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## Patient Simulation: Applying an Interdisciplinary Health Communication Lens

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### Abstract

The use of simulation to teach future healthcare professionals—in the present case, nurses—has become an essential pedagogical tool. Although a considerable amount is known about the process and effects of simulation, the pedagogy of simulation is primed to be enhanced. As such, a literature review, a perusal of 38 relevant articles, was conducted to assess the role of health communication. The essentials of this literature and suggestions for future research are offered.

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*Keywords:* clinical simulation, simulation pedagogy, health communication, experiential

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### Introduction

For nearly a century, healthcare provider pedagogy has followed a routinized, traditional, lecture, lab, and clinical (bedside) approach to educating physicians, nurses, and allied healthcare professionals. However, in the past two decades, technology has evolved not just in healthcare delivery, but also in provider education. Recently, nursing pedagogy, in response to a changing healthcare environment, increased its focus on assimilating ever-increasing amounts of didactic material, to additionally preparing the future-nursing workforce to utilize a biopsychosocial, patient-centric, team-oriented approach to 21<sup>st</sup> century healthcare. In order to meet the practice needs for the nurse of the future and address the pedagogical evolution, nursing leaders, from both the education and practice sides of the profession, have identified gaps when comparing what was being taught in nursing education to what should be taught (NOF, 2010). The nursing profession has been charged with developing new educational models and approaches to teaching and learning—to move from a task-based proficiencies model to a higher-level competencies methodology (IOM, 2010). The goals of this competency-based approach must span all patient populations and cross all healthcare settings, intra- and inter-professional teams, as well as include emerging issues, such as: quality and safety improvements, information and management systems utilization, team leadership and collaboration, health policy, and healthcare financing (IOM, 2010; IPEC, 2016).

During a time in which there existed shortages of clinical instructors and clinical placement sites to prepare future registered nurses for the interdependent,

patient-focused, interprofessional team model of healthcare delivery, many nurse educators began using simulation as an opportunity to bridge cognitive learning with skills acquisition. While available clinical resources continue to be a constraint, the need today is to develop curriculum opportunities to improve students' abilities to think critically, make appropriate clinical decisions, and communicate effectively with patients, peers, and interprofessionally in a complex healthcare system. Clinical simulation is an approach that has been identified to help accomplish these diverse and critically important goals (Jeffries, p. xvi; cited in Campbell & Daley, 2013).

Throughout the past decade, the use of simulation within the healthcare field has evolved rapidly. The broad use of this teaching-learning-self-assessment pedagogy has fostered much research focused on examining the effect and value of simulation on knowledge acquisition, competency, and goal attainment. To better understand this evolution in nursing pedagogy, as well as examine how nursing students' communication skills (interpersonal, intercultural, team, leadership, and organizational), as key requirements for effective patient-centered, team-focused, biopsychosocial-based healthcare delivery are impacted by clinical simulations (role-play, standardized patients, and low-, moderate-, and high-fidelity), this review examined recent scholarly work from two literatures.

### Literature Review

In order to identify a breadth of journal articles related to simulation pedagogy, the literature collected for this review was identified by searching a wide variety of international, interdisciplinary/interprofessional databases and journals as well as by utilizing sources

referenced in many of the selected articles. The following databases were utilized: EBSCO, CINAHL, PubMed, Medline, Communication and Mass Media Complete, Social Science Index Retrospective, and Ovid Nursing. The search terms included: clinical simulation; patient simulation; simulation; standardized patients; role-play; undergraduate; graduate and professional; providers; medical students; nursing students; doctors; nurses; APRNs; allied health providers; communication; health communication; interpersonal communication; leadership; and teams. Selected articles (n=38) had a least one of these words in the text and focused primarily on nursing-related simulation pedagogy. Articles were organized into the following subheadings: clinical skills/efficacy; competency/judgment; fidelity simulations; simulation pedagogy; instrumentation/assessment; interpersonal/interprofessional communication; and future considerations.

