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Original Research - Qualitative

### The experiences of last-year student midwives with High-Fidelity Perinatal Simulation training: A qualitative descriptive study

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#### ARTICLE INFO

##### Article history:

Received 2 November 2016

Received in revised form 21 February 2017

Accepted 27 February 2017

Available online xxx

##### Keywords:

Midwifery education  
High-Fidelity Perinatal Simulation  
Simulation training  
Student experiences  
Student midwives

#### ABSTRACT

**Background:** Simulation training is a powerful and evidence-based teaching method in healthcare. It allows students to develop essential competences that are often difficult to achieve during internships. High-Fidelity Perinatal Simulation exposes them to real-life scenarios in a safe environment. Although student midwives' experiences need to be considered to make the simulation training work, these have been overlooked so far.

**Aim:** To explore the experiences of last-year student midwives with High-Fidelity Perinatal Simulation training.

**Methods:** A qualitative descriptive study, using three focus group conversations with last-year student midwives (n = 24). Audio tapes were transcribed and a thematic content analysis was performed. The entire data set was coded according to recurrent or common themes. To achieve investigator triangulation and confirm themes, discussions among the researchers was incorporated in the analysis.

**Findings:** Students found High-Fidelity Perinatal Simulation training to be a positive learning method that increased both their competence and confidence. Their experiences varied over the different phases of the High-Fidelity Perinatal Simulation training. Although uncertainty, tension, confusion and disappointment were experienced throughout the simulation trajectory, they reported that this did not affect their learning and confidence-building.

**Conclusion:** As High-Fidelity Perinatal Simulation training constitutes a helpful learning experience in midwifery education, it could have a positive influence on maternal and neonatal outcomes. In the long term, it could therefore enhance the midwifery profession in several ways. The present study is an important first step in opening up the debate about the pedagogical use of High-Fidelity Perinatal Simulation training within midwifery education.

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#### Statement of significance

##### Problem or issue

Student midwives' experiences with High-Fidelity Perinatal Simulation training have been overlooked in the research literature.

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## What is already known

Simulation training is a powerful and evidence-based teaching method for students and healthcare professionals.

## What this paper adds

Student midwives' experiences vary over the different phases of the High-Fidelity Perinatal Simulation training trajectory.

Although uncertainty, tension, confusion and disappointment are experienced throughout the High-Fidelity Perinatal Simulation training, this does not affect students' learning and confidence-building.

To reduce negative feelings and generate more effective learning, an intense and adequate preparation of students is critical during High-Fidelity Perinatal Simulation training.

## 1. Introduction

Human patient simulation training refers to the use of patient models to learn, practice, and rehearse processes and procedures associated with care.<sup>1</sup> It provides realistic opportunities to acquire essential competences within a safe environment, which are often difficult to achieve during internships.<sup>2</sup> The tenets of simulation training are built on the assumption that healthcare professionals should continuously improve their skills, response performance, personal behaviours and inter-personal interactions. As a result, healthcare professionals will become better communicators who are better at prioritizing, thus reducing the number of human errors. At the undergraduate level, this learning method is actually more effective than traditional learning methods, as has been demonstrated by a recent meta-analysis.<sup>3</sup> Furthermore, simulation training is not only a powerful and evidence-based teaching method for students and healthcare professionals, but it also has the potential to impact positively on patient outcomes.<sup>4</sup>

