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Research article

By utilizing technology can nursing students gain more confidence and decrease anxiety when communicating with chronically ill patients about their sexual relationship?

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ABSTRACT

Introduction: Effective communication is an essential part of nursing care. Nurses need to effectively communicate with patients, families, providers and staff. The purpose of this study was to show how the use of technology (i.e., video conferencing on an electronic device) could assist nursing students to gain more confidence and reduce anxiety when discussing difficult topics such as sexual intimacy.

Methods: Pre-licensure nursing students were recruited to participate as part of regular class activities. A pre- and post-survey asking about their confidence and anxiety in communicating with patients was completed; then subjects were randomly placed into groups of 4 to 5 utilizing an electronic device. Student groups were able to communicate with a patient diagnosed with a medical condition that affected their intimacy by video conferencing in a breakout session for 15-20 min.

Results: A total of 112 students participated. The majority of students stated that communicating about relationships and intimacy issues with chronically ill patients was not as difficult as they anticipated. About 82% of students liked using a video conferencing tool although about half ($n = 62$) reported they still preferred a face-to-face in-person interaction. Results demonstrated a significant increase in confidence and decrease in anxiety score ($p = .001$) before and after the intimacy communication activity.

Conclusions: In conclusion, the use of technology can be an effective learning tool to teach pre-licensure nursing students on how to communicate with patients effectively, especially for those difficult topics such as sexual intimacy.

1. Introduction

Effective communication is an essential part of nursing care. Nurses need to communicate with patients, families, physicians, nurses, and staff effectively. The National Council of State Boards of Nursing administers the examination all nursing students must pass for licensure as a registered nurse. The 2019 NCLEX Testing Plan is an integrated exam including the nursing process, caring, communication and documentation, teaching/learning, culture and spirituality (Grant and Jenkins, 2014; National Council of State Board of Nursing, 2018).

As educators, nursing faculty members need to provide students with opportunities to practice effective communication skills. Most nursing programs rely on simulation with the use of virtual patients to teach and provide opportunities for students. However, while it is possible to standardize simulations, which eliminate the need to recruit and train patient actors, simulations also eliminate the human connection students will get from talking with people experiencing difficult topics such as end-of-life or intimacy issues. Technology, such as video conferencing tools (e.g., Apple FaceTime, Google Hangouts, GoToMeeting, Houseparty, Microsoft Teams, Skype, Zoom) can offer nursing educators and students the opportunity to communicate with "patients" whose comorbidity or medical diagnosis has affected their intimacy with their partners.

2. Background

Part of the nursing role is communicating with patients, discussing sensitive subjects such as human sexuality in terms of how patients' chronic disease processes could affect their sexual intimacy. Students would like to believe they have the confidence to discuss any number of

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topics with patients. However, barriers can exist for students, who may find it difficult to engage in this sensitive topic. In a study of 341 nursing students, Magnan and Norris (2008) discovered that most students understood and agreed that patients' disease states can affect their sexuality and that patients should have an opportunity to discuss their sexual concerns, which can lead to positive outcomes. In contrast, very few students actually made time to discuss patients' concerns, and they thought that patients should initiate the conversations. Likewise, a recent study by Ozan et al. (2019) found that nursing students felt they could collect patient data on sexual issues or problems. However, the students lacked the confidence to discuss sexual concerns with patients of different ages and genders.

Health organizations or practice partners want new graduate nurses to enter the workforce as expert novice clinicians, able to discuss sensitive subjects such as disease processes relating to intimacy issues. As nurse educators, it is our responsibility to provide the knowledge and opportunity to students to prepare them for a nursing role including supporting their patients with therapeutic communication on all sensitive subjects a patient may want to discuss. As with any new skill, a certain amount of trepidation and anxiety is natural.

Anxiety, per Merriam-Webster's dictionary, is "a feeling of worry, nervousness, or unease, typically about an imminent event or something with an uncertain outcome." Anxiety tends to reduce people's confidence levels in completing tasks with a high level of proficiency. There is extensive literature demonstrating how useful simulation is in providing a safe environment for students to learn a variety of nursing skills, reducing their anxiety and increasing their confidence. Szpak and Kameg (2013) found statistically significant results with high-fidelity simulation in reducing anxiety in their students about providing therapeutic communication to mentally ill patients prior to their psychiatric clinical rotations.

