Contributions of Simulated High-Fidelity Practice in the transfer of biomechanical knowledge to Midwives Nurses' Clinic

Maria Helena Presado¹, Mário Cardoso¹, Armando David Sousa²; Ana Leonor Mineiro³, Fátima Mendes Marques⁴, Cristina Lavareda Baixinho⁵ Miguel Moreira Pinto⁶

¹ Department of Maternal and Obstetrical Health Nursing, Nursing Research and Development Unit, Nursing School of Lisbon, Portugal, mhpresado@esel.pt; mcardoso@esel.pt
² Hospital Center of Funchal, Nursing Research and Development Unit, Nursing School of Lisbon, Portugal, armandodav@gmail.com;
³ Hospital Garcia de Orta, Nursing Research and Development Unit, Nursing School of Lisbon, Portugal, leonor1981@yahoo.com.br;
⁴ Department of Rehabilitation Nursing, Unidade de Investigação e Desenvolvimento em Enfermagem Escola Superior de Enfermagem de Lisboa, Portugal. fmarques@esel.pt
⁵ Department of Nursing Fundamentals, Nursing Research and Development Unit, Nursing School of Lisbon, Portugal. crbaixinho@esel.pt;
⁶ University of Beira Interior, CITAD – University Lusiada, Nursing Research and Development Unit, Nursing School of Lisbon, Portugal. lpinto@ubi.pt;

1 Introduction

The simulated high-fidelity practice (SHFP) is an active training methodology, allowing for the learning, renewal of aptitude and professional skills, promoting safety, education, innovation, research, quality and confidence, reducing the real risk to patients. The ability to, in a controlled, repeatable and readable environment, reproduce and amplify in a fully interactive and real time, gestures, procedures, postures and clinical acts in a variety of situations, power safety and efficiency in care. Being the epicenter of learning, it promotes critical and reflexive thinking, decision-making and acquisition of technical and non-technical skills (Presado et al, 2018).

The specificity of Midwives Nurses’ (NM) activity leads to the appearance and / or aggravation of the musculoskeletal injuries related to work (MIRW), which constitute the greatest occupational health problem in nurses. The complexity of its activities in the delivery room, provide the adoption of postures with body misalignment and consequent postural instability. Rapid movements in stress situations require the transition from a static position to a dynamic position, with the application of forces that are often overloaded, exceeding their individual capacities (Sousa, et al, 2019; David et al, 2018, Presado et al, 2017).

Nurses Midwives give priority to the safety and comfort of the parturient, neglecting their comfort and the adoption of biomechanically safe postures during the delivery. We believe that safe delivery and quality care through evidence-based practice is imperative, as well as ensuring the safety, health, and comfort of NM. In this sense, the concern with the work environment, namely with the adequacy of spaces and equipment, should be a priority of the own and the health institutions (Cardoso el al, 2017).

The use of the principles of biomechanics protects the musculoskeletal system, prevents the adoption of incorrect postures and improper movements, reduces local mechanical stress in muscles, ligaments and joints, fatigue, errors, accidents and the risk of MIRW (David et al, 2018, Presado et al, 2017). In this context, the SHFP is an important training methodology for the prevention of MIRW in NM, allowing a safe and comfortable practice in their professional performance. The present study aims to understand the contribution of SHFP in the transfer of MN biomechanical knowledge to clinical practice.
2 Methodology:

It is a descriptive and exploratory study with a qualitative methodology, with previous training to the students of the Maternal Health and Obstetrics Postgraduate Course about the principles of biomechanics, with subsequent training of skills in assisting women in childbirth in vertical position in simulated practice.

The participants were seven female licensed nurses, students of Maternal Health and Obstetrics Postgraduate Course who performed deliveries in a simulation context.

The technique of data collection was through video recordings that took place on March 2, 2018. In the analysis of the videos we used the webQdA® software, and focusing on the postures adopted by the Nurses Midwives, in the evolution of the simulation of vertical delivery.

The control of filming was performed by one of the investigators present in the room. The videos were visualized and analyzed based on the grid elaborated by Presado et al. (2017) After a consensus of the selected excerpts, the images were processed, assigning a color coding that facilitated the codification and the definition of the categories, guaranteeing the representativeness, completeness, homogeneity and pertinence of the same to the object of study.

The study was approved by the Ethics Committee and the confidentiality and anonymity of these results were guaranteed.

3 Results:

The researchers selected 24 frames from the viewing of the films, having analysed and categorized the images, and found 184 references of principles of body mechanics, from the seven students. Participants considered that there was a favourable evolution, allowing an increase in safety, confidence, skill, and capacity in decision making, as well as in the transfer of biomechanical knowledge to its clinical context.

Enabled the reflection about the action, facilitating the awareness of the movements and postures adopted during the care practice and the factors that hinder the principles of biomechanics application. Interiorization of the movements and postures adopted during the care practice allows the application of a coherent and automatic way in daily activity, focusing on prevention as the best way to reduce and avoid the MIRW progression.

The visualization of the tasks performed by the participant himself and the other participants allowed the participants to improve their body posture in the repetition of the task.

The implementation of education / training programs to health professionals about the biomechanical principles is fundamental for a safe, systematic, coherent and automatic practice, contributing to the reduction of MIRW.

It was reported that the students exhibited difficulties in planning the activities associated with the workspace organization and with the analysis of the factors that hinder the adoption of the principles of biomechanics.

The SHFP allows performance visualization, repeated training, improvement of technique and mental structure of the action, allowing the occurrence of errors without data for the professional / patient, assigning value to the correct performance, and identifying the changes necessary for performance improvement and consequently the quality of health care.

Relatively to the working environment and the adequacy of the space and equipment, despite the effort made, it was verified that not all of the equipment and material available had the ergonomic characteristics for the simulated practice.
4 Conclusions

The SHFP is currently recognized as a fundamental pedagogical strategy in the training of health professionals at graduate, postgraduate and lifelong levels. The use of simulated practice sessions allows students to work with the movements and postures they adopt in order to reduce biomechanical requirements, promoting the adoption of appropriate postures; make the activity planning with the organization of the workspace; and intervene on the factors that hinder the adoption of the principles of biomechanics, in a safe and controlled environment, in which the focus is the professionals’ safety.

Improving the health of obstetrical nurses is to increase the professional income and reduce the absenteeism at work, as well as the incapacity and health expenditures prompted by MIRW.

This study presented limitations related to the reduced number of participants, inexperience of training with simulated practice methodology and in the assistance to the woman in the vertical delivery.

It is considered important the acquisition of equipment and material with ergonomic characteristics for the simulated practice.

Prevention is the best way to reduce and prevent the progression of musculoskeletal Injuries related to work.

Key words: Simulation practice; Nurse Midwives; Musculoskeletal injuries; Biomechanics

References


