Nurse Education Today 46 (2016) 127–132

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/nedt

Satisfaction and gains perceived by nursing students with medium and high-fidelity simulation: A randomized controlled trial

Rui C.N. Baptista [a,b,*], Luís A.R. Paiva [a], Rui F.L. Gonçalves [a], Luís M.N. Oliveira [a], Maria de Fátima C.R. Pereira [c], José C.A. Martins [a]

[a] Coimbra Nursing School, Portugal
[b] Doctoral Student at the Institute of Biomedical Sciences Abel Salazar, University of Porto, Portugal
[c] Faculty of Psychology and Educational Sciences, University of Porto, Portugal

ARTICLE INFO

Article history:
Received 24 March 2016
Received in revised form 11 August 2016
Accepted 23 August 2016

Keywords:
Satisfaction
Nursing
Simulation
Perception
Medium-fidelity
High-fidelity

ABSTRACT

Background: The use of simulation to reproduce the experience of health care settings and its use as a strategy in the teaching of nurses has grown at an unprecedented rate. There is little scientific evidence to examine the differences in satisfaction and gains perceived by the students with the use of medium and high fidelity.
Objectives: To analyse and benchmark gains and satisfaction perceived by nursing students, according to their participation in medium- and high-fidelity simulated practice.
Design: Randomized control trial post-test only design with control group.
Setting and Participants: Students of the 4th year of the Bachelor's Degree in Nursing who performed medium and high-fidelity simulated practice in a Simulation Centre environment.
Methods: A satisfaction scale and a scale of perceived gains from the simulation were applied to the students who underwent simulated practice in a medium-fidelity environment (control group) and high-fidelity environment (experimental group). Statistical analysis was performed and a significance level of $p < 0.05$ was established.
Results: Of the 85 students who participated in the study, the majority were female (92.94%), with an average age of 21.89 years (SD = 2.81 years). Satisfaction is statistically significant in the realism dimension and overall satisfaction. In the gains perceived with the simulation there is a statistically significant difference in the dimension recognition/decision.
Conclusion: Students are very satisfied with the realism of high-fidelity simulated practice and consider that this helps them more with recognition and decision compared with the medium-fidelity simulation.
© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Simulation as a teaching and learning strategy in health is a tool increasingly used by schools to prepare their students for clinical practice. With the advancement of technology in health and education, schools and teachers can have the most varied simulation strategies, depending on the objectives, fidelity they wish to impose and the economic resources they have.

High-fidelity simulated clinical experiences encourage students to be more active and involved in their learning (Lapkin and Levett-Jones, 2011). These experiences are largely exempt from risk, and by representing the reality of clinical settings, they enable students to build knowledge, develop their assessment, explore different interventional hypotheses and develop psychomotor skills in a secure environment (Foronda et al., 2013).

Some studies indicate that high-fidelity simulation (HFS) improves clinical skills, communication, clinical decision-making and critical thinking and fosters self-confidence and teamwork (Kameg et al., 2010; Shrader et al., 2013). However, these simulators and realistic simulation environments are expensive, they demand a lot of practice and training for teachers, they require specialised maintenance and consume much advance preparation time for each scenario (Kardong-Edgren et al., 2007).

Despite some disadvantages of simulation, there are many positive results that encourage investment in this strategy. From these results, clinical reasoning (Lapkin et al., 2010), student satisfaction (Levett-Jones et al., 2011; Baptista et al., 2014a), knowledge (Brannan et al., 2008) and psychomotor skills (Foronda et al., 2013) stand out.

The scientific evidence produced in different simulated clinical experiences is varied but sometimes conflicting about the advantages or benefits obtained from simulation (Baptista et al., 2014b). Cant and Cooper (2009) report that further experiments with HFS representing

* Corresponding author at: Rua 5 de Outubro 41-A, 3045-043 Coimbra, Portugal.
E-mail addresses: ruib@esenfc.pt (R.C.N. Baptista), luispaiva@esenfc.pt (L.A.R. Paiva), rgoncalves@esenfc.pt (R.F.L. Gonçalves), lmoliveira@esenfc.pt (L.M.N. Oliveira), fpereira@fpce.up.pt (M.F.C.R. Pereira), jmartins@esenfc.pt (J.C.A. Martins).

http://dx.doi.org/10.1016/j.nedt.2016.08.027
0260-6917/© 2016 Elsevier Ltd. All rights reserved.

the reality of health services are needed and that the results obtained with the medium-fidelity are limited as yet.

2. Background

Simulation is a teaching strategy that represents or amplifies the context of real experiences in an interactively controlled environment (Gaba, 2007). In health education, simulation is used for training, research and evaluation purposes in order to meet the demands of society and the challenges of new teaching and health security methods (Alinier and Platt, 2014).

It is necessary to change teaching methods to meet the needs of students who live hand-in-hand with new technologies. Due to its association with this attraction to new technologies, HFS seems to create more enthusiasm and inspiration in students and thus improve the learning environment (Hoadley, 2009). On the other hand, some authors report that students' anxiety levels increase due to the realism and their expectations of managing to follow the scenario until the end (Edgecombe, 2013).