### **Clinical Skills/Efficacy**

Nursing pedagogy has sought new ways to help students learn clinical skills effectively and with reduced stress. In addition, nursing educators seek to minimize the discomfort and anxiety for their students' patients. Patient simulation has been used as a new alternative for initial clinical skills education and experience. International research has demonstrated nursing students who participated in patient simulations demonstrated increased efficacy, self-perception, and enhanced clinical behaviors (Aliner, Hunt, Gordon, & Harwood, 2006; Bambini, Washburn, & Perkins, 2009; Berkenstadt et al., 2008; Radhakrishnan, Roche, & Cunningham, 2007). These studies spanned several patient care contexts: intensive care (Aliner, Hunt, Gordon, & Harwood, 2006); obstetrics and neonatal (Bambini, Washburn, & Perkins, 2009); handoffs (Bambini et al., 2009); and complex patients (Radhakrishnan, Roche, & Cunningham, 2007). Regardless of the country or context used in the study, the results illustrated the benefits of patient simulation for improving nursing students' clinical skills in a controlled and safe (emotionally for students and physical for human patients) environment. However, the value of patient simulation goes beyond the individual student's enhanced clinical skills and includes peer observers (live or via recordings) and enhanced student critical thinking.

### **Competency/Judgment**

Clinical skills education, practice, and assessment are imperative to attaining critically necessary nursing competency and judgment. However, vis-à-vis patient simulation the educational experience can be beneficial to pedagogical goals for not just the simulation participant(s), but observing peers and faculty.

Collaborative classroom simulation, with nursing students serving in the roles of simulation participants, as well as observers/raters, have demonstrated benefits to all (Berndt, 2015; Cato, Lasater, & Peeples, 2009; Elfrink,

Kirkpatrick, Nininger, & Schubert, 2010; Hicks, Coke, & Li, 2009).

Utilizing simulation as an additive component to an entire class' learning has demonstrated the educational benefits for all members of the class who serve as observers and assessors of the participants behaviors—thereby enhancing both the participants and observers competency and judgment (Berndt et al., 2015). In other research efforts, students' evolving nursing competencies and judgment were assessed and documented via longitudinal self-reflections and pre-test/post-test surveys of patient simulation experiences (Cato, Lasater, & Peeples, 2009; Elfrink, Kirkpatrick, Nininger, & Schubert, 2010).

In addition, Hicks, Coke, and Li (2009) conducted a pilot study for the National Council of State Boards of Nursing (NCSBN) and found that simulation not only improved nursing student subjects' self-confidence, but also their perceived competence. The important role that patient simulation plays in nursing student pedagogy has been demonstrated through assessments of participants' clinical skills and competencies.

### **Fidelity Simulations**

Patient simulations have evolved from role-play interactions, generally between trained actors as patients and/or family members and nursing students, to a variety of computerized, audio- and/or video-recorded, opportunities for observing student behaviors in a controlled environment. The use, differences, and benefits of low-, moderate-, and high-fidelity simulations have been explored by a variety of researchers (Broussard, 2008; Lee & Oh, 2015; Kameg, Howard, Clochesy, Mitchell, & Suresky, 2010; Najjar, Lyman, & Miehle, 2015).

Low-fidelity simulations are often used to assess a specific skill (e.g., injections, venipunctures and the like) while moderate-fidelity simulations afford faculty and students more diagnostic-type learning opportunities related to computerized feedback (heart and lung sounds as well as other physiological features). High-fidelity patient simulations include the above abilities, but also the option for verbal and nonverbal interaction with a computerized mannequin. With every level of simulation technology, the opportunities for students increases exponentially and with high-fidelity simulation, students can go beyond just one-one interactions with "patients" to interdisciplinary team, roles, communication, and outcomes practice and assessment (Broussard, 2008). In fact, Lee and Oh (2015) conducted a meta-analysis with more than 2,000 nursing students and reported that high-fidelity simulations had a positive impact on both nursing students' knowledge and clinical skills. Furthermore, the importance of debriefing post-high-fidelity simulation and understanding the various information-processing time-frames for nursing students, following simulations, has been demonstrated in

following simulations, has been demonstrated in research (Najjar et al., 2015). Finally, the cumulative nature and additive benefit of classroom lecture plus high-fidelity simulations, from an experiential learning perspective, has been reported (Kameg et al., 2010). Understanding the role of various patient simulation modalities has contributed to research in simulation pedagogy.

