A time management intervention using simulation to improve nursing students' preparedness for medication administration in the clinical setting: A quasi-experimental study

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ABSTRACT

Background: Practising skills to competency level in a simulated clinical environment is thought to prepare nursing students for the real world setting. The ability to prioritise and plan nursing care is also essential for effective work performance. There is, however, limited evidence to support that simulated learning improves preparation for clinical practice.

Aim: To examine the effectiveness of a time management intervention using simulation to improve nursing students’ preparedness for medication administration in a clinical setting.

Methods: Quasi-experimental, pre-post-test design with a non-equivalent comparison group. Participants were second year university nursing students (n = 180 total, n = 92 intervention, n = 88 comparison group). Time management activities were integrated into a low fidelity simulated environment. A self-administered validated questionnaire measured student nurse perception of preparedness for medication administration in a clinical setting.

Findings: While there was no significant difference for overall perceived preparedness for medication administration, the intervention group showed significantly improved perceived ability to clarify unclear instructions (p = 0.019), monitor patients’ conditions post medication administration (p = 0.032) and assess medication effectiveness (p = 0.034).

Discussion and conclusion: A time management intervention using simulation can effectively enhance students’ preparedness for, and confidence in, medication administration in a clinical setting. Adequate theoretical pharmacology knowledge is crucial in preparing nursing students for medication administration in the clinical setting.

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Summary of Relevance

Problem
The ability to prioritise and plan nursing care is essential for effective work performance. There is limited evidence, however, to support that simulated learning improves preparation for clinical practice.

What is Already Known

Practising skills to competency level in a simulated clinical environment is thought to prepare nursing students for the real world setting.

What this Paper Adds
A time management intervention using simulation can enhance students’ preparedness for medication administration in clinical practice. Adequate theoretical pharmacology knowledge is crucial in preparing nursing students for medication administration.

1. Introduction

Administering medications accurately, safely and on time, in addition to evaluating medication effectiveness, are important features of nurses’ everyday work (Hughes & Blegen, 2008; chap. 37). Findings from a recent cross-sectional study about nurses
perceived preparedness for medication administration, suggest a simulated clinical teaching environment that incorporates time management and prioritisation strategies (including post medication situations and safety issues) may improve student nurses’ perceived preparedness for medication administration (Aggar & Dawson, 2014). Educators preparing nursing students for medication administration competency, therefore, have an integral role in ensuring time management and prioritisation are taught effectively (Holland et al., 2013).

1.1. Literature review

Time management is a prerequisite for effective work performance and includes the ability to understand routines, to prioritise (Kaya, Kaya, & Pallo, 2012; Waterworth, 2003), plan and evaluate (Ghiasvand, Naderi, Tafreshi, Ahmadi, & Hosseini, 2017; Litchfield & Chater, 2007). The ability to manage nursing workloads in a safe and timely manner is a learned process and requires support to develop time management skills (Litchfield & Chater, 2007; Zakaria, 2016). It has been reported that some graduate nurses lack the knowledge and skills to manage time, which impacts on “quality of care, job satisfaction, stress and burnout, role overload and role stress” (Litchfield & Chater, 2007; pp. 37). Time management requires flexibility and the ability to adapt to unanticipated and unpredictable events (Ghiasvand et al., 2017; Litchfield & Chater, 2007). It often involves multi-tasking and task management within the time parameters available (Burger et al., 2010). Effective time management requires an understanding that often one cannot achieve all that they intended to at the beginning of the shift (Casey, Pink, Krugman, & Propst, 2004; Zakaria, 2016) and that things don’t always go according to plan (Delaney, 2003; Ghiasvand et al., 2017). Litchfield and Chater (2007) found that effective time management involved planning the day, allocating time, using a tick list when things were done, monitoring charts, checking equipment and prioritising and evaluating resources. Walton and Reeves (1996) recommend utilising five principles to assist time management: 1) list the activities to be done; 2) estimate time needed to carry out each activity; 3) allow time for unscheduled activities or errors; 4) prioritise activities; and 5) study the activities of the day. Poor time management can result in feelings of distress, frustration, guilt and being overwhelmed (Litchfield & Chater, 2007) and may lead to emotional and physical exhaustion, ultimately impacting patient care (Purling & King, 2012).