With the scientific evidence already produced, it is still not easy to determine the level of fidelity needed for more effective teaching. It should be noted that high technology does not necessarily equate to high-fidelity. It is acknowledged that the various fidelity levels have different educational values and students perceive them in different ways (Levett-Jones et al., 2011; Norman et al., 2012.).

Fidelity refers to the way the simulator and simulation experience represents the real context (Lapkin and Levett-Jones, 2011). According to Tun et al. (2015), fidelity of a simulated practice is based on three dimensions: (1) the patient dimension, which encompasses all the interactions the student performs with the simulator, such as communication or procedures where the anatomical and physiological realism is important. (2) the clinical setting dimension, which is related to the entire progression of the scenario and its complexity. (3) The health facilities dimension, which is related to all the material, equipment and realistic environment used for the simulation. Associated with fidelity of the environment and equipment used in simulation, Fritz et al. (2007) add psychological fidelity, which includes the degree to which students perceive the simulation as a credible representation of reality.

It is important to analyse the assessments and perceptions that students have of the simulation, in order to develop and improve this teaching strategy in nursing. Its growing use justifies the need to analyse how students perceive different scenarios and simulation strategies (Kardong-Edgren et al., 2012; Tosterud et al., 2013).

The objective of this study is to analyse and comparatively assess gains and satisfaction perceived by nursing students, depending on their participation in medium and high-fidelity simulation practices.

3. Methods

3.1. Question and Research Hypothesis

How does medium and HFS influence the gains and satisfaction of the 4th year students of the Bachelor's Degree in Nursing in the assessment of and intervention with patients in critical condition?

Hypothesis I. The level of satisfaction of students who participated in simulated clinical experiences with HFS is significantly higher than those who participated in medium-fidelity simulation (MFS).

Hypothesis II. Gains expressed by students who participated in simulated clinical experiences with HFS are significantly higher than those who participated in MFS.

3.2. Design and Participants

This randomized control trial with a post-test only design control group was conducted to compare the satisfaction and perceived gains with medium and HFS. The study followed the guidelines of the Consolidated Standards of Reporting Trials (CONSORT) to carry out the report (Schulz et al., 2010).

Students of the 4th year of the Bachelor's Degree in Nursing School of Coimbra (Escola Superior de Enfermagem de Coimbra – ESEnfC) from Portugal, were invited to participate in the study by mail (personal school mail). Students were invited to participate in a training session on "Evaluation and intervention for people in critical condition". Interested parties enrolled on the school's electronic platform, after reading all the information related to the study and expressing in writing their availability and interest in participating.

3.3. Data Collection

Data collection was carried out on 7th and 14th December 2013, without interfering with the academic schedule of the participants. It was carried out at the end of each training day, after the simulated clinical experiences with medium and high-fidelity. All participants were asked to answer three questionnaires: (1) Questionnaire of sociodemographic characterisation; (2) Satisfaction Scale for simulated clinical experiences and (3) Scale of Gains perceived with HFS. The average response time for the three questionnaires was 10 min.

3.4. Interventions

15 days prior to the training session all students enrolled were sent a PowerPoint presentation with the theoretical support, designed for the evaluation and intervention in a patient in critical condition with problems related to the airway (A), breathing (B), circulation (C) and neurological dysfunction (D).

Since the studies of simulated practice focus on one or two scenarios and because there is little scientific evidence involving students in multiple scenarios (Kaddoura et al., 2016), eight different scenarios were used in this study.

For the training day, eight clinical files were digitally designed on PowerPoint, version 2010 for Windows and enabled students to consult them in presentation mode (full screen), according to their needs. Each file included a clinical diary, nursing log, prescriptions, supplementary diagnostic tests and vital signs.

A trainer's guide with the objectives of the training, the programme, the distribution and students' rotation between the rooms and the scenarios to perform was drawn up. The scenarios were designed to be problem situations for a patient in critical condition:

Airway ($\mathbf{A_1}$) – Pneumonia with presence of secretions
Airway ($\mathbf{A_2}$) –Anaphylactic shock with oedema of the glottis
Breathing ($\mathbf{B_1}$) –Acute pulmonary oedema
Breathing ($\mathbf{B_2}$) –Breathing difficulty by removal of nasal oxygen cannula/chest pain on inhaling
Circulation ($\mathbf{C_1}$) –Hypovolemic shock
Circulation ($\mathbf{C_2}$) –Bradycardia with signs of severity
Neurological dysfunction ($\mathbf{D_1}$) – Hypoglycemia
Neurological dysfunction ($\mathbf{D_2}$) – Convulsion

Each scenario was composed of the goals, problem situation, the context of the situation, the critical factor, assessments expected by students, presence or absence of medical support, interventions expected by students, development of the scenario, preparation of the environment and simulator, necessary materials and equipment and items to reflect upon in the debriefing, fulfilling the steps proposed by Coutinho et al. (2014).

At the start of the day, participants were delivered a training programme with the sequence of activities and rotations between the rooms.

The training took place in a simulation centre environment at the ESEnfC, in four rooms prepared for this purpose: two of them dedicated

Download English Version:

https://daneshyari.com/en/article/6847374

Download Persian Version:

https://daneshyari.com/article/6847374

Daneshyari.com