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Review Article

An Integrative Review of Interprofessional Simulation in Nursing Education

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Abstract: Collaborative health care teams lead to increased quality of patient care and safety; reduced health care costs; and greater satisfaction among patients and providers. However, a gap exists in interprofessional education which impacts practice. The purpose of this review is to synthesize simulation interprofessional research within nursing education.Five reviewers conducted a comprehensive systematic literature search from 2010 through 2016 based on a seven-step framework. Demographics, attributes, quality, setting, outcomes, and gaps were thoroughly analyzed in 48 studies. In conclusion, there is an increasing trend in interprofessional simulation research, yet more rigorous design, implementation, and analysis are needed to fill gaps about effectiveness of simulation. High-quality research and reporting is imperative to advance the science of simulation.

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Interprofessional health care teams increase quality of patient care, improve patient safety, and demonstrate positive outcomes such as reduced health care costs and greater satisfaction among patients and providers (Institute of Medicine, 2003). The World Health Organization (2010) (p. 7) states that "interprofessional education (IPE) occurs when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes." Despite the recommendation of the Institute of Medicine (2003) for all health care professionals to address IPE, there remains a significant gap in academic preparation for nursing students who are purposively engaged in IPE with other health care professionals in the United States. Initiatives in IPE which occur within schools of nursing can potentially prepare future

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nurses to provide safe and effective patient care using a collaborative team approach.

In 2016, the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: Simulation[SM] published a standard of best practice specific to simulation-enhanced interprofessional education (Sim-IPE). The INACSL standards were vetted through multiple interprofessional organizations worldwide and are accepted as the best standard of practice. Sim-IPE provides an opportunity to engage students in a collaborative approach to promote teamwork and work on competencies. The standard is based on four criteria: (a) using a theoretical or conceptual framework; (b) using best practice in the design and development of Sim-IPE; (c) recognizing and addressing potential barriers; and (d) devising an appropriate evaluation plan (INACSL, 2016). Emerging data suggest that IPE and simulation independently have positive outcomes, and most health disciplines including nursing, medicine, and dentistry have started to integrate interprofessional competencies into their curricula using simulation (Palaganas, Epps, & Raemer, 2013). However, literature points to a consistent lack of rigorous study designs, methods, evaluation tools, and thus flawed study outcomes in Sim-IPE research. In a Zhang, Thompson and Miller (2011) review of Sim-IPE, 25 articles reviewed had a lack of rigor in terms of study design, small sample sizes, the use of posttest-only evaluation, and evaluation tools that lacked sound psychometric development and evaluation. A more recent critical review by Palaganas, Brunette, and Winslow (2016) of IPE prelicensure simulation found 54 studies disseminated between years 1800 and 2014. The findings, similar to the 2011 review, suggest that the quality and rigor of existing literature in Sim-IPE is still lacking, and therefore, there remains a gap in best practice. According to the INACSL (2016), to achieve optimal Sim-IPE outcomes, studies should be based on theory, follow best simulation and IPE practice, and include an evaluation with reliable outcome measures.

Key Points

- Despite recent trends of interest in interprofessional education, multiple gaps remain in interprofessional simulation research.
- Further investigation using rigorous design, implementation, and analysis is needed to bridge current gaps.
- Advancements in the science of simulation will occur with dissemination of high-quality research using formal reporting guidelines.

The purpose of this integrative review was to understand which areas in Sim-IPE with nursing students are well studied and which needs further investigation. In addition, this review sought to understand the quality of published results, as well as which nursing students were collaborating during Sim-IPE, and then synthesize research within nursing education. Although this integrative review is similar to that of Palaganas et al. (2016), there are distinct differences. This current review focused on studies between 2010 and 2016 which specifically examined recent trends in Sim-IPE initiatives and only included studies that used high-fidelity simulation and standardized patients. This review further explored whether studies were using theory to guide their Sim-IPE. The INACSL Standards of Best Practice: Simulation[SM] speaks to the importance of all studies incorporating a theoretical base, yet other reviews have not explored this aspect of studies.

Framework

Cooper (2010) and Cooper and Koenka (2012) provided a framework for this integrative review through the seven steps of research synthesis. These seven steps include formulating a problem, searching the literature, gathering information from studies, evaluating the quality of the studies, analyzing and integrating outcomes of the studies, interpreting evidence, and presenting results (Cooper, 2010; Cooper & Koenka, 2012; McGaghie, 2015). Throughout the research synthesis, authors consistently returned to Cooper's Framework to stay true to the process. As stated by McGaghie (2015)(p. 294), ''Integrative scholarship summarizes data, enlightens and informs readers broadly, and sets the stage for subsequent research.''

Method

Five reviewers conducted a systematic literature search on existing studies of Sim-IPE and nursing; however, the focus of this article was specifically centered on undergraduate and graduate nursing education. Published studies were evaluated using the Simulation Research Evaluation Rubric (SRR) (Fey, Gloe, & Mariani, 2015). Research questions were framed using a structured PICOT approach: patient population (P), intervention (I), comparator group (C), outcome or endpoint (O), and study timeframe (T) (Moher, Liberati, Tetzlaff, & Altman, 2009; NYU Libraries, 2017). For this integrative review, ''P'' was articles on Sim-IPE research involving nursing, ''I'' was a summary in narrative form of findings, ''C'' was a discussion that compares findings, ''O'' was a summary of what is known and what needs more investigation in Sim-IPE involving nursing students, and ''T'' was date limits for the review, January 1, 2010, through July 1, 2016. The research questions were as follows:

1. What are the overall findings from Sim-IPE research?
2. What disciplines have nursing collaborated with within Sim-IPE research?