### **Simulation Pedagogy**

Research in patient simulation pedagogy seeks to determine how to educate faculty, create simulation scenarios, train actors, and assess the use of patient simulations in undergraduate and postgraduate nursing education (Campbell, 2012; Jeffries, Dreifuerst, & Kardong-Edgren, 2015; Kameg, Mitchell, Clochesy, Howard, & Suresky, 2009; Ramsay, Keith, Ker, & Hogg, 2008; Starkweather & Kardong-Edgren, 2008; Warland, 2011; Wheland, Shi, Yorke, Andony, & McKenzie, 2016). Faculty education regarding simulation approaches (Campbell, 2012; Warland, 2011); best practices for developing/choosing scenarios (Jeffries, Dreifuerst, & Kardong-Edgren, 2015; Kameg, Mitchell, Clochesy, Howard, & Suresky, 2009); training actors (Ramsay, Keith, Ker, & Hogg, 2008); and utilizing patient simulation and curriculum development in undergraduate and postgraduate contexts (Starkweather & Kardong-Edgren, 2008; Wheland, Shi, Yorke, Andony, & McKenzie, 2016); in nursing programs has been the topic of international research.

The importance of educating faculty about the utilization of patient simulation pedagogy, as well as the differences in simulation modalities, curriculum development, actor training, and the value for both undergraduate and postgraduate nursing education cannot be overstated. Because of the logistics and costs (i.e., time and economic) to develop effective patient simulation pedagogy research and its findings are critical to the intended pedagogical and professional outcomes, goals, and expectations. Therefore, it seems just as important to create assessment instruments that can be used to determine if administrators' and faculties' pedagogical goals are being met by simulation practices.

### **Instrumentation/Assessment**

In order to objectively assess the role of patient simulation in nursing education, a number of researchers have a variety of rubrics (Campbell, Pagano, O'Shea, Connery, & Caron, 2013; Foronda et al., 2015; Lasater, 2007; O'Shea, Pagano, Campbell, & Caso, 2011; Pagano et al., 2015; Todd, Manz, Hawkins, Parsons, & Hercinger, 2008). Researchers have developed quantitative assessments (Campbell, Pagano, O'Shea, Connery, & Caron, 2013; O'Shea,

Pagano, Campbell, & Caso, 2011; Pagano, O'Shea, Campbell, Currie, Chamberlin, & Pates, 2015; Todd, Manz, Hawkins, Parsons, & Hercinger, 2008) and mixed methods approaches to analyzing the goal attainment of patient simulations (Foronda, Alhusen, Budhathoki, Lamb, Tinsley, MacWilliams, & Bauman, 2015; Lasater, 2007).

These diverse assessment instruments sought to evaluate a breadth of patient simulation skills and behaviors. In order to provide nursing faculty with a tool for measuring clinical judgment in patient simulation, Lasater (2007) developed an approach that included student focus groups, while Todd, Manz, Hawkins, Parsons, and Hercinger (2008) used an instrument to assess nursing students' core competencies. Foronda et al. (2015) assessed the interprofessional communication behaviors of nurses and physicians in handoff simulations using a variety of methodological tools. Communication behaviors were also the focus of a multiphase study that sought to develop and validate a quantitative tool for assessing nursing students interpersonal and health communication skills and behaviors. This study was interdisciplinary and international in its research approach—with researchers from nursing and communication (Campbell et al., 2013; O'Shea et al., 2011; Pagano et al., 2015). Based on the results of these studies it is clear that reliable and valid instruments can be developed and utilized to assess a variety of behavior and skill goals in patient simulation. However, there is research on medical students, physicians, and interprofessional uses of clinical simulation that contribute to the current understanding of the role simulation plays in experiential health professional pedagogy.

### **Interpersonal/Interprofessional Communication**

Clinical simulation, though often focused exclusively on provider-patient interactions and skills, has also been evaluated using interprofessional approaches (Bloomfield, O'Neill, & Gillett, 2015; Bosse et al., 2010; Clancy, 2008; Koponen, Pyörälä, & Isotalus, 2010; Reising, Carr, Shea, & King, 2011; Wakefield, Cooke, & Boggis, 2003). In addition, several studies have explored how patient simulation could be used to enhance nursing students' use of interpersonal and empathic communication, as well as reduce student anxiety in a variety of contexts (Kruijver, Kerkstra, Bensing, & van de Wiel, 2001; Maruca, Diaz, Kuhnly, & Jeffries, 2015; Rosenzweig et al., 2008; Szpak, & Kameg, 2013).