Typically, students are taught foundational clinical nursing concepts, such as medication administration, using didactic strategies such as lectures. These are usually supplemented with tutorial and small group activities addressing clinical reasoning, whilst clinical skill acquisition is generally developed in a simulated clinical environment. Simulated clinical environments are considered an effective method of teaching clinical skills in a safe setting (Gore, Hunt, & Raines, 2008; Weller, Nestel, Marshall, Brooks, & Conn, 2012) and have been part of the clinical skills education in undergraduate nursing curricula throughout Australia and internationally for several decades (Rudd, Freeman, Swift, & Smith, 2010; Zahara-Such, 2013). Practising clinical skills to competency level in a simulated clinical environment is thought to prepare students for the real world setting (Edgecombe & Bowden, 2009; Hope, Garside, & Prescott, 2011; Mills, Carter, Rudd, Ross, & Claxton, 2015; Sundler, Pettersson, & Bergland, 2015). Wellard, Solvol, and Heggen (2009), however, recognise there is little empirical evidence to support the idea that learning in a simulated clinical environment improves student nurses’ perceived preparedness for clinical practice. This is important, because how students perceive their learning instruction and preparedness for practice has been significantly associated with their competency to perform clinical skills (Benner, Hughes, & Sutphen, 2008; chap. 6).

A phenomenological study exploring student nurse perceptions of how teaching in a simulated environment translates to clinical practice settings concluded that nursing students appreciate skill demonstration by educators, along with the opportunity for practise and appropriately timed feedback (Latter, Rycroft-Malone, Yerrell, & Shaw, 2000). Several studies have assessed competency of technical nursing skills (Chan, 2002; Fisher & Paroli, 2000; Papp, Markkanen, & von Bonndorf, 2003), however, these did not seek to investigate the contribution of learning in the classroom and/or simulated clinical laboratory to the development of competency when compared with practise within the clinical environment. Henderson, Cooke, Creedy, and Walker (2012) reviewed six studies related to student nurses’ perceptions of learning in simulated clinical environments; however, they too did not distinguish between classroom teaching strategies and skill acquisition developed through practise in a simulated clinical environment. Godson, Wilson, and Goodman (2007), Sandahl (2009) and Ham (2016) examined collaborative teaching with peer groups in simulated clinical environments and concluded that involvement by senior peers teaching junior level students increased learning and confidence in medication administration skills.

Notably, some studies demonstrate that nurses have not felt well prepared by university education to effectively manage their time (Kaya et al., 2012; Litchfield & Chater, 2007) and that pre-registration courses need to provide appropriate learning opportunities for nursing students to develop time management skills (Gerrish, 2000; Lewett-Jones & Fitzgerald, 2005; Kaya et al., 2012; Ghiasvand et al., 2017). Further research is needed to explore the impact of time management and prioritisation strategies in simulated clinical learning environments and the transferability of knowledge on nursing students’ perceived preparedness for clinical practice.

The aim of this study was to examine the effectiveness of a time management and prioritisation intervention on nursing students’ perceived preparedness for medication administration in a clinical setting. The research question guiding this study was: Does a clinical simulated teaching environment that incorporates time management and prioritisation strategies improve student nurses’ perceived preparedness for medication administration competence?

2. Method

2.1. Study design

A quasi-experimental pre and post-test study with a non-equivalent comparison group was conducted to test the effectiveness of standard clinical simulated laboratory teaching compared with clinical simulated laboratory sessions incorporating a time management component, on nursing students’ perceived preparedness for medication administration. The study also sought to examine relationships between a range of demographic factors and nursing students’ perceived preparedness to competently administer medication.

2.2. Setting and participants

Nursing students enrolled in Aged Care Nursing, a second year unit of study within a three-year baccalaureate nursing program in 2014 (comparison group) and 2015 (intervention group), were invited to participate in the study. The Aged Care Nursing unit of study utilises clinical simulation laboratory sessions for medication administration education and competency evaluation. Both the intervention and comparison groups attended the standard clinical simulation laboratory sessions addressing medication administra-
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