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Undergraduate surgical nursing preparation and guided operating room experience: A quantitative analysis

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ABSTRACT

The aim of this research was to determine if guided operating theatre experience in the undergraduate nursing curricula enhanced surgical knowledge and understanding of nursing care provided outside this specialist area in the pre- and post-operative surgical wards.

Using quantitative analyses, undergraduate nurses were knowledge tested on areas of pre- and post-operative surgical nursing in their final semester of study. As much learning occurs in nurses' first year of practice, participants were re-tested again after their Graduate Nurse Program/Preceptorship year. Participants' results were compared to the model of operating room education they had participated in to determine if there was a relationship between the type of theatre education they experienced (if any) and their knowledge of surgical ward nursing.

Findings revealed undergraduates nurses receiving guided operating theatre experience had a 76% pass rate compared to 56% with non-guided or no experience ($p < 0.001$). Graduates with guided operating theatre experience as undergraduates or graduate nurses achieved a 100% pass rate compared to 53% with non-guided or no experience ($p < 0.001$).

The research informs us that undergraduate nurses achieve greater learning about surgical ward nursing via guided operating room experience as opposed to surgical ward nursing experience alone.

Introduction

As we sat in the operating suite tearoom the feeling amongst the gathered staff was one immense sadness. One of us had just read an article aloud from the daily newspaper. The story reported the coronial inquest of a 37 year-old mother of three who died from an inability to breathe following routine elective thyroid surgery. Hospital staff told the patient she was just panicking as she struggled for air (Hunt, 2004). Two expert medical witnesses, one of whom was her surgeon, gave evidence to say that the patient's death was preventable (Hunt, 2004). An expert witness believed that, had the stitches in her neck been removed sooner, the patient's life could have been saved (Hunt, 2004).

A conversation ensued. One of the experienced operating theatre nurses stated that she could not understand why the stitches in the patient's neck had not been removed. Several very junior nurses, who were visiting the operating suite for the first time, seemed shocked at this concept. Noting their surprise, another senior nurse asked the junior staff if they had been taught this lifesaving procedure during their surgical nursing preparation. In unison all the younger nurses replied 'no'.

As an undergraduate nurse I clearly remember my clinical placement in the operating suite. I recall observing a thyroidectomy similar to that of the deceased. During this operation the medical and nursing staff spent time explaining the possibility of post-operative bleeding; the importance of vigilant airway and respiratory observations and if deterioration was noted to call a medical emergency. If the patient became hypoxic this situation must be rectified by removing the stitches from the skin and muscle layers of the neck. I was appreciative of this knowledge as I had seen this question on old final examination papers and then felt more prepared; not only to answer a question on post-operative

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thyroidectomy care but to perform appropriate lifesaving clinical measures should this situation arise in one of my patients post-operatively on the surgical ward.

Unfortunately this death was not isolated, as adverse events in post-surgical patients are not uncommon. Research conducted in 21 Netherland hospitals reported that surgical adverse events occurred in 3.6 per cent of patient admissions representing 64.5 per cent of reported adverse events (Zegers et al., 2011). These surgical adverse events were severe in nature and 41 per cent were considered to be preventable (Zegers et al., 2011). Analysis performed in 2007 in the United Kingdom revealed that out of '576 reported hospital deaths, 11 per cent were due to serious deterioration of the patients' condition without appropriate recognition or treatment' (Lomas and West, 2009). Following a five year Scottish study looking at 1299 post-operative deaths, Mullen et al. (2012) concluded that timely, appropriate surgery and high quality pre- and post-operative care may be the key in preventing deaths in the first 48 h after surgical procedures.

The National Consensus Statement on essential elements for recognising and responding to clinical deterioration (Australian Commission for Safety and Quality in Healthcare, 2010) suggests that education must be provided to ensure the healthcare workforce is suitably skilled in knowledge of appropriate patient observations, identification of clinical deterioration and appropriate emergency management skills.

As an undergraduate I departed after a six week guided theatre placement with not only professional direction but a wealth of knowledge surrounding surgical procedures and possible complications to be watchful for on the pre- and post-operative surgical wards; knowledge which, I realised newer nurses may not be aware of as their opportunities to observe surgery are more limited than when I was a student.