Healthcare has evolved from a "Captain of the Ship" (i.e., physician-centered) profession, to a team-focused, interdisciplinary business. Yet, for the most part, health professional pedagogy is still silo-based (i.e., medical schools, nursing schools, and so forth). However, clinical simulation is an opportunity to begin the movement toward "team education." Several studies

have examined how medical students or physicians and nursing students or nurses can use simulation to assess team skills, behaviors, and communication. Bloomfield et al., (2015) assessed nursing and medical students' end-of-life communication in role-playing simulations. In a different context, hand-off communication between physicians and nurses was evaluated between operating room and post-anesthesia recovery room staff (Clancy, 2008). In a different approach, Reising et al. (2011) compared interdisciplinary workshops versus high-fidelity simulations in assessing team decision-making. Further, an international study examined the use of simulation in the interdisciplinary communication of bad news (Wakefield et al., 2003).

Communication was also the focus of international studies that used role-play to assess medical students' interpersonal communication (Bosse et al., 2010; Koponen et al., 2010). In an international study of nursing students and simulated cancer patients, Kruijver et al., (2001) reported nursing students predominantly using health care-focused, not patient-centered, communication. Empathic, interpersonal, communication was the focus of patient simulations of undergraduate and graduate level nursing students (Maruca et al., 2015; Rosenzweig et al., 2008). In both cases the researchers reported positive outcomes from the use of simulation pedagogy. In a slightly different approach, Szpak and Kameg (2013) found that high-fidelity simulations could reduce nursing students' anxiety. The breadth of opportunities for intra- and/or inter-professional education using clinical simulations across various contexts has been well documented. The question is how simulation will continue to evolve and how it will be used to enhance healthcare provider education in the future.

### Future Considerations

As healthcare pedagogy continues to find better methods and tools to educate and assess students' learning and behaviors several scholars have recommended ways to improve health professional education and the use of clinical simulation (Kaakinen & Arwood, 2009; Murdoch, Bottorff, & McCullough, 2014; Rourke, Schmidt, & Garga, 2010). Literature reviews of nursing simulation articles over a 20-year time-frame found less than 15% of the articles used an appropriate, or any, learning or developmental theories in the creation of simulations and recommended future developers use more theory-based designs (Kaakinen & Arwood, 2009; Rourke, Schmidt, & Garga, 2010). From a different perspective, Murdoch, Bottorff, and McCullough (2014) conducted a literature review of nearly 400 articles related to interprofessional simulation and recommended that future curricula incorporate didactic lecture, role-play, and high-fidelity simulation

to provide the best opportunities for achieving learning outcomes.

### Summary

These 38 articles encompassed a broad approach to simulation pedagogy research. The authors explored topics related to simulation and clinical skills/efficacy education, competency/judgment assessment, the differences in fidelity simulation modalities, research in simulation pedagogy, instrumentation/assessment development, interpersonal/interprofessional and communication evaluations. However, as diverse and focused as these articles were, they remain in large part the purview of one health care discipline or profession (either nursing or medicine).

In an era when collaboration and interdisciplinary/interprofessional teamwork are recognized as critical to effective healthcare delivery, it is surprising that only four of the 38 (10.5%) include Communication scholars as part of the research team. This discovery is even more concerning when the underlying reality is that *all* clinical/patient simulations (provider-provider, or provider-patient) are dependent upon effective pre-simulation, simulation, and post-simulation communication by faculty, participants, and observers. Whether the primary educational goal for a low-fidelity simulation is the assessment of a clinical technique, or a high-fidelity evaluation of a provider's response to a critical situation, the one common denominator to both of them is communication. However, in the U.S. very few health professional education programs and/or postgraduate continuing education efforts include theory-driven, communication course work/assessment. In this literature review, the overwhelming majority of studies failed to include development and/or evaluation using an interdisciplinary communication lens.

### Discussion

Based on this review, it seems clear that simulation pedagogy provides nursing faculty and students an opportunity to enhance traditional teaching methodologies (i.e., lecture, seminar, research papers, exams, etc.) and incorporate an experiential approach that not only increases intra- and inter-student cognition, but self- and peer-assessment too, as well as providing a safe environment for learning/improving clinical skills. This approach to learning may be the new education model that nursing educators are searching for—to move toward a higher level competency based methodology, so that practice gaps are rectified.

