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I'm Sorry to Hear That: Empathic Communication in Virtual Education for Nurses

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Abstract

The current study examined the communication strategies used by undergraduate nursing students ($N = 343$) to express empathy during simulated health history interviews. Interacting with a virtual patient, students encountered up to 9 information disclosures that warranted the expression of empathy but recognized few (33.54%). Sophistication of language to express empathy varied depending on the disclosure topic. These findings suggest that empathy as a learned skill can be incorporated into a variety of nursing contexts.

Keywords

empathy; health communication; nursing education; virtual systems; virtual simulation

Empathy is the core of nurse-patient interactions, but identifying opportunities to express and communicate empathy requires training and practice (1). The development of empathy communication skills is critical for nursing students in particular as these skills directly contribute to patient satisfaction and improved health outcomes (1–3). Furthermore, communication training in nursing education can lead to improved health history interviewing skills and effective interactions with patients (4). To create standardized educational opportunities, nurse educators rely increasingly on virtual patients to provide simulations of clinical situations (5). Virtual patients are human-like avatars that can respond to questions and react to statements based on elaborate communication scripts.

Virtual patient simulations are particularly effective in the development of patient interviewing and therapeutic communication skills within a safe, non-threatening environment (3,6). Similar to standardized patients, virtual patients have been shown to have a significant positive effect on learning outcomes when compared to no intervention. At the same time, simulated education solutions have shown no significant difference in either

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learning outcomes or student satisfaction when compared with other simulation modalities (5). Yet, the use of virtual patient simulations has particular unique benefits that include the asynchronous, computer-based delivery of clinical situations, which eliminates the necessity for patient actor recruitment and training (7); the complete standardization of the patient encounter, which removes any possible subjectivity that may exist in simulations conducted with a human patient actor (8); and the transparency into student performance provided to instructors through verbatim transcripts of each interaction (9).

Communication and Empathy

During health assessments, patients may disclose information that requires departure from standard questioning. The ability to empathize in the context of a health care provision means being able to understand the inner experiences and feelings of patients, see a situation from their perspective, and communicate this understanding appropriately (10,11). Although nurses are likely to perceive a common goal of communicating empathy in response to these disclosures, to express empathy in response to these disclosures can be achieved through different communication strategies.

Message design logics, the theoretical framework for this study (12), provides a means to conceptualize how empathic responses could be evaluated. Focusing on the differences in language choices, the theory names 3 alternative message design logics—*expressive*, *conventional*, and *rhetorical*—that can be identified through message elements and used as a general approach for communication analysis. The sole purpose of expressive messages is to express what the speaker thinks or feels. *Expressive* messages are characterized by inappropriately posed, although potentially well-meaning remarks that can result in unintended communication outcomes. In patient-provider communication, for example, the use of expressive messages has been linked to poorer patient adherence to a medical regimen (13). *Conventional* messages target the social effect one wants to achieve through apologies, compliments, hedges, and excuses. In these *conventional* messages, speakers are focused on doing the things they are obligated or expected to do. Conventional messages can contain attempts to comfort the discloser and are most common in health communication contexts (14,15). Finally, *rhetorical* messages are not merely polite but also convey the importance of message receivers, their individuality, and their beliefs and values. The speaker's goal in a *rhetorical* message is to create and negotiate social situations. For example, rhetorical responses to patients may suggest ways for the patients to accomplish their own goals while supporting patient-centered communication about health and illness (14).

A common communication goal in nursing is the expression of empathy in response to information shared by a patient. Message design logics has the utility for describing the level of sophistication of health care providers' empathic responses to patient disclosures and explaining why in a similar situation, different people can generate different kinds of messages. The model also describes a hierarchical relationship among those types of design logics predicting that rhetorical messages are generally the most sophisticated followed by conventional and expressive. The characteristics of these logics can be identified through message elements and used as a general approach for message analysis.

The current study applies message design logics to examine the quality of nursing students' empathic skills in response to patient information disclosures during a simulated health history interview. As such, we posed the following research questions: (1) To what extent were patient information disclosures recognized as opportunities to provide empathic support? (2) What message strategies were used by nursing students to express empathy? (3) How did the expression of empathy vary among patient information disclosures?