The literature also supports the importance of therapeutic communication in nursing. Only with effective communication can a nurse establish patient rapport, appropriate interventions, positive patient outcomes, and improved patient safety (Younis et al., 2015). Providing nursing students opportunities to practice essential communication skills with patients on certain subjects is very challenging. Simulation with standardized patients can be an effective teaching modality for programs with teaching clinical skills (Shin et al., 2015).

Table 1
Twelve items derived from the Nursing Anxiety and Self-Confidence with Clinical Decision Making (NASC-CDM) scale.

Listening
1. My ability to use active listening skills when gathering information about the patient's current problem
2. My ability to assess the patient's nonverbal cues
3. My ability to decide if information given by the patient is important to the their current problem
4. My ability to ask the patient additional questions to get more specific information about the current problem
Overall picture
5. My ability to easily see important patterns in the information I gathered from the patient
6. My ability to identify which pieces of clinical information I gathered are related to the patient's current problem
7. My ability to see the full clinical picture of the patient's problem rather than focusing in on one part of it
8. My ability to recall knowledge I learned in the past that relates to the patient's current problem
Knowing and acting
9. My ability to implement the 'best' priority decision option for the patient's problem
10. My ability to independently make a clinical decision to solve the patient's problem
11. My ability to implement one accurate intervention if the patient is having an urgent problem
12. My ability to consider a possible intervention for the patient's problem just because it "seems" right

However, how does one teach soft or essential skills such as communication with patients? What would be an effective method for nursing students to practice and improve their communication skills, especially in a time of social distancing and sheltering in place? Since March 2020, nursing programs have had to become more creative in providing educational opportunities for students once COVID-19 eliminated the ability to work with practice partners, such as health systems and hospitals. With the use of technology, it could be possible to provide students more opportunities to interface with patients facing intimacy issues due to their medical conditions and in turn increasing students' confidence and decreasing their anxiety in communicating with patients on sensitive subjects. In the last decade, technology has moved at what feels like the speed of sound in the use of smartphones, tablets, and more platforms than one can count.

Students now come prepared for class with laptops and learning management systems to download PowerPoint lectures and assignments, using smartphones to access iClicker questions during class and utilizing electronic devices to take exams. Since 2010, when electronic devices, such as iPads, first burst onto the scene, tablets have become a household fixture, with more than 360 million sold in the last decade (Nations, 2019). The researchers considered using contemporary technology in the form of electronic devices, a table laptop, and a communication platform readily our university uses, a video conference tool, to allow nursing students to communicate with "patients" facing intimacy issues due to a comorbidity. Although there have been evaluations of the successful use of nursing simulation, it remains unclear how the use of technology (i.e., the use of a video conference tool on an electronic device) can assist nursing students to learn to communicate better with patients.

3. Methods

The study design was a descriptive, cross-sectional, quasi-experimental pre- and posttest model. Survey data included an online quantitative and qualitative questionnaire. The purpose of this research was to assess nursing student confidence and anxiety before and after communicating with patients regarding intimacy issues. The patients who participated were friends and family of researchers who had a medical condition that affected their sexual intimacy and who were willing to share their journey with nursing students, but who were not research subjects.

A convenience sample of undergraduate nursing students in a Northern California university participated. Inclusion criteria included students who were over 18 years of age, were English speaking, and were of any gender or ethnicity. The investigation received approval from the university's Institutional Review Board Committee on Human Research.