In addition, half of the articles reviewed here were related to the role of health communication as illustrated in simulations. The focus to enhance communication in healthcare provider education is critical (O'Daniel & Rosenstein, 2008). Nationally, U.S. governing healthcare organizations have tracked

sentinel event data and “communication failures are increasingly being implicated as important latent factors influencing patient safety in hospitals...” (Sutcliffe, Lewton, & Rosenthal, 2004, p. 187).

Simulation pedagogy can be viewed using a health communication lens to teach, assess, and enhance healthcare providers' interpersonal, relationship building, team, leadership, and organizational communication skills, effectiveness, and goal attainment. In reality, every simulation, regardless of the method used (i.e., role-play, standardized patient, of low-, moderate-, or high-fidelity) or the goals of the script, offers a unique opportunity for faculty and participants (actors and viewers) to observe the verbal and nonverbal behaviors of the providers, patients, family members, etc. in the scenario. Consequently, without having to alter the script, goals, and/or objectives for a simulation—a health communication lens can be used by faculty, participants, and observers to concurrently assess the interactants' behaviors and their communication effectiveness.

The same safe environment that allows participants in simulation to practice clinical skills (venipuncture, auscultation, palpation, labor progress, etc.) also affords healthcare providers (students and professionals) a safe environment to assess their interpersonal, intercultural, team, leadership, biopsychosocial, and patient-centric communication with simulated patients, peers, other professionals, and/or family members.

While most of the 19 communication-related articles in this review focused on nursing faculty feedback and/or student self-reports on communication behaviors in simulation exercises, a few of the studies highlighted a somewhat different approach. Approximately 20% of the communication articles used a unique interdisciplinary collaboration between nursing and communication faculty in assessing students' behaviors. While it is clear that most healthcare professional curricula have little room for communication specific courses, simulation provides a one-of-a-kind live and/or videotaped opportunity to observe, analyze, and enhance verbal and nonverbal healthcare provider communication.

With little theory-based communication pedagogy in most provider curriculum students/professionals have been forced to learn their critical biopsychosocial and patient-centric communication as subsets of many different undergraduate/graduate professional courses or from mentors in an apprentice-style learning experience. However, as the communication-related articles reviewed here illustrate, simulations offer a unique opportunity to both practice and analyze provider critical thinking, competency, and efficacy.

As healthcare pedagogy continues to evolve in the 21<sup>st</sup> century and beyond, the role of health communication in continuing the trajectory from a biomedical, physician-centric approach to a

biopsychosocial, patient-focused, team environment will be even more critical. In addition, as the efforts to reduce the risks of adverse and sentinel events, as well as highlight the importance of palliative care and quality of life approaches to healthcare delivery, providers will need not just the proper literacy levels, but enhanced interpersonal, intercultural, team, leadership, and organizational communication skills, competencies, and analytical abilities to effectively seek, process and share health information with patients, families, and peers. Using an interdisciplinary (i.e., nursing and communication faculty) approach to simulation pedagogy provides an opportunity to add an additional health communication lens to the education, assessment, and information-sharing effectiveness of tomorrow's nursing professionals.

