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Undergraduate nursing students' experiences when examining nursing skills in clinical simulation laboratories with high-fidelity patient simulators: A phenomenological research study

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SUMMARY

Simulation has become a widely used and established pedagogy for teaching clinical nursing skills. Nevertheless, the evidence in favour of this pedagogical approach is weak, and more knowledge is needed in support of its use. The aim of this study was (a) to explore the experiences of undergraduate nursing students when examining knowledge, skills and competences in clinical simulation laboratories with high-fidelity patient simulators and (b) to analyse these students' learning experiences during the examination. A phenomenological approach was used, and qualitative interviews were conducted among 23 second-year undergraduate nursing students —17 women and 6 men. The findings revealed that, irrespective of whether they passed or failed the examination, it was experienced as a valuable assessment of the students' knowledge and skills. Even if the students felt that the examination was challenging, they described it as a learning opportunity. In the examination, the students were able to integrate theory with practice, and earlier established knowledge was scrutinised when reflecting on the scenarios. The examination added aspects to the students' learning that prepared them for the real world of nursing in a safe environment without risking patient safety. The study findings suggest that examinations in clinical simulation laboratories can be a useful teaching strategy in nursing education. The use of high-fidelity patient simulators made the examination authentic. The reflections and feedback on the scenario were described as significant for the students' learning. Undergraduate nursing students can improve their knowledge, understanding, competence and skills when such examinations are performed in the manner used in this study.

Introduction

The complexity of healthcare today is increasing with the explosion of knowledge in different specialties, the increase in technological advances and the growing attention to the issues of patient-centred care and patient participation. Nursing education must enable students to hone their nursing skills, solve problems and develop their reflective and critical thinking approaches to nursing. Consequently, teaching and learning strategies are needed to improve the knowledge, understanding, competence and skills required by nursing care students.

In this study, we focus on the use of simulation in an examination taken by undergraduate nursing students. It has been pointed out that simulation is an innovative pedagogical approach that can provide opportunities for students to develop their clinical nursing skills (Berragan, 2011; Moule, 2011). Today, simulation is widely used and has become an established pedagogy for teaching clinical nursing skills. Simulation comprises a range of types and methods, from case studies to high-fidelity patient simulators and virtual environments. High-fidelity patient simulators, which is the use of a computer-based mannequin that are commonly used in nursing education, offer learners exposure to real-life scenarios in a safe environment and enable them to develop their confidence and competence. Nevertheless, the evidence in favour of this pedagogical approach is weak, and more knowledge is needed on simulation and its impact on learning.

Background

Simulation has been described as a pedagogy that enhances opportunities for undergraduate nursing students to learn nursing skills (Arthur et al., 2013; Berragan, 2014). Mills et al. (2014) support the view that simulation has the potential to enhance learning in different and unpredictable care situations that require the use of critical thinking and advanced skills. The use of simulation in the education of undergraduate

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nursing students offers a process that can facilitate learning that involves active participation, integration, repetition, evaluation and reflections (Bland et al., 2011). Through simulation, students can be encouraged and motivated, and it can offer them an active way to learn (Bland et al., 2011; Jeffries, 2005; Robinson and Dearmon, 2013). Simulation enables feedback to be given, tacit knowledge to be expressed and understanding to be explored (Eraut, 2000). Furthermore, students have reported that simulation gives them confidence in their future clinical practice and their ability to integrate theory with practice (Traynor et al., 2010). The role of feedback in simulation has been emphasised (Arthur et al., 2013), and it can promote the development of skills that are important for becoming a reflective practitioner (Murray et al., 2008). Reflection-in-practice has been pointed out as central in the work of professionals (Ekebergh, 2007; Schön, 1983). In contrast to simulated situations, reflections on learning in real-life situations in clinical practice can be more complicated. However, experiences from practice may be difficult to identify and make explicit. In addition it may not be possible to reflect in or closely related to the actual situation in the clinical setting with respect to patient care and the workload. Reflective processes may demand structured reflections with the time and space needed to make experiences and emotions explicit.