The primary investigator introduced participants to the research study, and the participants provided informed consent. Participants then received links to the online survey (pre- and posttests), access to the communication platform, and the use of an electronic device. The research took place from spring 2019 through spring 2020. The first two sessions occurred on the university campus during the students' professional role development course utilizing a hand-held electronic device and a video conference tool. However, in the wake of the COVID-19 pandemic during the last session, all participants, students, patients and researchers, used any electronic device available to assess the video conference tool. During all the sessions, the investigator randomly assigned nursing students into groups of four or five. Student groups and patients went into breakout rooms on the video conference tool platform, where students could communicate privately with patients for 15 to 20 min. Due to the number of students, patients met with two to three student groups per session. With the campus sessions, the student groups went into empty classrooms, offices, and conference rooms, again for privacy and to limit noise, making conversations with patients easier.

3.1. Measurement

Students received an electronic survey link to complete a pre- and posttest. Open-ended requests on the survey included "Please comment on what you have learned from this experience." and "Please comment on what was uncomfortable during this experience." Questions included "What did you think about using the video conference tool platform for patient communication?" and "After having this experience, which method of communication would you prefer?" (e.g., face-to-face, audio or phone, audio and visual).

Twelve items came from a 27-item instrument created by White (2014), called the Nursing Anxiety and Self-Confidence with Clinical Decision Making Scale. The purpose of the tool was to measure the levels of self-confidence and anxiety of undergraduate nursing students while making clinical decisions. Alpha coefficients reported the reliability of the original tool: self-confidence subscale, $\alpha = 0.97$ and anxiety subscale, $\alpha = 0.96$. The original tool had content validity, face validity, and construct validity.

The tool was a self-report instrument that asked students to check the appropriate box about how self-confident and how anxious they were. Answers were measured on a 6-point Likert-type scale, namely 1 = not at all, 2 = just a little, 3 = somewhat, 4 = mostly, 5 = almost totally, and 6 = totally. Higher scores on the self-confidence and anxiety subscale indicated higher levels of student self-confidence and anxiety, respectively. The tool had three subdomains: listening, overall picture, and knowing and acting. Selected questions from the tool are in Table 1.

3.2. Data analysis

The investigators analyzed the questionnaires using both qualitative and quantitative methods. For open-ended survey questions, the investigators reviewed the results based on content and word counts. Content analysis took place to find viable themes, and there was discussion about them between investigators. Data saturation occurred. For demographic data, calculations of frequencies and descriptive statistics produced the results. Paired-samples *t*-tests took place to compare differences between student confidence and anxiety after an intimacy communication activity between student groups and patients with chronic disease.

4. Results

A total of 112 students agreed to participate in the project. The mean age of the sample was 24 (minimum age 21, maximum age 40). The sample comprised 87 females, 22 males, and three students who identified as non-binary. The sample identified as 42% Asian, 22% Filipino, 21% Caucasian, 9% Hispanic, 3% African American, and 4% from other ethnic backgrounds. The mean time of college education prior to entering the nursing program was 3 years.

4.1. Qualitative results

As part of the post survey, the investigator asked students, "What did you learn from this experience?" Most students responded that communicating about intimacy issues was important. In fact, most students remarked that addressing sexuality was an essential communication topic and it was a component of holistic care. For some students, communicating about relationships and intimacy issues with chronically ill patients was not as difficult as they anticipated. For example:

> Talking about intimacy isn't [as] intimidating and awkward as I originally thought. It's more about active listening and being attentive to the patient.

> It was very informative. I will definitely not ignore this [sexuality] among my patients. It is a big deal and can provide comfort and information.

> I thought this was a very useful and unique experience on how to communicate with patients, and it was good because the patients were willing to share their experiences as well and be honest with us. It was also interesting to hear that the patient was willing to tell us details about her intimacy that she had not even told her closest friends just because we were nursing students.

Although one student still felt the interaction was awkward and difficult, that student still responded that addressing patients' emotional and psychosocial issues was just as important as caring for them physically.

> I learned that talking to patients about their sex life can be awkward and difficult. … Addressing a patient's emotions and psychosocial aspects [is] as important as the physical.

When the investigator asked what students thought about using the video conference tool platform for patient communication, some students responded that they had a more positive experience than others. The use of a communication platform was simple if devoid of technical issues. For example, a few students found the use of technology a "safe" option that offered both the patient and the nurse a less awkward environment:

> Felt more open to talk about issues because we were both in our own safe environment.