## References

- Alinier, G., Hunt, B., Gordon, R., & Harwood, C. (2006). Effectiveness of intermediate-fidelity simulation training technology in undergraduate nursing education. *Journal of Advanced Nursing, 54*(3), 359-369.
- Bambini, D., Washburn, J., & Perkins, R. (2009). Outcomes of clinical simulation for novice nursing students: Communication, confidence, clinical judgment. *Nursing Education Perspectives, 30*(2), 79-82.
- Berndt, J., Dinndorf-Hogenson, G., Herheim, R., Hoover, C., Lang, N., Neuwirth, J., & Tollefson, B. (2015). Collaborative Classroom Simulation (CCS): An innovative pedagogy using simulation in nursing education. *Nursing Education Perspectives, 36*(6), 401-402.
- Berkenstadt, H., Haviv, Y., Tuval, A., Shemesh, Y., Megrill, A., Perry, A., & Ziv, A. (2008). Improving handoff communications in critical care\*: Utilizing simulation-based training toward process improvement in managing patient risk. *Chest, 134*(1), 158-162. doi:10.1378/chest.07-0914
- Bloomfield, J., O'Neill, B., & Gillett, K. (2015). Enhancing student communication during end-of-life care: A pilot study. *Palliative and Supportive Care, 13*(6), 1651-1661. doi:10.1017/S147895151500022X
- Bosse, H., Nickel, M., Huwendiek, S., Jünger, J., Schultz, J., & Nikendei, C. (2010). Peer role-play and standardised patients in communication training: A comparative study on the student perspective on acceptability, realism, and perceived effect. *BMC Medical Education, 10*(1), 1-9.
- Broussard, L. (2008). Simulation-based learning: How simulators help nurses improve clinical skills and preserve. *Nursing for Women's Health, 12*(6), 521-524.
- Campbell, S. (2012). Role-playing: An underutilized tool for teaching students to think, act, and reflect like a nurse. *Clinical Simulation in Nursing, 8*(7), e261-e262.
- Campbell, S., Pagano, M., O'Shea, E., Connery, C., & Caron, C. (2013). Development of the Health Communication Assessment Tool: Enhancing relationships, empowerment, and power-sharing skills. *Clinical Simulation in Nursing, 9*, e543-e550.
- Clancy, C. (2008). The importance of simulation: Preventing hand-off mistakes. *AORN Journal, 88*(4), 625-627.
- Cato, M., Lasater, K., & Peeples, A. (2009). Nursing students' self-assessment of their simulation experiences. *Nursing Education Perspectives, 30*(2), 105-108.
- Elfrink, V., Kirkpatrick, B., Nininger, J., & Schubert, C. (2010). Using learning outcomes to inform teaching practices in human patient simulation. *Nursing Education Perspectives, 31*(2), 97-100.
- Foronda, C. L., Alhusen, J., Budhathoki, C., Lamb, M., Tinsley, K., MacWilliams, B., & Bauman, E. (2015). A mixed-methods, international, multisite study to develop and validate a measure of nurse-to-physician communication in simulation. *Nursing Education Perspectives, 36*(6), 383-388.
- Hicks, F., Coke, L., & Li, S. (2009). Report of findings from the effect of high-fidelity simulation on nursing students' knowledge and performance: A pilot study. *National Council of State Boards of Nursing Research Brief, 40*, 1-28.
- Institute of Medicine of the National Academies of Sciences. (2010). The future of nursing: Focus on education. Retrieved from: <http://www.nationalacademies.org/hmd/~media/Files/Report%20Files/2010/The-Future-of-Nursing/Nursing%20Education%202010%20Brief.pdf>
- Interprofessional Education Collaborative (IPEC). (2016). *Core Competencies for Interprofessional Collaborative Practice: 2016 update*. Washington, DC: IPEC.
- Campbell, S. H., & Daley, K. (2013) (Eds.). *Simulation scenarios for nurse educators: Making it REAL* (2nd ed.), (p. xvi). NY: Springer Publishing Company, Inc.
- Jeffries, P., Dreifuerst, K., Kardong-Edgren, S., & Hayden, J. (2015). Faculty development when initiating simulation programs: Lessons learned from the national simulation study. *Journal of Nursing Regulation, 5*(4), 17-23.
- Kaakinen, J., & Arwood, E. (2009). Systematic review of nursing simulation literature for use of learning theory. *International Journal of Nursing Education Scholarship, 6*(1), 1-20.
- Kameg, K., Mitchell, A. M., Clochesy, J., Howard, V. M., & Suresky, J. (2009). Communication and human patient simulation in psychiatric nursing. *Issues in Mental Health Nursing, 30*(8), 503-508. doi:10.1080/01612840802601366
- Kameg, K., Howard, V., Clochesy, J., Mitchell, A., & Suresky, J. (2010). The impact of high fidelity human simulation on self-efficacy of communication skills. *Issues in Mental Health Nursing, 31*(5), 315-323. doi: 10/3109/01612840903420331
- Koponen, J., Pyörälä, E., & Isotalus, P. (2010). Teaching interpersonal communication competence to medical students through theatre in education. *Communication Teacher, 24*(4), 211-214.
- Kruijver, I., Kerkstra, A., Bensing, J., & van de Wiel, H. (2001). Communication skills of nurses during interactions with simulated cancer patients. *Journal of Advanced Nursing, 34*(6), 772-779. doi: 10.1046/j.1365-2648.2001.01807.x

