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## Full Length Article

# Developing, implementing and evaluating a simulation learning package on post-partum haemorrhage for undergraduate midwifery students in KwaZulu-Natal<sup>☆</sup>

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## ABSTRACT

**Background:** The training of undergraduate midwifery students to identify and manage post-partum haemorrhage, is an essential skill in midwifery.

**Aim:** The aim of this study was to develop, implement and evaluate a simulation learning package (SLP) on post-partum haemorrhage for undergraduate midwifery students using high fidelity simulation without risks to real-life patients.

**Methods:** An exploratory sequential mixed methodology was used in this study. The study was made up of three phases namely; the development, implementation and evaluation of the learning package. The research participants were fourth year baccalaureate of nursing midwifery students and midwifery experts involved in teaching midwifery. Data was collected using an evaluation checklist for experts, a student satisfaction survey and focus group sessions. Quantitative data were analysed using SPSS Version 23.0 and the qualitative data was analysed using content analysis as described by Graneheim and Lundman (2004).

**Results:** The evaluation checklist for experts revealed that the developed SLP was considered suitable for undergraduate students. It encouraged active learning, teamwork and accommodated diverse learning styles. The package was easy to use and offered opportunities for student feedback.

The student satisfaction survey revealed that the pre-simulation support received was adequate and helpful, and the post simulation outcomes showed that using high fidelity simulation improved clinical skills, knowledge, critical thinking, self-confidence and satisfaction.

The focus group sessions revealed that the SLP was an innovative and interactive method of learning; it improved the student's perception of their clinical competence, stimulated critical thinking and increased self-confidence.

<sup>☆</sup> *Research significance:* To develop a simulation learning package that uses high fidelity simulation to teach undergraduate midwifery students how to manage post-partum haemorrhage.

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*Conclusion:* A simulation learning package, that uses high fidelity simulation, can be an innovative and interactive method to teach midwifery emergencies.

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## 1. Introduction

High Fidelity Human Patient Simulators (HFHPS) are computer-controlled mannequins which allow students to interact with an ‘almost real’ patient in a realistic way (Bearnson & Wiker, 2005). The HFHPS respond to clinical interventions that are carried out in a realistic way, thus providing a safe and authentic learning environment and alleviating the growing fears and concerns relating to patient safety during students learning experience (Nevin, Neill, & Mulkerrins, 2014). Valadares and Magro (2014) agree that simulation provides an opportunity for students to practice and correct their mistakes in a clinical situation, without risks to patients and with minimal risk to themselves. Parker and Myrick (2009) add that the integration of high fidelity simulation into the curriculum can be a powerful learning tool in the integration of knowledge, skills and attitudes of students.

Obstetrics is a high risk unit where emergencies arise unexpectedly. According to the recent *Saving Mothers Report (2011–2013)*, post-partum haemorrhage was the third most common cause of maternal mortality in South Africa and accounted for 25 per cent of maternal deaths worldwide. The report concluded that a number of the deaths were avoidable and highlighted that health care providers were doing too little, too late.

Obstetric emergencies are multifaceted and complex and their urgency demands a combination of clinical skills. As a result, very little teaching can be done during these emergency situations. In a randomised trial of simulation versus didactic teaching for obstetric emergencies, Daniels et al. (2010) showed that simulation trained teams had superior performance scores when tested in a labour and delivery drill, and therefore concluded that simulation should be used to enhance obstetrical emergency training. Reynolds, Ayres-de Campos, and Lobo (2011) found that health care professionals who had participated in a simulation based training course in obstetrical emergencies perceived a substantial improvement in their knowledge and skills when witnessing real life emergencies.

The management of obstetric emergencies in the midwifery curriculum is currently taught using problem-based scenarios. According to Badeau (2010), problem-based scenarios are designed to challenge the learners to meet the curriculum objectives and therefore, introducing simulation training into the curriculum may enhance teaching and learning.

A simulation learning package (SLP) is a learning package that uses simulation to build and process discrete events and situations (Abu-Taieh & El-Sheikh, 2010, p. 14). In this study,

the SLP was a comprehensive learning package which consisted of learning objectives, pre-requisite knowledge, preparation for and participation in a role-play using the high fidelity computer-controlled mannequins.

At this local university, HFHPS are available for the training of medical and nursing students, but these mannequins have not been used to their full potential to date. The importance of developing this SLP was therefore to use this innovative technology more effectively to simulate a real-life situation, with the purpose of improving knowledge and skills in managing post-partum haemorrhage, and in so doing, highlight the versatility and true potential of this high fidelity equipment for midwifery training.

Although much research has been conducted relating to simulation training in nursing, such as the studies by Jeffries (2007), Blum, Borglund, and Parcels (2010), and Khailala (2014), limited research has been done using high fidelity simulation within the midwifery curriculum in South Africa.

## 2. Aim of the study

The aim of this study was to develop, implement and evaluate a simulation learning package on post-partum haemorrhage for undergraduate midwifery students using high fidelity simulation.

## 3. Research objectives

1. To develop a simulation learning package on post-partum haemorrhage for undergraduate midwifery students;
2. To implement the simulation learning package for a group of midwifery students;
3. To evaluate the simulation learning package on post-partum haemorrhage.

## 4. Research design

An exploratory, sequential mixed methodology as described by Creswell and Clark (2010) was chosen for this three phase study, underpinned by the Nursing Education Simulation Framework cited by Jeffries (2007). The SLP was carefully developed and submitted to experts for evaluation purposes. The SLP was then implemented in phase 2 and concluded with the evaluation of the SLP in phase 3 of the study.

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