Method

Design

This study reports on a retrospective data analysis of transcripts of conversations between undergraduate nursing students and a virtual patient, Tina Jones (16). The transcripts were produced during a simulated health assessment; they contained questions and statements typed by nursing students and standardized pre-recorded responses from a virtual patient. The study was approved by an institutional review board prior to data analysis.

Sample

The data were obtained from 343 undergraduate nursing students. The students attended a Health Assessment course at nursing schools in 1 of 8 states (CA, CO, FL, IL, KS, NY, PA, and WI). The nursing schools included in the study were chosen based on the course instructors' use of the simulation as a formative assessment for course credit. Courses ranged from 12–15 weeks and began in May 2015. The health history simulation was given as a homework assignment in the first or second week of the course. All students completing the assignment were included in the dataset. Complete demographic information is not available because the students were not required to provide it at the time of the simulation use.

Procedure

During the development of the educational script, six nursing educators identified nine patient disclosure situations as valid opportunities for a skilled nurse to express empathy. Depending on the questions asked during the exam, nursing students could encounter up to 9 patient disclosure opportunities that warranted the expression of empathy expected of nurses competent in communication with patients. Table 1 provides brief descriptions of each opportunity.

Throughout the virtual health assessment simulation, students typed questions to obtain health history information from the virtual patient, whose pre-programmed responses were enabled by a natural language processing solution. The simulation interface provided students with an opportunity to ask questions and provide statements by choosing one of the options: Ask, Emphasize, or Educate. Responding to the information shared by the patient, students labeled the statements they thought showed empathy. The data, therefore, included unambiguous indications of the students' intent to be empathic as recorded by the students themselves.

Instrument

A codebook was developed to assess which message design logic was used in the statements that nursing students self-identified as empathic. Statements were coded as *expressive*, *conventional*, or *rhetorical*, assigning values of 1, 2, or 3 respectively. Conceptually, expressive messages are the least sophisticated, followed by conventional and then rhetorical. Therefore, assigned message logic values were treated as a scale representing different levels of empathy communication skills. If a student provided more than 1 empathic statement per opportunity, all statements were considered 1 unit of analysis and coded together.

The codebook operationalized *expressive* messages as repetitive mirroring of the patient's disclosure, irrelevant statements, or not providing any conventionally expected words of empathy or understanding. *Conventional* messages were operationalized as statements that could be expected in general situations that call for the expression of empathy, understanding, or support. These statements addressed the disclosed information directly, but did not provide any suggestions or solutions that would help the patient move beyond the challenge of the disclosed situation. Finally, messages were coded as *rhetorical* if they contained a conventionally expected expression of empathy or support, and also provided the patient with an opportunity to find relief from or move beyond the disclosed situation. Table 2 provides short conversation examples to illustrate each message design logic.

Data Analysis

Nursing students statements submitted and self-identified empathy statements. The statements were subsequently coded by 3 raters to assess the quality of the language that was used to express empathy. The raters with background in communication research who were blind to research questions received 20 hours of training. Once intercoder reliability was established, each rater coded the dataset in full. The coders achieved an overall acceptable reliability level across 9 opportunities (17), Krippendorff's $\alpha=0.829$, with intercoder reliability for individual opportunities ranging between 0.7 and 0.96. Coders and first author met weekly to review emerging questions related to code assignment and ensure face validity of the codebook. Subsequently, SPSS 24 for Windows was used for the descriptive and inferential statistical analyses. Chi-square test was used to answer research question 1, and ANOVAs for research questions 2 and 3.

Results

Out of 3,087 potential disclosures (9 for each of the 343 students), students encountered 1,625; of the disclosures encountered, students provided empathic responses to 33.54% ($n=545$) disclosures. On average, nursing students encountered 4.7 disclosures and provided empathic support to 1.6 disclosures per exam.