- Lasater, K. (2007). Clinical judgment development: Using simulation to create an assessment rubric. *Journal of Nursing Education, 46*(11), 496-503.
- Lee, J., & Oh, P. (2015). Effects of the use of high fidelity human simulation in nursing education: A meta-analysis. *Journal of Nursing Education, 54*(9), 501-507.
- Maruca, A., Díaz, D., Kuhnly, J., & Jeffries, P. (2015). Enhancing empathy in undergraduate nursing students: An experiential ostomate simulation. *Nursing Education Perspectives, 36*(6), 367-371.
- Massachusetts Department of Higher Education. (2010). Creativity and connections: Building the framework for the future of nursing education and practice. *Nurse of the Future Nursing Core Competencies*. Retrieved from: <http://www.mass.edu/currentinit/documents/NursingCoreCompetencies.pdf>
- Murdoch, N., Bottorff, J., & McCullough, D. (2014). Simulation education approaches to enhance collaborative healthcare: A best practices review. *International Journal of Nursing Education Scholarship, 10*(1), 307-321.
- Najjar, R., Lyman, B., & Miehle, N. (2015). Nursing students' experiences with high-fidelity simulation. *International Journal of Nursing Education Scholarship, 12*(1), 1-9.
- O'Daniel, M., & Rosenstein, A. H. (2008). Professional communication and team collaboration. In *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Agency for Healthcare Research and Quality. U.S. Department of Health and Human Services. Retrieved from: <https://www.ncbi.nlm.nih.gov/books/NBK2637/?report=reader>
- O'Shea, E., Pagano, M., Campbell, S., & Caso, G. (2011). A descriptive analysis of nursing student communication behaviors. *Clinical Simulation in Nursing, e1-e8*.
- Pagano, M., O'Shea, E., Campbell, S., Currie, L., Chamberlin, E., & Pates, C. (2015). Validating the Health Communication Assessment Tool (HCAT). *Clinical Simulation in Nursing, 11*, 402-410.
- Radhakrishnan, K., Roche, J., & Cunningham, H. (2007). Measuring clinical practice parameters with human patient simulation: A pilot study. *International Journal of Nursing Education Scholarship, 4*(1), 1-11.
- Ramsay, J., Keith, G., Ker, J., & Hogg, G. (2008). Use of simulated patients for a communication skills exercise. *Nursing Standard, 22*(19), 39-44.
- Reising, D., Carr, D., Shea, R., & King, J. (2011). Comparison of communication outcomes in traditional versus simulation strategies in nursing and medical students. *Nursing Education Perspectives, 32*(5), 323-327. doi:10.5480/1536-5026-32.5.323
- Rosenzweig, M., Hravnak, M., Magdic, K., Beach, M., Clifton, M., & Arnold, R. (2008). Patient communication simulation laboratory for students in an acute care nurse practitioner program. *American Journal of Critical Care, 17*(4), 364-372.
- Rourke, L., Schmidt, M., & Garga, N. (2010). Theory-based research of high fidelity simulation use in nursing education: A review of the literature. *International Journal of Nursing Education Scholarship, 7*(1), 1-15.
- Starkweather, A., & Kardong-Edgren, S. (2008). Diffusion of innovation: Embedding simulation into nursing curricula. *International Journal of Nursing Education Scholarship, 5*(1), 1-11.
- Sutcliffe, K. M., Lewton, E., & Rosenthal, M. M. (2004). Communication failures: An insidious contributor to medical mishaps. *Academic Medicine, 79*(2), 186-194.
- Szpak, J., & Kameg, K. (2013). Simulation decreases nursing student anxiety prior to communication with mentally ill patients. *Clinical Simulation in Nursing, 9*(1), e13-e19. doi:10.1016/j.ecns.2011.07.003
- Todd, M., Manz, J., Hawkins, K., Parsons, M., & Hercinger, M. (2008). The development of a quantitative evaluation tool for simulations in nursing education. *International Journal of Nursing Education Scholarship, 5*(1), 1-17.
- Wakefield, A., Cooke, S., & Boggis, C. (2003). Learning together: Use of simulated patients with nursing and medical students for breaking bad news. *International Journal of Palliative Nursing, 9*(1), 32-38.
- Warland, J. (2011). Using simulation to promote nursing students' learning of work organization and people management skills: A case-study. *Nurse Education in Practice, 11*(3), 186-191.
- Whelan, T., Xinzhe, S., Yorke, S., Andony, K., & McKenzie, M. (2016). Knowledge and skills enhancement through perioperative nursing simulation lab training. *ORNAC journal, 34*(2), 13-19.