Improving Communication Access with Deaf People Through Nursing Simulation: A Cross-Disciplinary Collaboration

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Cover Page Footnote

IMPROVING COMMUNICATION ACCESS WITH DEAF PEOPLE THROUGH NURSING SIMULATION: A CROSS-DISCIPLINARY COLLABORATION

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Abstract
Baccalaureate nursing and sign language interpreting students participated in a pediatric discharge simulation with a deaf person playing the role of the baby's parent. At the conclusion of the simulation, participants were emailed a consent letter and a link to a 17-item questionnaire developed by the authors. Responses were analyzed both quantitatively and qualitatively, whereby nonparametric statistics were calculated to examine Likert-scale items. A Mann-Whitney test statistic was calculated, instead of an independent samples t-test, given the smaller sample in the current study (n = 26). A question was posed to participants that evaluated their self-perception of the effectiveness of the simulation: "I am better able to communicate healthcare information to a deaf parent." This was rated on a Likert-scale and results indicated a statistically significant difference between groups of students (U = 173.00, p = .020), indicating that nursing students (Median = 6) were more likely to agree with the question than interpreting students (Median = 5). Both interpreting and nursing students' qualitative responses were positive, stating the advantages of practicing vital nursing and communication skills with a deaf parent in a less stressful and safe environment. Nursing students learned how to collaboratively communicate with someone of a different language and culture. Interpreting students gained experience interpreting medical information in a realistic, dynamic, and unrehearsed setting. Both groups developed a healthy respect for the other student's role and the deaf person within the simulation. Collaboration among interpreting and nursing students in simulation may enhance understanding and provide authentic practice opportunities of unique accommodations to achieve patient-centered health care.

Keywords: simulation, communication, access, deaf, nursing, health care, interpret, sign language, disability

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Introduction

For many years, the health-care field has pursued the service goal of patient-centeredness.[2] According to the Institute of Medicine's Committee on Quality of Health Care in America, the desired goal of patient-centered health care is for practitioners to be "respectful of and responsive to individual patient preferences, needs, and values."[3] Many constructs and models have been used to qualify this concept, but at its core, patient-centeredness relies on effective communication.[4] Dialogue is essential for health-care settings, requiring the patient to receive important information from the medical professional and vice versa.

Communication with health-care providers can be challenging, even when the patient and health-care provider share a language and culture. Not surprisingly, better health-care outcomes are achieved when patients have positive interactions with their health-care provider.[5] However, when patients identify with a culture and use a first language that is different from their health-care provider, they may experience service and information barriers when seeking medical treatment, resulting in less adherence to treatment plans or avoidance of medical care.[6]

In this study, faculty from two distinct programs at a large midwestern university created an opportunity to experience patient-centered service provision with deaf volunteers. The nursing faculty wanted their students to experience the dynamics of engaging patients who are deaf and use American Sign Language (ASL) as their primary language; the interpreting faculty sought an opportunity for students to experience authentic medical interactions. The two faculties agreed to use the nursing program's simulation lab and deaf volunteers to model professional collaboration for service provision and initiate discussions with students about social justice for an underserved population.[7]

Deaf people whose primary language is ASL—which is distinct from English with its own grammar, syntax, vocabulary, and discourse style—require special communication access

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[2] Somnath Saha, Marcy Catherine Beach, and Lisa A. Cooper, "Patient Centeredness, Cultural Competence, and Healthcare Quality," *Journal of the National Medical Association* 100, no. 11 (2008): 1275–85.

[3] Institute of Medicine Committee on Quality of Health Care in America, *Crossing the Quality Chasm: A New Health System for the 21st Century* (Washington D.C.: National Academies Press, 2001), 3.

[4] Barnett et al., "Deaf Sign Language Users, Health Inequities, and Public Health: Opportunity for Social Justice," *Preventing Chronic Disease* 8, no. 2 (2011): A45.

[5] Chase Wesley Raymond, "Conveying Information in the Interpreter-Mediated Medical Visit: The Case of Epistemic Brokering," *Patient Education and Counseling* 97, no. 1 (2014): 38–46.

[6] DeAnne K. Messias, Liz McDowell, and Robin Dawson Estrada, "Language Interpreting as Social Justice Work: Perspectives of Formal and Informal Healthcare Interpreters," *Advances in Nursing Science* 32, no. 2 (2009): 128–43.

[7] Messias, McDowell, and Estrada, "Language Interpretation as Social Justice Work," 128–43.

considerations.[8] A medical appointment with a deaf patient without appropriate communication accommodations can result in miscommunication, misinformation, misdiagnosis, and mistrust.[9] Deaf people often experience inequities in health care, which can lead to poor health.[10] In a 2011 study, Steven Barnett et al. made a compelling statement: "Deaf sign language users continue to experience inequities accessing health care, health information, health research, and health-related careers, which limits their ability to achieve optimal health for themselves, their families, and their communities."[11] The 2009 National Council on Disability found that people with disabilities experience significant health disparities and that deaf adults had lower health literacy than their hearing counterparts.[12] The definition of "health literacy" was revised in Title V of the 2010 Patient Protection and Affordable Care Act to mean "the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions."[13] Thus, the issue of health-care literacy is not merely one of language, but one that relies heavily on comprehension and engagement with spoken and written language.

