula and experiences. For example, Ali et al. (2015) showed that about 88 % agreed that telehealth was integrated into nursing curricula (any level). However, this study specifically exhibited that less than half (45 %) included telehealth content in the classroom or skills simulation/lab for the prelicensure programs. Moreover, less than that (37 %) involved telehealth experiences in the classroom or simulation lab.

Separately, in this study, 60 % of the reporting graduate programs were currently integrating telehealth content into the classroom or skills/simulation lab, while fewer (44 %) were also incorporating telehealth experiences in the classroom or skills/simulation lab. Some of the differences between the results here and the Ali et al. (2015) work may be due to the number of respondents, as there were almost double the amount in this study. Additionally, there was no differentiation between programs within the previous study, and definitions of telehealth could have differed. As with the Ali et al. (2015) study, telehealth content and experiences across multiple levels of nursing programs appear to remain inadequate, at least at the time of this survey deployment.

Interestingly, in the prelicensure and graduate programs, the primary way telehealth content was presented was through lectures. According to Chike-Harris, Garber, et al. (2021), lecture, especially for APN students, may include many things, such as definitions, laws, professionalism, etc. For experiences, the predominant type of telehealth experience for prelicensure students was communication (role-play, on-call phone calls, phone triage). On the other hand, history-taking was the most frequent telehealth experience for graduate students, followed by communication and reviewing lab/test results. Communication is an area applicable to both types of students. Authors, like Eckhoff et al. (2022), have even recommended telehealth simulation for

Table 2

Types of telehealth SBE experiences by program.

Type of SBE experience	Prelicensure program (n = 24)	Graduate program (n = 24)
Communication (role-play, on-call, phone calls/triage)	24 (100 %)	15 (63 %)
History-taking	19 (79 %)	16 (67 %)
Physical assessment	18 (75 %)	11 (46 %)
Performing mental health assessment	11 (46 %)	11 (46 %)
Review lab/test results	14 (58 %)	15 (63 %)
Learning to use telehealth equipment	4 (17 %)	10 (42 %)

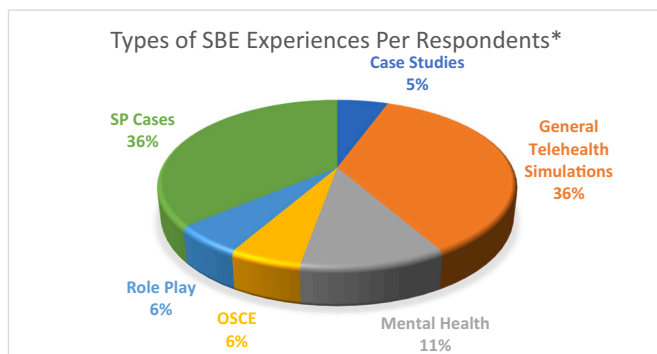


Fig. 1. Program's types of simulation-based experiences available to learners. *n = 48.

intraprofessional communication practice between prelicensure and NP students.

Multiple types of telehealth experiences offered within schools were listed by participants. Experiences appear to be extended across the continuum from pediatrics to mental health. This is like those described in the literature. Pediatrics, specifically well-child visits, have been mentioned for NP students (Makowski et al., 2022). Mental health telehealth experiences have been described for both prelicensure (Johnson et al., 2022; Ochs et al., 2022) and NP students (Davis et al., 2022). However, for prelicensure students, one of the telehealth mental health experiences described was with real patients (Johnson et al., 2022). Additionally, in the study, several comments were made regarding Objective Structured Clinical Examinations (OSCEs), as other authors have described (Makowski et al., 2022; Ochs et al., 2022; Phillips et al., 2020; Quinlin et al., 2021).

Barriers, i.e., reasons for not including content and/or experiences, were also like those reported in the literature. For example, the greatest barrier in the Ali et al. (2015) study was lack of faculty training, followed by a too-full curriculum, lack of faculty knowledge/skills, insufficient time, and cost. Faculty training has been mentioned as a barrier by others as well (Prendergast & Honey, 2019). Therefore, faculty development is suggested, such has been done with early adopters (Gallagher-Lepak et al., 2009). Faculty also need to keep current with telehealth law (Chike-Harris, Garber, et al., 2021). In contrast, barriers in this study were differentiated by the program (prelicensure and graduate), content, and experiences.

