

Literature Review

A relatively large number of nursing studies have been conducted analyzing the outcomes of simulation in prelicensure nursing education, but limitations in sample size, a lack of randomization and absence of a control group limit them in their application towards building the science and providing sufficient evidence upon which to base policy. There are, however, a number of systematic and integrative reviews that provide meaningful data for supporting simulation as a learning pedagogy.

Foronda, Liu & Bauman (2013) conducted an integrative review that included one hundred and one studies. In their synthesis of findings, they identified 5 major themes, including confidence/self-efficacy, satisfaction, anxiety/stress, skills/knowledge and interdisciplinary experiences. In the category of skills/knowledge, they included twenty-nine studies, reporting that the preponderance of the findings support simulation to be effective for teaching knowledge and skills. For example, one research study cited in this review (Sportsman, Schumacker & Hamilton, 2011) was a longitudinal, descriptive investigation of 895 students, finding that students were able to learn unique skills and knowledge in simulation that are normally learned in clinical experiences.

Lapkin, Levett-Jones, Bellchambers, & Fernandez (2010) conducted a systematic review of 8 studies that met their inclusion criteria. They found that simulation improved the critical thinking, performance of skills, knowledge of the subject matter and an increase in clinical reasoning in certain areas.

Two integrative reviews of undergraduate nursing's use of simulation focused on patient safety. Berndt (2014) reviewed seventeen studies, including 3 systematic reviews. Their findings support the use of simulation as an educational intervention to teach patient safety in nursing, particularly when other clinical experiences aren't available. Fisher & King (2013) conducted an integrative review related to patient safety in that they examined eighteen studies preparing students, through simulation, to respond to deteriorating patients. They found that, in general, confidence, clinical judgment, knowledge and competence increased through the use of simulation.

The largest and most comprehensive study to date examining student outcomes when simulation was substituted for up to and including 50% simulation was NCSBN's National Simulation Study (Hayden, Smiley, Alexander, Kardong-Edgren & Jeffries, 2014). This longitudinal, randomized, controlled study replaced clinical hours with simulation in prelicensure nursing education. In ten nursing programs from across the country (5 BSN and 5 ADN), students were followed through all the clinical courses in their nursing programs as well as through their first six months of practice. The study provides evidence that when substituting clinical experiences with up to 50% simulation, there were no statistically significant differences between the groups using 10% or less of simulation (control), 25% simulation or 50% simulation with regard to knowledge acquisition and clinical performance.

In conclusion, the literature provides evidence that simulation is a pedagogy that may be integrated across the prelicensure curriculum, provided that faculty are adequately trained, committed and in sufficient numbers; when there is a dedicated simulation lab which has appropriate resources; when the vignettes are realistically and appropriately designed; and when debriefing is based on a theoretical model.