Deaf People and Language Use

Deaf people who are born to deaf parents often use ASL as their native language. However, when parents who can hear have a child who is deaf, it is often a very overwhelming experience for the entire family unit. In fact, most deaf children (95 percent) are born into families where no one else is deaf. Most of these families never learn to sign.[14] Parents often grieve[15] and undergo a process called "doctor shopping" (not to be confused with modern parlance), where they try to seek out a doctor who will give an alternative diagnosis other than a "deaf" diagnosis.[16] "Medical intervention is thus

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[8] Clayton Valli et al., *Linguistics of American Sign Language: An Introduction*, 5th ed. (Washington, D.C.: Gallaudet University Press, 2011), 1–14.

[9] Lisa Iezzoni et al., "Communicating about Health Care: Observations from Persons Who Are Deaf or Hard of Hearing," *Annals of Internal Medicine* 140, no. 5 (2004): 356–62.

[10] Barnett et al., "Deaf Sign Language Users," A45.

[11] Barnett et al., "Deaf Sign Language Users," A45, para 14.

[12] Robert Q. Pollard and Steven Barnett, "Health-Related Vocabulary Knowledge among Deaf Adults," *Rehabilitation Psychology* 54, no. 2 (2009): 182–85, https://www.researchgate.net/publication/ 26241110_Health-Related_Vocabulary_Knowledge_Among_Deaf_Adults.

[13] CDC, "What is Health Literacy?," https://www.cdc.gov/healthliteracy/learn/index.html.

[14] Harry Knoors, "Foundations for Language Development in Deaf Children and the Consequences for Communication Choices," in *The Oxford Handbook of Deaf Studies in Language*, ed. Marc Marschark and Patricia Elizabeth Spencer (New York: Oxford University Press, 2016), 19–31; Ross E. Mitchell and Michael A. Karchmer, "When Parents Are Deaf Versus Hard of Hearing: Patterns of Sign Use and School Placement of Deaf and Hard-of-Hearing Children," *Journal of Deaf Studies and Deaf Education* 9, no. 2 (2004): 133–52.

[15] Dunay Schmulian and Christopher Lind, "Parental Experiences of the Diagnosis of Permanent Childhood Hearing Loss: A Phenomenological Study," *International Journal of Audiology* 59, no. 1 (2020): 54–60.

[16] McKay Vernon and James M. Wallrabenstein, "Diagnosis of Deafness in a Child," *Journal of Communication Disorders* 17, no. 1 (1984): 1–8.

concerned more with the origin, degree, type of loss, onset, and structural pathology of deafness than with communicative disability and the implications."[17]

Because of these language barriers encountered in the home, it is not uncommon for deaf children to experience language deprivation and dysfluency.[18] This is because of the lack of visual input. Children who are raised without visual input and language are often language deprived.[19] Wyatte C. Hall talks about the dangers of not providing a language during a child's critical period, stating that a "lack of language access has negative implications [such as] cognitive delays, mental health difficulties, lower quality of life, higher trauma, and limited health literacy."[20] At best, English is a second language for many deaf people.[21]

Another cause of English/language dysfluency results from educational choices and instructional methodologies for deaf children. There has historically been a primary focus on oral education, lipreading, and a suppression of sign language. Harlan Lane, a scholar, psychologist, and researcher on behalf of the deaf community, writes, "suppression of the languages of the world's deaf communities continues unabated . . .. The attempt to educate deaf children with teaching methods developed for hearing children continues to prove a failure, decade after decade."[22] Paddy Ladd and Harlan Lane go so far as to say, "Colonialism expressed in the educational system is commonly found around the world, enacted on Deaf education in the form of Oralism, which is defined here simply as 'an ideology that seeks to remove all things Deaf from the Deaf educational system, from society and, to the extent possible, from the world.'"[23] It is not uncommon for deaf children to grow up with

[17] Irma M. Munoz-Baell and M. Teresa Ruiz, "Empowering the Deaf. Let the Deaf be Deaf," *Journal of Epidemiology & Community Health* 54, no. 1 (2000): 40.

[18] Charlene Crump and Neil Glickman, "Mental Health Interpreting with Language Dysfluent Deaf Clients," *Journal of Interpretation* 21, no. 1 (2011): 21–36.

