Mechanical Ventilation Education and Transition of Critical Care Nurses into Practice

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KEYWORDS

- Critical care • Mechanical ventilation • Nurse • Simulation • Education
- Self-efficacy • Transfer of learning

KEY POINTS

- A new tool for measuring critical care self-efficacy was developed for this study.
- A nurses' level of self-efficacy in approaching a new skills has been shown to impact their ability to transfer learning from the educational setting to the practice setting.
- High-fidelity simulation mimics the practice setting and allows students to practice in a safe setting where the repetition and reflective debriefing occur to deepen and extend their learning.
- Novice critical care nurses listed mechanical ventilation as one of the critical care competencies about which they felt least confident.

INTRODUCTION

Critical care nurses are required to have specialized skills and knowledge to enable them to critically think rapidly in life and death situations. High-level cognitive and emotional competencies are associated with the technical and relational dilemmas encountered daily in these settings. One of the specific skill sets that is foundational for critical care nurses is to be able to competently care for mechanically ventilated patients. This paper describes the unique challenges and opportunities in preparing nurses to transition into the intensive care environment in relation to mechanical ventilation. Results of a longitudinal quasiexperimental study among critical care nurses is described and the relationship among critical care self-efficacy, general self-efficacy (GSE), and transfer of learning (TOL) is explored. Furthermore, the simulation intervention used as a teaching/learning strategy in this study is discussed.

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SELF-EFFICACY

Self-efficacy plays an important role in moderating TOL.[1] It has been shown to moderate the relationship between training and newcomer adjustment.[2] When new employees do not adjust well in the initial phase of a job, it can lead to disengagement and turnover. Self-efficacy has also been shown to be strongly related to work performance and can be developed through mastery experiences, which largely involve 'hands-on' learning.[3] The opportunity to repeat tasks, such as simulated learning experiences, is related to increased levels of self-efficacy or the belief that one can perform the task.

An individual's self-efficacy can influence how they approach tasks and new challenges, such as learning situations. Self-efficacy is conceptualized as being general or domain specific. GSE is a traitlike generality dimension defined as "an individual's perception of their ability to perform across a variety of situations."[4] Domain-specific self-efficacy refers to how an individual feels capable of approaching and performing specific tasks, such as competencies in critical care.[4] Self-efficacy is differentiated conceptually from similar constructs, like self-esteem, which is considered to be a relatively stable 'trait.' Situational self-efficacy, in contrast, is considered to be a 'state' that is dynamic in time and in different contexts.[5] The concept of self-efficacy arises from social cognitive theory, in which an individual's reactions and actions are based on what the individual has observed in others.[4] Self-efficacy is broadly defined as "people's judgements about their capabilities to organize and execute courses of action required to attain designated types of performance; it is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses."[4]

Domain-specific self-efficacy is typically developed through mastery experiences and vicarious learning and modeling by observing others perform the task.[4] Mastery experiences are largely gained through hands-on experience, such as through practice in the clinical setting with patients or through practice in the simulation laboratory with simulated patients. Bandura[3] (1986) also argued that self-efficacy develops with the opportunity to repeat tasks. Individuals who have increased levels of self-efficacy feel they can have an impact on their environment, whereas individuals with low levels of self-efficacy view problems as unmanageable and insurmountable. Individuals with low self-efficacy may avoid a situation, instead of facing a task, if they feel that they may not be able to do it.

Research on self-efficacy in relation to training interventions is important in the understanding of effective training. An individual with greater self-efficacy is more likely to make an effort and persist longer at a task, compared with those with lesser self-efficacy. Self-efficacy has been shown to significantly influence academic success, persistence, and career competency (Bandura, 1993).[6] Task-specific self-efficacy has also been shown to influence a novice's adjustment to the workplace.[2,7] Furthermore, domain-specific self-efficacy has been operationalized in the literature as a moderator of training methods for posttraining self-efficacy and performance.[8]

Self-efficacy can be enhanced through formal training programs, especially when the individual perceives the training to be similar to the work environment where they will be applying their skills.[8] Tannenbaum and colleagues[9] had similar findings: when training meets the participant's expectations, their organizational commitment, self-efficacy, and training motivation are influenced positively. Self-efficacy has also been found to moderate training methods for outcomes such as TOL[2,10] and has been found to be a key variable in TOL research.[11] TOL refers to the ability to transfer skills learned in the educational environment (ie, the simulation laboratory) to the