Although not elicited in this study, as done by others (Prendergast & Honey, 2019), facilitators for the adoption and integration of telehealth would be helpful. Based on the barriers identified, to facilitate telehealth integration and utilization of equipment, faculty training and designating a telehealth champion may be beneficial (Ali et al., 2015; Prendergast & Honey, 2019). Funding, as shown in the findings, also appeared to be a big issue with the integration of telehealth content and experiences. Faculty may need to consider activities with low to no costs, such as described by several authors (Phillips et al., 2020; Quinlin et al., 2021). Additionally, funding agencies may want to take note. The lack of multiple types of equipment may be an area where grant funding may be helpful to make initial purchases, such as described in a study by LaManna et al. (2021). Others have also described grants and donations to begin telehealth (Ali et al., 2015). Faculty development may also need to be considered with funding (Gallagher-Lepak et al., 2009).

In addition to funding, other support may be needed to facilitate integration. Administrative and technical support were shown as barriers in this study. Respondents identified administrators' and faculty's unwillingness to adopt telehealth. Although the use of telehealth equipment, content, and experiences may be deemed a necessity by a nursing school, the decision on what to purchase and how to deliver the information and experiences may lie with different faculty, staff, or departments. Ochs et al. (2022) have stated that technical support, such

as information technology, is integral to successful telehealth experiences, such as simulation.

Limitations

One of the foremost study limitations was the COVID-19 pandemic. This survey was sent out at the beginning of the pandemic when telehealth content and experiences were increasing. It would be interesting to view results before and after the pandemic and see if changes in telehealth content and experiences are continuing to occur in programs. Judging from the increased literature regarding this topic (e.g., Chike-Harris, Garber, et al., 2021; Davis et al., 2022; Eckhoff et al., 2022; Makowski et al., 2022; Ochs et al., 2022), it appears that telehealth content and/or experiences grew at least during the pandemic.

Some authors (Davis et al., 2022; Johnson et al., 2022; Makowski et al., 2022) described the need for telehealth as a clinical experience during the pandemic. What has occurred with telehealth content and experiences once students were able to return to clinical sites is unknown. Although Ochs et al. (2022) have described telehealth within nursing education as the “new normal” (p. 12), Makowski et al. (2022) reported it as still unknown.

Additionally, some of the questions were “select all that apply,” making it difficult to interpret individual results, especially related to prelicensure and graduate programs. Future studies may want to decrease the number of “select all that apply” options.

Although the numbers of respondents were higher in this study than those previously published (Ali et al., 2015; Prendergast & Honey, 2019), the sample size was still relatively small, and the response rate was low. Due to this, the information may not be representative of nursing schools throughout the U.S. It is conjectured that the response rate was low due to the faculty's other responsibilities and shifting during the pandemic.

Conclusions and implications for nursing education

In this relatively small sample, telehealth content and experiences among different levels of nursing education appear to remain low. As nursing programs begin to integrate new competencies, integration of telehealth education and experiences across their curricula may increase. As nursing education grapples with including more technology into programs, a barrier that may remain is the lack of funding to purchase equipment, train faculty, and offer experiences. Nursing schools and funding agencies may want to take a closer look.

This study is meaningful for schools of nursing that are currently integrating or considering adding telehealth content and experiences, which seems inevitable with the current pandemic and focus on professional competencies (Chike-Harris, Garber, et al., 2021). First, schools and nursing colleges that are considering or beginning to add telehealth content and experiences should understand the barriers, so these can be mitigated. Second, understanding what others are doing may offer ways to begin to approach. For those already integrating, seeing examples of experiences may help programs expand on offerings. Schools should explore using several types of telehealth experiences (Fig. 1) and search for telehealth resources offered for free such as the C-TIER Telehealth Toolkit (n.d.) and NONPF's Telehealth Portal (n.d.).

Due to the survey being sent at the beginning of the COVID-19 pandemic, changes may have occurred. These changes merit further examination of telehealth curricular integration and experiences in nursing schools and colleges. A follow-up study with a larger sample would be helpful.

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