Successful recognition of opportunities to provide empathic support varied across the 9 disclosures, $\chi^2(8, N=1,625) = 411.86, p < .01$. Adjusted standardized residuals were reviewed to assess individual differences among the disclosures (18). Disclosures related to the patient's pain, its impact on daily life, and the loss of an immediate family member were

successfully recognized most frequently. The disclosures related to the lack of health literacy and poor diabetes management were encountered by students relatively often, but received fewer empathic statements. The frequency with which disclosures were encountered and responded to with empathic statements, and the number of empathic statements per disclosure, are presented in Table 3.

Across opportunities, nursing students were largely conventional in their empathic statements ($M = 2.00$, $SD = .61$, 95%, $CI = [1.96, 2.06]$) and recognized each of the 9 disclosure situations as opportunities to provide empathic support. However, the levels of empathy varied among disclosures, $F(8, 536) = 9.97$, $p < .01$. Empathic statements in response to pain complaints had relatively high scores, $M = 2.23$, $SD = .61$. Surprisingly, they were significantly higher than the empathy offered in response to the disclosure of a death in the patient's family, $M = 1.99$, $SD = .34$, $p < .01$. The lowest empathy scores were associated with disclosure of uncontrolled asthma, $M = 1.40$, $SD = .51$. Empathy expressed during counseling around diabetes management, $M = 1.63$, $SD = .69$, and prior drug use, $M = 1.68$, $SD = .90$, were also lower than several other disclosures, including the disclosure of pain, impact of pain on daily life, death in the family, and body image discomfort. The empathy offered during the discussions of body image were the most polarized, $M = 2.27$, $SD = 1.01$. The empathy level scores for this opportunity were significantly higher than those for a number of other opportunities with the exception of the disclosure of pain and death in family.

Discussion

This study aimed to evaluate the communication strategies that nursing students use to express empathy during simulated health assessments. Similar simulated educational environments have shown that clinicians and trainees suspend their disbelief and effectively immerse themselves in the flow of virtual communication (19). As a result, simulated educational environments provide the benefits of training using standardized patients while fully controlling for similarity of patient responses and behaviors. Open-environment virtual clinical simulations can yield rich data on empathic attempts; however, the nature of the data generated can make automatic assessment of response quality problematic. Yet, from a communication perspective, the simulated environment ensures commonality in certain demands of the encounters; for instance, all participants encountered contexts that can be conventionally understood as calling for empathy.

In the absence of automated coding of the transcripts analyzed in this paper, students' assessment was limited to the number of identified empathic opportunities. However, no feedback about the quality of students' empathy responses was provided. This study showed that message design logics can be used successfully to assess empathy in patient-provider communication. The coding system developed in the current study can provide a framework for natural language processing and subsequent real-time evaluation of empathy communication skills in virtual education environments.

The application of the framework revealed that nursing students frequently missed opportunities to express empathy to their patient. However, when recognizing and

responding with an empathic statement, nursing students were able to use conventional language appropriate for the situation. Expression of empathy varied depending on the type of information disclosed by the patient. The lower-level empathic statements made in response to poor diabetes or asthma control signal that nursing students may struggle with their understanding of patients' challenges rooted in lower health literacy or self-efficacy for health management. Interestingly, this study showed that higher-level empathy was generally offered in response to the patient's pain, but not for the death of a family member. The latter findings suggest that that nurses may control the level of engagement with patients depending on the information disclosed (20), which would have implications for the curriculum development for grief and loss communication education (21). Future research could also assess if empathy differs in response to physical or emotional pain, or if communication conventions related to death limit students' ability to recognize such disclosures as opportunities to help redefine these challenging situations based on patients' beliefs and values. Additionally, future studies are needed to develop and evaluate the curriculum that would provide nursing students with an opportunity to develop and practice communication skills.

Conclusion

Communication during health history interviews can have implications for health outcomes, and nursing students recognized opportunities to express empathy in a number of clinical situations. The variability in the quality of empathic responses demonstrates the need for communication skills education and assessment in nursing programs, and message design logics can serve as a reliable and theory-based evaluation framework for these purposes. These findings suggest that empathy as a learned skill can be incorporated into a variety of nursing contexts.

