ACORN AUSTRALIAN COLLEGE OF PERIOPERATIVE NURSES | JOURNAL OF PERIOPERATIVE NURSING

Manuscript 1315

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Peer-reviewed article

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Abstract

Postgraduate nursing education serves as a crucial connection between theoretical knowledge and clinical practice, playing an important role in enhancing the competencies of nurses in specialised fields, such as perioperative nursing. The delivery of higher education has undergone a transformation, focussing on online and blended learning, making higher education more accessible and more flexible to adult learners than traditional face-to-face education programs. However, acquiring hands-on surgical skills poses a potential challenge for online education.

The expanding need for surgical service delivery from Perioperative Nurse Surgical Assistants (PNSAs) is increasing the demand for novice practitioners to acquire surgical skills. Simulation-based learning is an effective way to enhance skills in learners, and cost-effective solutions using innovative methodologies, that are explored in this discussion, pave the way for immersive learning experiences that enhance proficiency in surgical skills and ensure patient safety.

Keywords: perioperative nurse, Perioperative Nurse Surgical Assistant (PNSA), surgical skills, online education, digital health, digital technologies

Introduction

Postgraduate nursing education serves as a crucial bridge between theoretical knowledge and clinical practice, playing a pivotal role in enhancing the competencies of nurses in specialised fields. Baxter and Edvardsson[1] highlight the significance of evidence-based theory in nursing education, aiming to address the theory–practice gap prevalent in the profession, while Sonneborn et al.[2] emphasise its role in fostering critical thinking skills among nurses, ultimately leading to improved patient care and outcomes.

Higher education has undergone significant transformation in how education is delivered, with a global appetite for technology-enhanced learning design to complement the technological revolution in the 21st century[3,4,5]. Adult learners often prefer online learning, as a more flexible schedule allows students to manage professional, personal and educational demands more easily than with traditional face-to-face education programs[6,7]. Online and blended learning allows tertiary, higher education to be more accessible and flexible, and learning technologies can provide innovative opportunities to engage students in higher education[6].

This discussion paper explores postgraduate nursing education, particularly focusing on the Master of Nursing program with a perioperative practice specialisation offered by La Trobe University, to investigate its role in advancing perioperative nursing knowledge and skills.

It addresses the integration of evidence-based theory into clinical practice and examines the challenges of acquiring hands-on surgical skills in online education settings. By highlighting the significance of active learning strategies and innovative approaches, the aim is to improve perioperative nursing education and ultimately enhance patient care outcomes.

Discussion

The changing role of the perioperative nurse

In recent years, the role of the perioperative nurse has undergone significant transformation, driven by a myriad of factors including advancements in technology, evolving patient demographics and increasing complexity of surgery. Once viewed as a support figure in the operating room, perioperative nurses now find themselves at the forefront of patient care, wielding an array of technological tools and needing specialised knowledge to navigate the intricacies of modern surgical procedures[8].

The landscape of perioperative care has shifted dramatically, with patients presenting increasingly complex medical conditions and surgical needs. This shift is paralleled by advancements in medical technology, with operating suites now resourced with state-of-the-art equipment ranging from robotic surgical systems to advanced imaging modalities. These technological advancements have revolutionised surgical practices, offering greater precision, efficiency and safety in the operating room. However, they also pose new challenges for perioperative nurses, who must continually update their skills and knowledge to adapt to these evolving technologies[9,10,11].

Moreover, the changing demographics of patients undergoing surgery further compound the challenges faced by perioperative nurses. Aging populations, coupled with the rising prevalence of chronic diseases, have led to an increase in the acuity and complexity of and demand for surgery. As a result, perioperative nurses are tasked with caring for patients with a multitude of comorbidities, necessitating a comprehensive understanding of diverse medical conditions and their implications for surgical management[12,13].

Against this backdrop of change and complexity, the role of the perioperative nurse has expanded to encompass a broader scope of practice. Beyond their traditional responsibilities of pre-operative preparation and intra-operative assistance, perioperative nurses now play a pivotal role in coordinating multidisciplinary care, advocating for patient safety and implementing evidence-based practices to optimise patient and surgical outcomes[14,15]. This heightened level of responsibility underscores the need for perioperative nurses to possess advanced clinical skills, critical thinking abilities and a commitment to lifelong learning.

Considering these developments, postgraduate perioperative nursing education has emerged as a vital component in preparing nurses for the demands of modern surgical care. By equipping perioperative nurses with specialised knowledge, advanced skills and proficiency in cutting-edge technologies, postgraduate programs play a crucial role in ensuring the delivery of high-quality, patient-centred care in the perioperative setting. However, as the field continues to evolve, so too must nursing education, with a renewed emphasis on active learning strategies, innovative teaching modalities and integration of evidence-based practice into curricula[16,17].

Perioperative nursing education

The Master of Nursing (Perioperative practice) program taught at La Trobe University integrates two subjects tailored specifically for Perioperative Nurse Surgical Assistants (PNSAs) within an online Learning Management System (LMS). This platform combines written and visual content with interactive elements like images, activities, discussion forums and videos. Guided by the four phases of inquiry-based learning (IBL), students engage with relevant and credible information, summarise data, ask pertinent questions to drive self-directed inquiry and design actions driven by curiosity[18–20]. Additionally, synchronous online sessions facilitate communication and engagement among students, perioperative nurses and PNSAs nationwide, as well as with specialist presenters.