[19] Wyatte C. Hall, "What You Don't Know Can Hurt You: The Risk of Language Deprivation by Impairing Sign Language Development in Deaf Children," *Maternal and Child Health Journal* 9, no. 2 (2017): 961; Amy June Rowley, "Educational Interpreting from Deaf Eyes," in *Deaf Eyes on Interpreting*, ed. Thomas K. Holcomb and David H. Smith (Washington D.C.: Gallaudet University Press, 2018), 174–86.

[20] Hall, "What You Don't Know Can Hurt You," 961.

[21] Ewa Domagała-Zyśk, "Vocabulary Teaching Strategies in EFL Classes for Deaf and Hard-of-Hearing Students," in *English as a Foreign Language for Deaf and Hard of Hearing Persons: Challenges and Strategies*, ed. Ewa Domagała-Zyśk and Edit H. Kontra (Newcastle upon Tyne, UK: Cambridge Scholars, 2016), 135–52; Kelly Nuxoll, "A New Reason for Why the Deaf May Have Trouble Reading," Learning English (website), https://learningenglish.voanews.com/a/a-new-reason-for-why-the-deaf-may-have-trouble-reading-119728279/115194.html.

[22] Harlan L. Lane, "The Failure of Deaf Education," in *The Mask of Benevolence: Disabling the Deaf Community* (San Diego, CA: DawnSignPress), 9.

[23] Paddy Ladd and Harlan L. Lane, "Deaf Ethnicity, Deafhood, and their Relationship," *Sign Language Studies* 13, no. 4 (2013): 569.

aberrant language skills due to the absence of an easily accessible first language in the home and at school.[24] This stacked deck of parental grief and denial, language deprivation at home, and unsatisfactory educational outcomes leads to adult experiences of unemployment and underemployment and inaccessible structures and systems. Similarly, Michael Oliver mentions more of these barriers as being "inaccessible education systems, working environments, inadequate disability benefits, discriminatory health and social support services, inaccessible transport, houses and public buildings and amenities, and the devaluing of disabled people through negative images in the media."[25]

An interesting consequence of English dysfluency is its ponderous impact on deficits in "funds of knowledge," which refers to the ambient information those of us who can hear gain as we traverse our lives and overhear information.[26] "Normal acquisition of passive information is made through media, such as radio, newspapers, television, and word of mouth."[27] In his research, Donald Evans cites the several gaps that people can experience in funds of knowledge, including gaps in reality; gaps in moral, economic, and social relationships; and gaps in taxonomic and academic knowledge.[28] These knowledge deficits are particularly evident in health-care settings. The deaf patient may be unfamiliar with medical terminologies, diagnoses, and procedures that are common to the general public. One such project dealing with this inequity in the medical field is revising health education materials that have historically been printed in English and conveying them in ASL by deaf people and for deaf people.[29]

English deprivation, partial acquisition of English, or English as an incomplete second language is what impairs deaf people in accessing written and spoken health information without language accommodations. Societal barriers cause the disabling of deaf people, yet deaf people are the ones left to mitigate the issues. This exacerbates the perspective that deafness is an impairment or disability because of the lifelong communication barriers that deaf individuals encounter.

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[24] Hall, "What You Don't Know Can Hurt You," 961.
[25] Michael Oliver, *Understanding Disability: From Theory to Practice* (New York: St. Martin's, 2009), 47.
[26] Wyatte C. Hall, Leonard L. Levin, and Melissa Anderson, "Language Deprivation Syndrome: A Possible Neurodevelopmental Disorder with Sociocultural Origins," *Social Psychiatry and Psychiatric Epidemiology* 52, no. 6 (2017): 761–76.
[27] Hall, Levin, and Anderson, "Language Deprivation Syndrome," 766.
[28] A. Donald Evans, "Strange Bedfellows: Deafness, Language, and the Sociology of Language," *Symbolic Interaction* 11, no. 2 (1988): 235–55.
[29] Robert Q. Pollard et al., "Adapting Health Education Material for Deaf Audiences," *Rehabilitation Psychology* 54, no. 2 (2009): 232–38.

Another complexity for deaf people is the invisibility of their disability. Deafness is classified as a low-incidence disability, meaning that it does not occur frequently. Unlike blindness or mobility disabilities, deafness is not obvious to an onlooker; it is "invisible." "Disability marks the body in ambiguous ways—it appears and disappears, is noticed and is hidden."[30] This is especially true for deaf people. Their disability is hidden until interaction is required. The invisible aspect of deafness causes their needs to be obscured from the general public.