> Therapeutic touch cannot be used, but you can still express empathy in your choice of vocabulary. Speaking from behind a screen may take away some of the anxiety or awkwardness a patient may feel while speaking with a healthcare provider.

However, other students remarked on technology as being different than being in the same environment and having a face-to-face interaction.

> I feel that a lot can be accomplished using the iPad as a form of communication especially if distance is an issue for the patient. But I feel that there is no replacement for a face-to-face interaction.

Other students noted problems with the use of technology from both the nurse and the patient perspectives. Connection problems and audio and visual disturbances were the major issues. For one patient with a hearing impairment, the student nurse remarked that it was difficult to hold a conversation.

> Video conference tool is a great platform to utilize; however, when dealing with a patient who has difficulty hearing, the ability to hold a conversation is hard.

Several students mentioned that technology issues interfered with communication.

From the patient's perspective, talking to the students went well. One patient reported that after the first few minutes, the conversion flowed and students asked appropriate questions, even offering nutritional information along with referring the patient to her OB/GYN for specific information regarding hormones, making it clear they were not qualified to give medical advice. The patient also stated that one student made

> a very good recommendation (which I seriously hadn't thought of myself) about using toys before intimacy during foreplay as a way of "easing" into it. She did a very good job on the professionalism of the conversation there. I'm glad her shy peers got a chance to witness that!

However, during the first session, one patient, who has lung cancer, reported that students asked about her diagnosis and then what she could have done to prevent it? They went on to ask whether her husband blamed her for the diagnosis or her attitude/moodiness around being

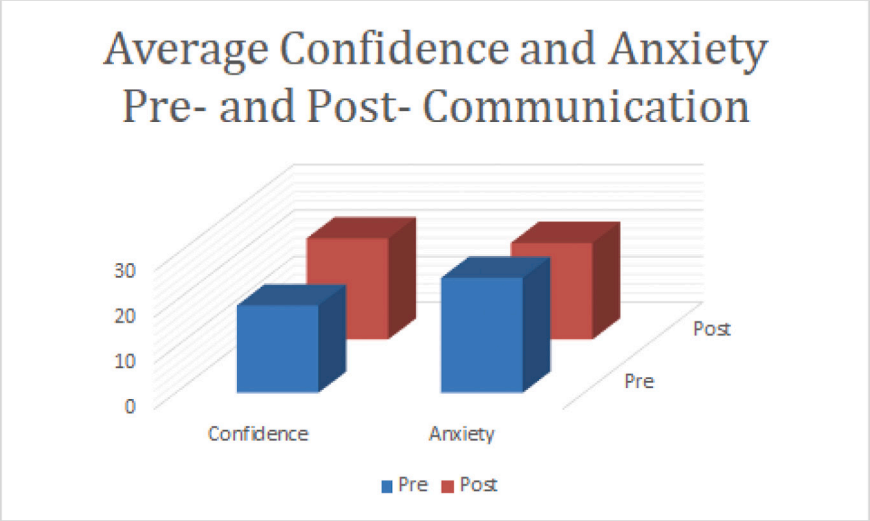

Fig. 1. Bar chart of average confidence and anxiety pre- and post-communication.

diagnosed with lung cancer. It was apparent this group of students did not have a clear understanding of what and how they should communicate with the patient. Moving forward, prior to the research sessions, the researchers spent a few minutes assisting students by giving them an example of opening questions: "Please tell me about your medical diagnosis?" "How has your medical condition affected your intimacy with your partner?" to begin the conversation. We also spent a few minutes advising students that they should never blame patients for their diagnoses, as nurses need to be supportive and a resource assisting patients where they find themselves, no matter the circumstance.

4.2. Quantitative results

The researchers analyzed the frequency of responses for the question: What did you think about using video conferencing for patient communication? Out of 112 students, 82% liked using a video conference tool, 12% were neutral, and 6% disliked using a video conferencing tool. When asked after having this experience, which method of communication they would prefer, 69% preferred being face to face with the patient, 26% preferred both audio and visual, and 5% preferred audio or phone. Overall, students' preferences for patient interaction were higher in person, then via a video conferencing tool (i.e., audio and visual).