The contribution of simulation has primarily been positive. Simulation may have the potential to offer a learning environment in which students begin to practise nursing and develop nursing skills and competences (Berragan, 2013). To be effective, simulation must reflect reality (Bland et al., 2011), and context, therefore, seems crucial. Students have reported positive responses to simulation as a learning strategy that has allowed them to apply theory in a safe and controlled environment (Hope et al., 2011). In addition, simulation can offer students a safe environment for learning that enhances clinical competence without the risk of harming patients (Murray et al., 2008). However, simulation has its limitations with regard to authenticity, and it cannot fully replace the context of human healthcare because patients' concerns and responses are complex (Dunnington, 2014). Educational providers need to be aware that simulation cannot automatically be assumed to be authentic because high-fidelity simulators are being used (Bland et al., 2014). However, even if there are complex differences between the real world and that of patient simulation, the latter may still offer students opportunities to explore how it feels to be a nurse and to begin to understand the complexities of nursing (Scholes, 2008). A mixture of simulation and training in practice may be preferred and vital for undergraduate nursing students' learning.

Limited research has been undertaken on the use of simulation in examinations to uncover its potential as a learning and teaching strategy. Even if studies have been conducted on simulation, there has been a lack of studies specifically illuminating the impact of using simulation to examine undergraduate nursing students' clinical skills and the meaning of such examinations to students learning. The need for further research has been highlighted (Moule, 2011; Wellard et al., 2009), and more evidence-based support is necessary for the development of this pedagogical approach. Therefore, the aim of this study is (a) to explore the experiences of undergraduate nursing students when examining knowledge, skills and competences in clinical simulation laboratories with high-fidelity patient simulators and (b) to analyse their learning experiences during the examination.

Method

The phenomenological approach, developed by Dahlberg et al. (2008) as a method of reflective lifeworld research (RLR), was used in this study. This approach, which builds on phenomenological epistemology and Husserl's theory of human intentionality and the lifeworld, was used to explore the nursing students' experiences of an examination in clinical skills laboratories with high-fidelity patient simulators and its impact on their learning.

Participants and Educational Settings

Qualitative interviews were conducted among second-year undergraduate nursing students selected from a university in western Sweden in 2010. The local university commences simulation from the start of the nursing programme. The simulation is used to integrate theory with practice and to prepare the students for clinical practice. Through the nursing programme, the simulation progresses with an emphasis on developing nursing students' clinical knowledge and reasoning as well as their decision-making abilities. In the examination that is the focus of this study, a high-fidelity patient simulator was used. During the examination, the students were required to demonstrate their knowledge, competence and skills in nursing. In the assessment, the teachers used an objective structured clinical examination protocol.

The examination was undertaken in a “practical room”—a so-called clinical simulation laboratory—in which teaching simulations were usually held. The students were examined in groups of four. The examination started with a report of a patient case that simulated a real-life scenario. The students were then given specific tasks that they were expected to undertake during the examination. The students then had to care for the “patient”—that is, the high-fidelity patient simulator—for about half an hour and were observed by teachers. The scenario was also videotaped. Thereafter, the students were gathered outside the practical room, where they reflected on and analysed the scenario with their teachers. They were also able to watch the videotaped episodes. Finally, each student received an assessment of whether he or she had passed or failed the examination. If they failed, which some of them did, the students had to do the examination again.

Data Collection

Qualitative interviews were used to gather the data (Dahlberg et al., 2008). A total of 23 undergraduate nursing students, comprising 17 women and 6 men, were interviewed in groups. Three of the students had failed the examination once. The interviews were conducted in 2010 and were carried out in five gender-mixed groups of three to six students each. The interviews were preceded by a five-week period of clinical placement at the local hospital.

The interviews aimed to explore the students' experiences in the examination. The researchers endeavoured to meet the students with an openness to obtain rich descriptions of their lived experiences of the studied phenomenon. The interview questions related to their experiences in terms of how they felt, their learning and what the examination meant to them. The interviews lasted about 60 min each, after which all were tape-recorded and transcribed verbatim.

Data Analysis

The analysis followed the principles of the RLR approach (Dahlberg et al., 2008) and focused on the patterns and nuances of qualitative meanings. The aim was to be sensitive both to the parts and the whole of the text as well as to the emerging meanings. Through the analysis, differences and similarities were discussed in the search for meanings. When various meanings of the phenomenon emerged, it was finally possible to describe its general structure—that is, its essence. In the Results section, this essence is illustrated in the constituents.

Ethical Considerations

Institutional ethical approval as well as approval from the student union at the local university was obtained for this study, which was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki). Written and verbal information discussing the nature, purpose and methods of the study was given to the students. Informed consent was obtained from the participants, who were made aware of their right to withdraw at any time without