In spite of all these adversities, many deaf people do not see themselves as having a disability or impairment, but perhaps would agree to being a linguistic minority.[31] Lennard Davis eloquently agrees that "an impairment only becomes a disability when the ambient society creates environments with barriers—affective, sensory, cognitive, or architectural."[32] The biggest barrier, then, is not a person's deafness. Rather, the negative responses deaf people receive from their society are worse than the condition itself.[33] Many members of the deaf community would agree with Paddy Ladd, who says that it is society that disables deaf people.[34] It truly is the social construction of the perceived impairment that causes the most physical and psychic harm.[35] No onus lies on deaf people themselves; they just want to live and thrive like everyone else in their society. They do however "collectively give a pragmatic nod to the term 'disabled' as an articulation necessary to qualify for the rights and accommodations they are entitled to while they fight for complete egalitarianism."[36]

One option for providing communication access to deaf patients is to work with interpreters to facilitate dialogue between the medical professional and the deaf patient. Although a seemingly obvious prescription for a communication impasse, adding an interpreter into the setting is not as simple as it

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[30] Anne McGuire, "Disability, Non-Disability and the Politics of Mourning: Re-Conceiving the 'We,'" *Disability Studies Quarterly* 30, no. 3 (2010): 2.

[31] Lennard Davis, "Crips Strike Back: The Rise of Disability Studies," *American Literary History* 3, no. 11 (1999): 500–12.

[32] Davis, "Crips Strike Back," 507.

[33] Catherine Kudlick, "Disability History: Why We Need Another 'Other,'" *American Historical Review* 108, no. 3 (2003): 763.

[34] Paddy Ladd, "Deafhood: A Concept Stressing Possibilities, Not Deficits*," Scandinavian Journal of Public Health* 33, no. 66_suppl (2005): 12–17.

[35] Tobin Siebers, "Disability in Theory: From Social Constructionism to the New Realism of the Body," *American Literary History* 13, no. 4 (2001): 737–54; Dan Goodley, "Dis/entangling Critical Disability Studies," *Disability & Society* 28, no. 5 (2013): 631–44.

[36] Sarah Glenn-Smith, "The Use of Social Media as a Conduit to Promote Social Justice in the Deaf Community, as a Cultural and Linguistic Minority, through the Visual Language of American Sign Language: A Movement against Audism," (PhD diss., Nova Southeastern University, 2017), 109.

sounds. Medical interpreting necessitates accuracy due to its high risk and high stakes nature.[37] Accuracy in the health-care setting is an interpreter's most important objective. Interpreters must have a strong background in medical terminology, knowledge, and understanding of medical procedures and treatments.[38] There is a lack of specialized training for interpreters in health-care settings.[39] There is also a preponderance of esoteric discourse that is inherent in the health-care field.[40] A needs assessment conducted by the National Consortium of Interpreter Education Centers found that most participants rated health-care settings as the most or second-most important setting requiring the assistance of an interpreter.[41] This combination of potential lower health literacy, lack of qualified interpreters, and health-care providers who are unaware or unprepared to meet this population's specific needs highlights the frustration of countless deaf people in accessing a critical service. However, no standardized or recognized strategy exists for preparing interpreters with this medical information.[42]

The exchange of medical information, even at routine office visits, can become perilous when the patient cannot fully participate in discussions regarding safe use of medications, critical lifestyle changes, or complex, even risky, decision-making expectations.[43] Expecting deaf patients to rely upon written texts full of medical terminology creates a type of double jeopardy in which the patient with inadequate health-related knowledge is expected to comprehend critical information presented in their second language, English.[44] Thus, patient health-care information should be communicated according to the language preferences of the deaf patient to achieve patient-centered care and positive health outcomes, so that they can enjoy their "free and equal status . . . with equal facility as any other person."[45]

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[37] George Major, Jemina Napier, and Maria Stubbe, "'What Happens Truly, Not Textbook!': Using Authentic Interactions in Discourse Training for Healthcare Interpreters," in *In Our Hands: Educating Healtcare* Interpreters, ed. Laurie A. Swabey and Karen Malcolm (Washington D.C.: Gallaudet Press, 2012), 27–53.

[38] Teri Hedding and Gary Kaufman, "Health Literacy and Deafness: Implications for Interpreter Education," in *In Our Hands: Educating Healthcare Interpreters*, ed. Laurie A. Swabey and Karen Malcolm (Washington D.C.: Gallaudet University Press, 2012), 164–89; Major, Napier, and Stubbe, "'What Happens Truly, Not Textbook!'" 27–53.

[39] Laurie A. Swabey and Quincy Craft Faber, "Domains and Competencies for Healthcare Interpreting," in *In Our Hands: Educating Healthcare Interpreters*, ed. Laurie A. Swabey and Karen Malcolm (Washington D.C.: Gallaudet University Press, 2012), 1–26.

[40] Hedding and Kaufman, "Health Literacy and Deafness," 164–89.

[41] Dennis Cokely and Elizabeth Winston, *Comparison Report: Phases I & II Deaf Consumer Needs Assessment* (n.p.: National Consortium of Interpreter Education Centers, 2009), 18–22.

[42] Swabey and Faber, "Domains and Competencies," 1–26.

[43] Hedding and Kaufman, "Health Literacy and Deafness," 164–89; Iezzoni et al., "Communicating about Health Care," 356–62.

