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Review Article

A Scoping Review of the Use and Contribution of Simulation in Australian Undergraduate Nurse Education

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Abstract: Nursing is a practice-based profession, and nurse education requires authentic learning. Simulation is valuable to assist the preparation of graduates to enter the workforce, but there is limited understanding of the breadth and quality of simulation as a pedagogy in the Australian nursing context. A framework of best practice in simulation was synthesized from previously published best practice guidelines and then applied to Australian simulation education described in studies included in this scoping review. Included literature (n = 44 articles) maps the extent, range, and nature of evidence around the use and evaluation of simulation in undergraduate nurse education in Australia. Inconsistency in the methods used to evaluate simulation activities creates challenges in pooling results to provide definitive answers about the benefits of simulation in undergraduate nurse education. Improved clarity and rigor in evaluation is needed to guide the appropriate use of simulation in the undergraduate nursing curricula.

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The use of simulation in undergraduate nurse education has been widely embraced across Australian nursing curricula (Cant & Cooper, 2014; 2017; Doolen et al.,

2016; Kunst, Mitchell, & Johnston, 2016). There has been rapid and widespread uptake of new teaching techniques and technology around simulation (Brown et al., 2012; Kelly & Jeffries, 2012). The development of simulation pedagogy has occurred in a rapidly changing education environment (Health Workforce Australia, 2014). Nurse

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educators face the challenges of assisting students to reach the requisite learning outcomes in an increasingly technology-driven environment (Al-Ghareeb & Cooper, 2016). Positive, authentic, flexible, and collaborative environments with enhanced student-teacher and peer interaction are conducive to optimizing learning (Walker, Rossi, Anastasi, Gray-Ganter, & Tennent, 2016). Therefore, incorporation of these elements into simulation could add significant value of the simulation experience to nursing student's learning.

In Australia, schools of nursing continue to develop innovative simulation experiences to give students better access to learning in an imaginative and engaging way (McAllister et al., 2013). Australian schools of nursing are using simulation as an adjunct to support the learning required for students to successfully complete a professional experience clinical placement. However, the development of effective educational activities should be supported by a comprehensive and coherent framework to guide the structure and inclusion of funda-

mental elements. Evaluation of simulation programs needs to be undertaken using reliable and robust methods. Evaluation needs to include simulation components such as the process of the simulation activity, for example, the preparation of the simulation facilitator and learner, the integration of simulation within the curricula, and the reliability and validity of tools used to evaluate learning outcomes (National League of Nursing, 2015). Thus far, consistent simulation evaluation has been absent from the literature.

Aim

This review explores and systematically summarizes and synthesizes evidence around the timing, positioning, and range of simulation activities used to assist students in reaching learning outcomes within undergraduate nurse education (Colquhoun et al., 2014). This has been undertaken in two phases. Phase 1 was the development of a framework for best practice in simulation which synthesized a number of existing framework elements so that

it could be used consistently across simulation experience. Phase 2 used this best practice framework to map the evidence around the use and evaluation of simulation in undergraduate nurse education in Australia to make up the body of the scoping review. An analysis of the components, design, and contribution of simulation to curricula against a robust framework is timely, with the aim of informing future practice, program development, and policy and for providing direction to future research priorities (Cant & Cooper, 2017; Colquhoun et al., 2014; Doolen et al., 2016). This scoping review details the reported use of simulation in Australian undergraduate nursing education against a purpose-developed best practice framework based on international and Australian best practice in simulation guidelines. This review identifies the elements of simulation that are well developed, along with gaps in understanding in simulation education in Australia, and establishes directions for future research.

Methods

A scoping review was chosen as the methodology. This supports a systematic approach to knowledge synthesis in an emerging field, assisting the identification of gaps in the evidence for future examination (Arksey & O'Malley, 2005; Colquhoun et al., 2014; Levac, Colquhoun, & O'Brien, 2010). In this case, the aim is to determine the strength of evidence using a coherent best practice framework.

Synthesis of a Framework for Evaluating Quality in Simulation Design and Implementation

A reasoned framework based on contemporary evidence is useful to map recommended components of each study. Three rigorously evaluated best practice guides were available, but each addressed different elements of the simulation (Arthur, Levett-Jones, & Kable, 2013; INASCL standards committee, 2016a; 2016b; 2016c; 2016d; 2016e; 2016f; 2016g; 2016h; Kelly, Mitchell, et al., 2016). A composite best practice evaluative framework (Table 1) was derived through aligning the components of each existing guideline and identifying common and unique themes as explained in the following sections.

Progressive and Systemic Integration of Simulation Activity Within the Course or Program

Simulation experiences should be strategically planned within the course structure to enable synthesis of course content with experiential learning activities, to gradually build confidence and self-efficacy in a safe environment, and to prepare graduates who are fit for practice (Arthur et al., 2013; Kelly, Mitchell, et al., 2016).

Key Points

- There is detailed literature regarding best practices in the use of simulation as a learning activity. Synthesis of this literature assists appraisal of educational value.
- Diverse methods in conducting and evaluating simulation education have led to limited evidence of the contribution of simulation education to students meeting their learning outcomes.
- Robust and authentic evaluation tools linked to professional standards for practice are needed to provide evidence of the unique contribution of simulation.

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