The investigators conducted a paired-samples *t*-test to compare results between the pre- and posttests concerning confidence and anxiety before and after an intimacy communication activity. There was a significant difference between pre- and posttest scores for both confidence ($M = 2.73$, $SD = 4.48$, $t(111) = 6.45$, $p = .001$) and anxiety ($M = -3.35$, $SD = 2.57$, $t(111) = -13.78$, $p = .001$). These results suggest that an intimacy communication activity improved nursing student confidence and reduced anxiety when speaking to patients with chronic diseases about intimacy issues (Fig. 1).

5. Discussion

Most students responded that addressing intimacy issues was part of essential communication. Magnan and Norris (2008) also discovered that most nursing students agreed that patients' disease states affected their sexuality. In fact, several remarked that relationships and sexuality were important for the holistic care of those with chronic disease.

Most students commented that it was neither awkward nor as difficult as they expected, while others admitted that they had difficulty, but nonetheless the conversation was important to patient well-being. Szpak and Kameg (2013) demonstrated that practicing communication skills reduced the awkwardness of conversation with patients. Students commented that practicing with live, chronically ill patients was a helpful experience.

Students found the use of technology a non-threatening option that offered both the patient and the nurse a safer space. Even after the use of technology, about half the students preferred face-to-face in-person interaction. In a meta-analysis of simulations in education, several studies substantiated that student practice improved level of confidence and essential skill mastery prior to entering the workforce (Shin et al., 2015).

In this research, after practicing discussing intimacy issues with patients, nursing students reported more confidence and less anxiety. Although talking to a patient with a chronic disease was anxiety-provoking at first, it increased student confidence. The use of technology or a video conferencing tool with a live patient seemed preferable to the same activity with a high-fidelity mannequin (Szpak and Kameg, 2013). Results suggested that using technology with live patients improves the ability of nursing students to practice sexual intimacy conversations prior to entering the clinical setting.

5.1. Limitations

The limitations of the project varied from how well students communicated with patients to technological issues with the video conference tool and handheld electronic devices. During the first session of the research project, placing students and patients in breakout rooms and keeping them on the video conference platform was problematic, and both students and patients intermittently dropped off the platform. Some student groups had to talk to the patient via phone. For subsequent sessions, there was only one video conference tool meeting, and the link also went to participants, which allowed groups and patients to remain in the breakout rooms. Having students communicate with a patient about sexual or intimacy issues in groups is not ideal; however, the patients were aware they would be talking with a group of students. Within the group, some students may be reluctant or too shy to speak up and ask questions. The best communication of this nature would be a one-on-one interaction. However, for 60 research subjects, recruiting 60 patients would have been impossible. Coordinating the patients' schedules with students' time in class was also very challenging. As educators, we are limited by resources and certain constraints that require us to think outside the box, as it were, to provide learning experiences for students.

6. Conclusion

As we hypothesized, the research concluded that with the use of technology (i.e., an electronic device and a video conference tool) giving students more opportunities to interface with patients facing intimacy issues due to their medical conditions builds confidence in the student while decreasing anxiety communicating with patients on a difficult topic such as sexual intimacy. However, more research is necessary to determine how well the use of technology, such as a video conference tool, works in teaching nursing students how to communicate with patients effectively.

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Ethical approval

Committee on Human Subject Research, Institutional Review Board, San Jose State University.

CRediT authorship contribution statement

Sheri Patrick: Conceptualization, Methodology.
Alice Butzlaff: Formal analysis.
Alice Butzlaff: Data curation, Writing-Original draft preparation.
Sheri Patrick & Alice Butzlaff: Investigation.
Sheri Patrick: Writing-Original draft preparation, Resources.
Sheri Patrick & Alice Butzlaff: Writing-Reviewing and Editing, Visualization.
Alice Butzlaff: Project Administration.

Declaration of competing interest

None declared.

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