[44] Domagała-Zyśk, "Vocabulary Teaching Strategies," 135–52.

[45] John Harris, "One Principle and Three Fallacies of Disability Studies," *Journal of Medical Ethics* 27, no. 6 (2001): 383–87.

Several years ago, a local academic medical center conducted town hall meetings with members of the deaf community. The forum enabled deaf people to underscore their concerns and dissatisfaction with medical services provided to them. A deaf community spokesperson shared insights on behalf of the deaf community, affirming, "We deaf people just want to be able to go to our appointment only worried about our health just like everyone else, instead of worried about our health communication."[46]

Simulation

Previously, nursing students have developed professional skills primarily through placement in actual medical settings, but today's nursing programs face diminished access to clinical situations. McCarthy and Wyatt listed top barriers to traditional pediatric clinical experiences as competition for and general lack of clinical sites, limited preceptors, lack of hands-on opportunities, limited experiences with medication or safety concerns, and, now, COVID.[47] Furthermore, a National League of Nursing (NLN) survey found hospital policy barriers and growing student restrictions imposed by hospitals limit students' ability to fully practice the role of registered nurse in actual health-care settings.[48] Similar barriers exist for programs that prepare sign language interpreters. Interpreting faculty struggle to provide authentic experiences working with health-care providers and rendering medical information from spoken English to ASL and vice versa.

Simulation in health-care education is designed to replicate real clinical situations in a safe environment. The International Nursing Association for Clinical Simulation and Learning (INACSL) states that the specific purpose of simulation is to "promote, improve, or validate a participant's performance."[49] O'Donnell et al. found that students provided with opportunities to experience realistic simulated clinical situations experienced improved critical thinking and communication skills.[50] Validating the importance of simulation, some nursing boards, such as

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[46] Dawn Croasmun (deaf individual), email message to the author, May 23, 2019.

[47] Ann Marie McCarthy and Janet S. Wyatt, "Undergraduate Pediatric Nursing Education: Issues, Challenges and Recommendations," *Journal of Professional Nursing* 30, no. 2 (2014): 130–38; Garrett K. Chan et al., "The Impact of COVID-19 on the Nursing Workforce: A National Overview," *Online Journal of Issues in Nursing* 26, no. 2 (2021): para. 13.

[48] Pamela M. Ironside and Angela M. McNelis, "Clinical Education in Prelicensure Nursing Programs: Findings from a National Survey," *Nursing Education Perspectives* 31, no. 4 (2010): 264–65.

[49] INACSL Standards Committee, "INACSL Standards of Best Practice: Simulation [SM] Participant Evaluation," *Clinical Simulation in Nursing* 12 (December 2016): S26–29.

[50] John M. O'Donnell et al., "NLN/Jeffries Simulation Framework State of the Science Project: Simulation Learning Outcomes," *Clinical Simulation in Nursing* 10, no. 7 (2014): 373–82.

Ohio's, have approved up to 100 percent replacement of traditional clinical hours with simulation in specialty areas such as pediatric and obstetrical nursing.[51]

In the Framework for Action on Interprofessional Education and Collaborative Practice, the World Health Organization proposed embedding interprofessional training in health-care disciplines.[52] With increasing numbers of non-native English speakers accessing the health-care system, nurses and interpreters frequently find themselves working together in dynamic, unpredictable environments, requiring professionals to be both analytical and adaptive to unique demands and personalities while making extemporaneous, accurate, and ethical decisions.[53] Raymond encourages nurses and interpreters to re-envision the interpreter's role and move from a siloed approach to a collaborative relationship.[54] There are professional, logistical, and ethical advantages cited for providing opportunities for health-care providers and interpreters to engage in shared educational experiences.[55] Thus, simulation can be a bridge between classroom and clinical environments and serve as a venue to address communication access concerns for deaf patients. It has not been used much, but authors who did found that practicing simulation with deaf participants improved nursing students' attitudes and behaviors.[56]

Methods

At the university where this study took place, nursing students take the pediatric-focused course Health Care of Children and interpreting students take the courses Medical Interpreting and Community Setting Interpreting. Nursing and interpreting faculty decided to combine students and collectively be involved in a pediatric discharge simulation. The nursing students would be providing care and family education, and the interpreting students would be interpreting for a deaf volunteer who played the role of the infant's parent. In the fall of 2018, the authors secured Institutional Review Board approval for

[51] Ohio Administrative Code, 4723: Nursing Education Programs, Ohio Board of Nursing, Chapter 4723-5, 2017, http://codes.ohio.gov/oac/4723-5.

[52] WHO Study Group on Interprofessional Education and Collaborative Action, *Framework for Action* (Geneva, Switzerland: World Health Organization Press, 2010).