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Table 1

Descriptions of Health History Disclosures

Situation number	Short Name	Description
1	Expression of pain	Tina expresses frustration about her level of pain.
2	Impact of injury on daily life	Tina brings up her pain and frustration at how being unable to bear weight on her foot impacts her life.
3	Gaps in health literacy around diabetic diet	Tina describes controlling her diabetes by avoiding “sweets.”
4	Lack of treatment with diabetes medication	Tina reveals that she does not treat her diabetes with medication.
5	Lack of blood glucose monitoring	Tina reveals that she does not check her blood sugar.
6	Gaps in health literacy around asthma control	Tina describes increased inhaler use and decreased effectiveness, indicating that her asthma is uncontrolled.
7	Discomfort in discussing body image	Tina acts defensive when discussing her body.
8	Loss of a family member	Tina shares information about her father dying.
9	Counseling around past drug use	Tina discusses her past history of marijuana smoking.

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Table 2

Definitions and Examples of Expressive, Conventional, and Rhetorical Message Design Logics

Message design logic	Conceptual definition	Operationalization	Example
Expressive	Direct expression of speaker's thoughts and/or feelings Inappropriate message delivery Lack of the comprehension of the situation	Mindless mirroring of patient's disclosure Irrelevant statements Lack of any conventionally expected words of empathy or understanding	– [Student]: do you live with your parents?
			– Tina Jones: I haven't always lived at home—I moved back after Dad died.
			– [Student]: any interests or hobbies?
			– Tina Jones: I read a lot, especially since I bought one of those e-book readers. Oh, and there's these free talks at church that I like to go to if I have time. [...]
			– **[Student]: That sounds very entertaining.
Conventional	Targeting of social effects and focus on social conventions, expectations, and obligations	Presence of statements that could be expected in general situations that call for the expression of empathy, understanding, or support	– [Student]: Is your father alive
			– Tina Jones: No, Dad passed last year.
			– **[Student]: I'm sorry to hear of your loss.
Rhetorical	Focus on the importance of message receivers, their individuality, beliefs, and values Negotiation and redefinition of social situations through communication	Presence of a conventionally expected expression of empathy or support AND identification of an opportunity for the patient to find relief from or move beyond the disclosed situation	– [Student]: Have you ever felt depressed or anxious?
			– Tina Jones: The closest I ever came to depression was after Dad died...I just felt sad all the time.
			– **[Student]: I'm sorry to hear that your dad has passed.
			– Tina Jones: Thanks.
			– [Student]: Do you feel supported by your friends and family?
			– Tina Jones: Yeah, definitely. We're all pretty close. [...] Mom and my sister and I all go to church, and eat together most of the time, the same as we always did.
– **[Student]: Its nice that you can keep up those traditions.			

** Statement identified as empathic by a nursing student.

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Table 3

Encountered Patient Information Disclosure Situations and Occurrence of Empathic Statements

Patient Disclosure		Empathic Statement		
		Missed	Provided	TOTAL
Expression of pain	N (%) M (SD)	159 (46.4)	184 (53.6) 2.22 (.61)	343
Loss of a family member	N (%) M (SD)	61 (25.1)	178 (74.5) 1.99 (.34)	239
Lack of treatment with diabetes medication	N (%) M (SD)	182 (81.3)	42 (18.8) 1.86 (.57)	224
Gaps in health literacy around asthma control	N (%) M (SD)	179 (92.3)	15 (7.7) 1.40 (.51)	194
Gaps in health literacy around diabetic diet	N (%) M (SD)	163 (92.6)	13 (7.4) 1.46 (.66)	176
Lack of blood glucose monitoring	N (%) M (SD)	140 (83.8)	27 (16.2) 1.63 (.69)	167
Counseling around past drug use	N (%) M (SD)	102 (80.3)	25 (19.7) 1.68 (.90)	127
Impact of injury on daily life	N (%) M (SD)	75 (60.0)	50 (40.0) 2.04 (.70)	125
Discomfort in discussing body image	N (%) M (SD)	19 (63.3)	11 (36.7) 2.27 (1.01)	30
TOTAL	N (%) M (SD)	1080 (66.5)	545 (33.5) 2.01 (.61)	1625