The curriculum encompasses clinical research, national and state health policies and standards, and professional competencies aimed at fostering reflection on quality improvement implications for clinical practice and patient outcomes[21,22]. Aligned with the Australian Qualifications Framework (AQF) criteria for postgraduate programs, the Master of Nursing subjects at La Trobe University meet an AQF level 9 standard, ensuring graduates acquire specialised theoretical and technical knowledge, research skills, and cognitive, technical and communication abilities for professional or highly skilled work[23]. Notably, the program emphasises the integration of theoretical knowledge with practical skills,

necessitating continued clinical practice within the perioperative environment to translate theory into practice, aligning with industry standards.

Engagement strategies in online learning for perioperative nurses

Ensuring active engagement in online education presents a significant challenge. Diep et al.[16] highlight the importance of social connectedness and a sense of belonging in online learning environments. To address this challenge, the curriculum at La Trobe integrates various strategies aimed at promoting student engagement, including interactive activities and synchronous online sessions. These measures are designed to foster a supportive learning community and enhance the overall learning experience for students.

Effective student engagement has become a focal point in higher education, particularly in online and blended learning formats. Research by Groccia[24], Pedler et al.[25] and Bouilheres et al.[26] emphasises the critical role of student engagement in the success of teaching and learning methods. Active involvement in learning activities is vital for sustaining engagement, as opposed to passive, lecture-based approaches that may lack universal effectiveness or not be engaging for students[16,27–29]. The Master of Nursing (Perioperative Practice) program at La Trobe University employs active, multisensory learning techniques in its online delivery. These methods, as highlighted by Kotsis and Chung[30], focus on visual, interactive and engaging learning approaches to enhance students' retention of online learning materials.

Surgical skills acquisition

Acquiring hands-on surgical skills poses a unique challenge in online education. While Welch et al.[31] emphasise the effectiveness of simulation-based learning in enhancing surgical skills among learners, the associated cost of simulation resources can hinder accessibility for both students and institutions. To address this challenge, innovative approaches such as homemade tools and readily available materials have been proposed[32]. These cost-effective solutions enable learners to practice surgical skills in simulated environments, thereby enhancing their proficiency before applying these skills in clinical practice. Additionally, active participation in learning activities fosters student engagement.

Schlegl[32] introduced a novel training approach for acquiring basic surgical skills through distance education that used homemade tools and readily available materials for practising suturing, knot tying and basic laparoscopic skills. Students expressed satisfaction with this distance education method for teaching surgical skills, with the majority (79%) of students meeting the curriculum's learning objectives[32]. Although materials like synthetic foam, animal meat and commercial boards are often used by students learning to suture, their expense or limited availability in resource-constrained settings poses challenges[33]. Readily available items can be used for practicing suturing and tying knots, such as banana peels for simple suturing techniques or synthetic animal skin for subcuticular suturing skills, and this facilitates development of psychomotor skills in novice clinicians [34].

Comparative studies of one-on-one surgical skills practice with an instructor compared to self-guided video-based practice have shown both strategies to be equally effective in teaching surgical skills and enhancing learners' performance[32]. These findings suggest that surgical skills can be effectively acquired through online distance education methods, creating a bridge between evidence-based theory and practical clinical application. Traditionally, hands-on psychomotor surgical skills training has been facilitated by surgeons in perioperative settings, where trainees or novice learners receive mentoring and supervision as they develop surgical assisting skills. Research by Kim et al.[35] and Jensen et al.[36] indicates no significant difference in basic surgical skill performance between training provided by surgeons and skilled non-surgeons, regardless of learners' prior surgical experience.

Efficient learning occurs when students actively engage in the learning process, as the retention of information is higher in multisensory and active learning activities[30]. However, there is a concern that patient safety may be compromised when inexperienced clinicians practice skills on patients due to inadequate knowledge, experience and supervision[30]. The Royal Australasian College of Surgeons (RACS) outlines ten surgical competencies for surgical trainees, highlighting the importance of safely and effectively performing surgical procedures for optimal patient care[37]. Novice clinicians benefit from gaining foundational surgical skills through online delivery methods and refining their surgical psychomotor skills using innovative technologies or accessible surgical skill methods before applying these skills on patients.

This skill acquisition approach aims to better prepare novices before undertaking surgical procedures on patients under the supervision of senior surgeons.

Conclusion

In the dynamic landscape of perioperative nursing, postgraduate education emerges as a method of empowerment, equipping nurses with the knowledge and skills vital for modern surgical care. The Master of Nursing (Perioperative Practice) exemplifies this commitment, integrating evidence-based theory and active learning strategies to bridge the theory–practice gap. Through innovative approaches like inquiry-based learning and engagement strategies tailored for online platforms, perioperative nurses, and PNSAs are prepared to navigate the complexities of surgical care with confidence.

As digital health and technologies continue to shape the future of health care, the significance of hands-on surgical skills acquisition in online education cannot be overstated. Cost-effective solutions and innovative methodologies, as explored in this discussion paper, pave the way for immersive learning experiences that enhance proficiency and ensure patient safety. By fostering a culture of lifelong learning and embracing advancements in perioperative practice, postgraduate nursing education remains pivotal in driving excellence and innovation in surgical care.

Declaration of conflicting interests

The authors of this manuscript are employees (lecturers) of La Trobe University in the School of Nursing and Midwifery.

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