[53] Karen Bontempo and Karen Malcolm, "An Ounce of Prevention is Worth a Pound of Cure: Educating Interpreters about the Risk of Vicarious Trauma in Health Care Settings," in *In Our Hands: Educating Healthcare Interpreters*, ed. Laurie A. Swabey and Karen Malcolm (Washington D.C.: Gallaudet University Press, 2012), 105–30.

[54] Raymond, "Conveying Information in the Interpreter-Mediated Medical Visit," 38–46.

[55] Ineke H. M. Crezee, *Introduction to Healthcare for Interpreters and Translators* (Amsterdam, Netherlands: John Benjamins, 2013), 1–26.

[56] Michael S. Grady et al., "Enhancing Communication with the Deaf through Simulation," *Nurse Educator* 43, no. 3 (2018): 121–22.

this study, which was designed to answer the following research question: "How did nursing and interpreting students perceive the effectiveness of the simulation?"

Because nursing students outnumbered interpreting students, researchers employed random sampling for a subset of nursing students, whereas all interpreting students were included. All potential participants were emailed the consent letter and a link to a seventeen-item questionnaire (two Likert-based items and open response follow-ups to those items) developed by the authors (see appendix). This questionnaire was evaluated for face validity by the authors and content validity with a statistician prior to its use. The authors explained that participation in the survey was voluntary and if students chose not to sign the consent form, their survey would be terminated. The nursing faculty member's name for the pediatric course was left off the consent letter to prevent coercion.

The Scenario

This collaborative simulation allowed nursing students to provide discharge instructions to a deaf parent with an infant and interpreting students to hone their interpreting skills in a health-care environment. The discharge scenario was a good fit for this collaborative experience given the amount of communication that takes place during the discharge process. This simulation met nursing objectives focused on communication and teaching and provided challenging opportunities for interpreting students to manage rapid turn-taking.

The pediatric discharge scenario was created to give baccalaureate nursing students the opportunity to practice hands-on care for a simulated infant (a low-fidelity mannequin with audio of an actual crying baby controlled by nursing faculty). The students needed to recognize safety issues, practice a head-to-toe physical assessment, and give discharge teaching to a parent. Approximately nine to twelve nursing students were in the room together. Four nursing students were assigned to different roles: two assessment nurses and two nurses to complete discharge teaching to the deaf parent. Remaining students watched for behavioral outcomes listed on a handout. Two interpreting students were present at the bedside. One student interpreted the simulation and received interpreting suggestions and corrections, if warranted, from the other interpreter. Additional interpreting students observed through a double-sided glass partition and evaluated their peers from an adjoining room. Each deaf volunteer played the role of the baby's parent.

Active participants were given a brief description of the scenario, directed to the applicable equipment, and given the patient electronic health record, including simulated order sheets, teaching

materials, and documentation regarding any medications or care provided to the patient. Numerous safety issues were presented within the scenario, such as an infant sleeping in a car seat surrounded by toys and a cell phone in the car seat, a propped bottle, and a painful object trapped within the infant's clothing.

The scenario lasted twenty minutes, in which ten minutes consisted of a comprehensive physical exam of the baby, and the next ten minutes consisted of discharge teaching with the deaf parent. A twenty-minute debriefing session followed. Interpreting students reversed roles at this point. The debriefing was facilitated by an experienced nurse who gave each group of students a series of questions to reflect upon and discuss. These questions asked participants how the simulation went and if they were able to meet their communication and instructional goals. This person also clarified information that may have been missed by students during the scenario.

Quantitative Analysis and Results

To compare the perceived effectiveness of the simulation for students majoring in ASL/English interpreting and nursing, a Mann-Whitney test statistic was calculated. The Mann-Whitney test is a nonparametric alternative to an independent samples t-test. Given the smaller sample in the current study (n = 26), and that both items examined had ordinal data (Likert-scale response), use of this test statistic is appropriate.[57] Two questions were posed to participants that evaluated their self-perception of the effectiveness of the simulation. The first, "I am better able to communicate health-care information to a deaf parent" was rated on a six-option Likert-scale (from completely disagree to completely agree). Results indicated a statistically significant difference between groups of students (U = 173.00, p = .020), indicating that nursing students (Median = 6) were more likely to agree with the question than interpreting students (Median = 5). The second question, "Will this simulation affect the way you communicate with a deaf person or their family member?" was also rated on a five-option Likert-scale (from definitely not to definitely). However, the difference between nursing (Median = 5) and interpreting students (Median = 5) was not statistically significant (U = 83.50, p = .195).