I became increasingly concerned about the possible missed education opportunities for undergraduate nurses today and wondered if a connection could be demonstrated between the quality of pre- and post-operative surgical nursing care provided outside the operating theatre and undergraduate nurses' operating theatre experience during their study. This was the genesis of my doctoral research.

The aim of this research was not to explore the acquisition of surgical knowledge for nurses who work in the operating suite, but rather to explore the knowledge gained from experiential learning in the operating theatre that supports nursing outside this specialist area, namely in the pre- and post-operative surgical wards.

A surgical patient's journey involves a three-part process, which includes the pre-operative, operative and post-operative phases. This research considered the potential educational impact on undergraduate and graduate nurses' knowledge of pre- and post-operative care when the middle piece of the three-part surgical patient journey was omitted (see Fig. 1).

Literature

Background

The global move from hospital training to university education saw perioperative/operating theatre clinical experience being altered from approximately six weeks for every student during the old hospital-based training era to new models of clinical experience that differ between university providers.

Since the beginning of this degenerative clinical process, worldwide concerns have been voiced about possible deterioration of surgical nursing skills if undergraduates did not actively participate in the operative process (Callaghan, 2011; Mott, 2012).

The belief that operating theatre experience is only useful to nurses working in the operating suite itself, has been refuted over time (AORN Guidance Statement, 2007; Callaghan, 2011; Sigsby and Yarandi, 2004).

The question remains, can undergraduate nurses who have been exposed to 'non-guided' operating theatre experience, care for patients pre- and post-operatively in the surgical wards with the same level of insight and knowledge as those who have had a 'guided' learning experience?

Current experience in Australia (Allanson and Fulbrook, 2010) is similar to that of U.S.A. (Castelluccio, 2012), Canada (Wade, 2012), New Zealand (Claridge, 2012), United Kingdom (Lydon and Burke, 2012) ranging from a reintroduction of operating room (OR) nursing to the core curriculum, or a high dependency subject that offers OR nursing as an option, or an elective subject comprising of one week of practical experience, or ad hoc 'follow through' visits to observe a patient's surgery. In many cases students receive no theatre experience in their undergraduate education and a structured clinical rotation is rarely offered to undergraduate nurses (Castelluccio, 2012).

Guided verses non-guided experience

Guided practice, as described by Clark et al. (2012), is where students have been given explicit instructional guidance and where the concepts and skills that students need to learn have been explained. Students in this group would be involved in practical experience under the direct supervision of an experienced operating theatre nurse, who was able to explain key concepts and assist the student in their practical learning experience.

In contrast, non-guided practice refers to practical experience that the university has not formally arranged for the students, i.e. an experienced operating theatre nurse has not been allocated to assist the student. This experience is typical of the 'follow through' style of practical where student nurses working in the surgical wards follow their patient to the operating suite, watch their surgery and recovery and return to the ward to care for their patient. As these visits are ad hoc operating suite management have no ability to pre-plan or allocate specific nursing staff to provide guided supervision for these learners thus generally allowing only an observation experience with no opportunity to participate in surgical procedures (Messina et al., 2011; Mott, 2012).

Educational debate regarding the impact of guidance during teaching has been discussed for over a century (Clark et al., 2012; Kirschner et al., 2006). On one side are those who believe that all learners, novice and expert, learn more effectively when they are asked to interpret information for themselves by providing unguided or partially guided learning methods (Clark et al., 2012).

Others believe experts and novices differ, whilst experts are able to learn effectively with minimal guidance, novice learners require full explicit instructional guidance to thrive (Kirschner et al., 2006; Mayer, 2004; Sweller, 1994; Vygotsky, 1978). Those in favour of guidance suggest that in order for novices to gain knowledge they will need to be provided with direct instructional guidance (Billett, 2001; Clark et al., 2012; Kirschner et al., 2006).

Cognitive load theory

Cognitive load theory, as described by Sweller (1994) is based on the hypothesis that the brain uses two types of memory; short term, which has limited storage capacity, and long term, which has almost unlimited capacity. Whilst the working memory processes and stores information for a short time, the aim of learning is to provide knowledge which will eventually be stored in the long term memory for later use (Kirschner et al., 2006). In non-guided or