With respect to the types of procedures, simulation training can be divided into three categories – Low, Medium and High-Fidelity – according to its degree of realism and the extent to which the simulation model resembles a human being.<sup>5</sup> Low-Fidelity human patient simulation manikins include simple task trainers and anatomically correct full body static manikins that replicate the external anatomy and joint movement of humans, but have no interactive capacity.<sup>6</sup> Medium-Fidelity human patient simulation manikins are full body manikins with embedded software.<sup>7</sup> They are controlled by an external, hand-held device and have limited physiological responses. High-Fidelity human patient simulation manikins are defined as 'life-like' manikins with embedded software that can be remotely controlled by computer to allow for individualised, programmed scenarios that allow the operator to set physiological parameters and respond to participants' interventions.<sup>6</sup> However, it has to be acknowledged that High-Fidelity not necessarily mean high technology, as simulated patients can generate high psychological fidelity (believability) of the simulation without the need for high technology.<sup>8</sup> High-Fidelity childbirth simulators are proven to be suitable tools for teaching and learning within obstetric emergencies.<sup>9</sup> In general, High-Fidelity Simulation exposes learners to real-life scenarios and enables them to develop their confidence and competence.<sup>3,10</sup>

In a recent literature review<sup>3</sup> evaluating simulation in nursing education, simulation was found to generally boost students' confidence levels. However, while students were satisfied with

simulation as a mechanism for clinical education, they also acknowledged that it made them feel anxious. These findings are in line with another study exploring nursing students' experiences with High-Fidelity Simulation,<sup>11</sup> which also identified anxiety as a core element of students' experience with the technique. In this study, students reported that various factors could affect their anxiety levels, such as feelings of being watched, perceived performance expectations, familiarity with the simulation environment, and comfort within their peer group. The effect of simulation-based training on confidence and anxiety levels is likely to be complex. A qualitative study exploring the experiences of last-year medical students during High-Fidelity Perinatal Simulation training (HFPSt), for example, reported that some students found the training to be more stressful than a real-life emergency. They indicated that the feedback that they got could have a profound effect on their confidence levels, both in a positive and a negative sense.<sup>12</sup>

It is important to take into account that, an adequate performance may be impossible if the simulation lacks fidelity.<sup>13</sup> For example, a study exploring third-year nursing students' perceptions of High-Fidelity Simulation found that many students go through experiences of confusion (i.e., "feeling lost") in all the used simulation scenarios.<sup>14</sup> This is consistent with the findings of In-hye and Hyeon-cheol, who found that nursing students had some negative experiences during their first encounter with simulation training, such as feeling confused and embarrassed in the unfamiliar environment.<sup>15</sup>

Collaboration is an integral component of simulation. In a study by Wotton et al.,<sup>14</sup> students' collaboration was found to be tentative at first, even if participants had been working with the same team in skills laboratories before, and it was only in the final simulation that their interaction became natural and nonthreatening. Larew et al.<sup>16</sup> showed that students' ability to collaborate is influenced by inconsistencies in their competences. Those with higher levels of competency progress faster through the scenario, identify more problems and practice a wider range of assessments and interventions. Novice students, in contrast, need more prompting and more time to resolve each problem and do not progress as far into the scenario during the allotted time.<sup>16</sup> Furthermore, students who have no previous simulation experience initially make several mistakes, as they are unfamiliar with the situation. However, through repeated practice, they are also able to build their confidence, even more so when they are thoroughly debriefed.<sup>15</sup>

A study by Levett-Jones et al.,<sup>6</sup> which measured nursing students' satisfaction with simulation training, indicated that both Medium and High-Fidelity Simulation are highly valued by students. To gain a deeper understanding of their perceptions, however, further qualitative studies are warranted.<sup>9</sup> Much of the evidence related to experiences with simulation training is currently based on studies in nursing, medical and multi-professional education. Few papers have focused separately or exclusively on the discipline of midwifery.<sup>8</sup> Despite the above-mentioned advances in simulation research, one potentially important element of simulation has been overlooked in the research literature so far—the student perspective.<sup>11</sup> Neither students' experiences with simulation training nor their experiences with the different phases of simulation training have been studied, and not a single study has explored student midwives' experiences with HFPSt. The aim of the present study is therefore precisely this: to examine the experiences of last-year student midwives with HFPSt in a qualitative study, in order to gain insight into how students experience HFPSt, allowing education managers to design more effective simulation training sessions based on these insights.

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