Notably, responses to both prompts appeared to have a heavy skew toward higher agreement. To test for this, a Kolmogorov-Smirnov one-sample goodness-of-fit test was used to evaluate the distribution of responses for each item. The Kolmogorov-Smirnov test is preferred to the Chi-square

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[57] Sidney Siegel and N. John Castellan, *Nonparametric Statistics for the Behavioral Sciences*, 2nd ed. (New York: McGraw Hill, 1988), 129.

test when examining smaller samples, as is ordinal data.[58] Results were statistically significant for both the first (D = .270, p < .001) and second (D = .258, p < .001) prompt, indicating that a randomly selected response from this sample is significantly more likely to be positive than negative for either prompt. In considering both sets of nonparametric tests, results suggest a heavy skew toward agreement with the first prompt and perceiving a high probability that the simulation will affect future practice in the second prompt. However, nursing students were more likely to provide the highest rating regarding ability to communicate health-care information to deaf parents compared with interpreting students.

Qualitative Analysis and Findings

Thirty-seven respondents (seventeen interpreting students and twenty nursing students) agreed to participate in the study, met the preliminary criteria, and were able to join the study. Nine open-ended questions were asked regarding whether students found the simulation to be valuable, if they were able to identify and address the communication needs of the deaf parent, if they identified benefits from the simulation, and how the simulated experience would affect the way they communicated with a deaf person in the future. Seven Likert-scale questions were asked about whether respondents agreed or disagreed with several statements like those found in the open-ended questions. Both interpreting and nursing students' responses were overwhelmingly positive, stating the advantages of practicing in a less stressful and safe environment.

A nursing student expressed that they had a greater sense of empathy for deaf individuals going through "systems that are fundamentally not designed for them." Nursing relies upon verbal communication for almost every encounter, a distinct disadvantage for someone who cannot or prefers not to communicate verbally. Nursing students consistently mentioned how they appreciated the opportunity to practice medical communication with interpreters and realized they needed to be patient to accommodate the extra time needed for the interpreting process. One student noted, "We learn in nursing school how to communicate through interpreters but have little to no opportunity to actually practice this skill in the clinical setting. This experience brought the simulation to life and made it a very real testament to the importance of interpreting services in health care."

Many interpreting students expressed that, unlike nursing students, they were already comfortable communicating with deaf individuals; however, they commented that they learned about possible preferences of communication modes, including new signs or ways to show medical concepts

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[58] Siegel and Castellan, *Nonparametric Statistics for Behavioral Sciences*.

to improve their communication. Both groups of students identified the importance of positioning and eye contact. One interpreting student astutely noticed that the deaf person "require[d] consistent eye contact and a direct line of sight from her nursing staff."

When respondents were asked if they were better able to communicate health-care information, the interpreting and nursing students had different responses. Interpreting students consistently mentioned the importance of understanding medical jargon. This authentic exposure to a health-care setting increased their awareness of the need to become familiar with medical terminology. Nursing students mentioned appreciation for the new experience of working with an interpreter and a deaf person.

Students were asked about what surprised them most about the simulation experience. Interpreting students noticed that the nursing students were tentative in the simulation. They were surprised that nursing students had not encountered a deaf person and were inexperienced with communicating through an interpreter. Interpreting students were impressed with how real the situation felt, how smoothly it ran, and how willing nursing faculty and students were to interact with the deaf person. Nursing students were most surprised by the deaf volunteers' patience during the interpretation process.

Discussion

This simulation experience allowed nursing and interpreting students to understand and appreciate the role of the other, cooperate in meeting the needs of the deaf patient, and enact strategies to improve communication. Nursing and interpreting program faculty encouraged a team approach in which all members of the health-care team could focus primarily on the deaf parent, so that they felt engaged and respected in the medical appointment and respected in terms of health-care concerns. Both groups of participants found the simulation experience to be beneficial and felt it gave them a safe environment in which to practice. Nursing students were hesitant and daunted at first by the presence of deaf people and how they were going to engage them. Most had never met a deaf person or even considered that this would be part of their nursing practice. One student even stated that they were surprised that deaf people even existed. However, once the simulation was over and the debriefing started, they were excited and looked forward to their next opportunity to repeat it.

Nursing students stated that their biggest challenges were positioning, the need to wait for interpreted messages to be relayed, the importance of speaking clearly and responding to questions not

only posed by the deaf participant but also by the interpreter, and the importance of waiting for the deaf participant to read or look at written texts first before beginning the medical explanation. Nursing students were also concerned about whether the information was being accurately conveyed to and from the deaf person. Interpreting students felt their greatest challenges were conveying medical terminologies and adapting to the interactive pacing.

It would have added another dimension to our experience if one of the nursing students had been deaf. There were none, however, at the current institution. If this had been the case, the nursing students would all have had prior experience interacting with a deaf person. The role of the interpreter would be completely different, perhaps not needed at all. Another alteration to complicate the dynamics could have been added into the equation to deal with a deaf nurse, and it would have provided a rich experience for everyone.

Limitations

Some limitations in the current study include the fact that this was only one type of simulation experience with only one population. There was limited medical terminology used and no medical equipment or procedures to explain. There was a fairly small number of participants. Additionally, in the scenario, the deaf volunteers had medical schema, high language skills, agency, and were comfortable with the interactive nature and expectations of a health-care dialogue. In other words, students did not have the opportunity to work with dysfluent individuals who may not have possessed all these capabilities.

Areas for Future Research

Students should participate in nursing and medical interpreting simulations more often, and simulations should gradually intensify in terms of content, room layout, and participants' language level. Faculty should scaffold simulations to determine if experience changes practice and whether confidence and critical thinking skills improve over time. Further research could verify whether students apply skills from their previous experiences to subsequent ones. Students could be followed longitudinally, with pre- and post-tests. The study could be replicated with different simulations each year to see growth over time and across different settings. Both sets of students in this study overwhelmingly agreed they would benefit from additional experiences navigating health-care scenarios with deaf participants. A second simulation could mitigate some of the discomfort of the first simulation and allow students to work toward patient-centered health care.

A needs assessment of interpreting programs could be conducted to determine whether they have collaborations with medical facilities (and the results thereof). After identifying programs with these types of relationships, a consortium of different interpreter training programs could focus on curriculum development and best practices pedagogy in the training of interpreters for medical interpreting. Additionally, more research on effective collaborations between nursing and interpreting programs is needed to drive best practices. This type of interdisciplinary simulation could invariably extend to individuals who are not only deaf but also to those who have a first language other than English. Research could be conducted in the deaf community. Collaborations could be created with deaf agencies to disseminate community surveys and host focus groups; these surveys could ascertain general information about experiences and preferences. Focus groups could function as a think tank to address issues that could be mentioned in the surveys. Finally, deaf community members should inform best practices, not the other way around.

Conclusion

In the cross-disciplinary collaboration described in this paper, interpreting students worked with nursing students in a realistic medical environment, and nursing students gained exposure to deaf people and the interpreting process needed to interact with the deaf community. Interacting with deaf patients for the first time can be challenging—as Goodley states, "these experiences demand new inclusive and potentially exciting forms of response."[59] The faculties that initiated this partnership recognized the exciting potential benefits to both programs in preparing their students to provide services to deaf people in a specialized setting. In terms of faculty aspirations for the study, initial goals were successfully met as evidenced by faculty and student observations and comments from the deaf volunteers. Nursing students were able to work with individuals who processed language in a different way than they were accustomed to. Interpreting students were able to relate medical information to deaf people in a realistic, dynamic, and unrehearsed setting. Students and faculty felt this simulation was a good beginning upon which to build. Future simulations should increase in risk and repercussions and include a multitude of medical settings that go beyond pediatrics. Collaborative endeavors in simulation have positive outcomes on experiential learning. Potentially, cross-disciplinary collaborations could transform older siloed approaches to education into pragmatic partnerships. Professional training programs need to expand opportunities to engage with people with disabilities and members of underserved populations to better prepare future practitioners.

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[59] Goodley, "Dis/entangling Critical Disability Studies," 635.

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Appendix

Seventeen-Item Questionnaire

1. Did you participate in an interpreted simulation between now and August 2017?

2. What is or was your major, American Sign Language/English interpreting or nursing?

3. How beneficial did you find this simulation to be in addressing the communication needs of the deaf parent?

4. As a result of this simulation, to what extent do you agree or disagree with the following statement? "I was able to identify the deaf parent's *communication needs*."
(Completely agree, mostly agree, slightly agree, slightly disagree, mostly disagree, completely disagree.)

5. Describe some of those communication needs.

6. As a result of this simulation, to what extent would you agree with the following statement? "I am better able to communicate *health-care information* to a deaf parent."
(Completely agree, mostly agree, slightly agree, slightly disagree, mostly disagree, completely disagree.)

7. Describe why you felt this way.

8. Describe two or three benefits you found from working with the deaf parent in this simulated experience.

9. Describe what the experience of communicating with a deaf person through a medical interpreting student was like.

10. Will this simulation affect the way you communicate with an interpreter (if you are a nursing student) or with health-care professionals (if you are an interpreting student)?
(Definitely, very probably, probably, possibly, probably not, definitely not.)

11. How?

12. Will this simulation affect the way you communicate with a deaf person or a family member?
(Definitely, very probably, probably, possibly, probably not, definitely not.)

13. How?

14. As a result of this simulation, to what extent would you agree or disagree with the following statement? "I was able to gain insight into the other students' work goals and procedures."
(Completely agree, mostly agree, slightly agree, slightly disagree, mostly disagree, completely disagree.)

15. As a result of this simulation, to what extent would you agree with the following statement? "The deaf parent's response or lack of response affected my professional decision-making."

(Completely agree, mostly agree, slightly agree, slightly disagree, mostly disagree, completely disagree.)

16. What surprised you the most about these interpreted simulations?

17. What did you learn from this experience that would benefit you the most in your career?