

High-fidelity Simulation in Ensuring Clinical Success for Senior Maternity Students

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ABSTRACT

Nurses arrive in hospital settings poorly prepared to provide quality patient care. To address this problem, the researcher compared the effectiveness of using high-fidelity simulation (HFS) in addition to traditional hospital-based clinical experiences versus traditional hospital-based clinical experience alone. Results indicated that HFS supports clinical success.

PROBLEM

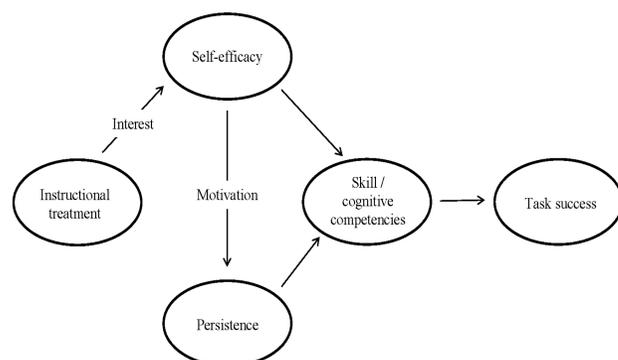
Nurses regularly arrive in hospital settings ill-prepared to provide quality patient care. This is problematic not only because it increases costs to hospitals for lengthy new employee orientation sessions but because it poses risks to patients' care and safety.

A key factor contributing to this condition is the lack of available clinical experiences that promote critical thinking and enable students to apply theory to practice.

PURPOSE

The purpose of this study was to use maternity nursing test scores and proficiency levels to determine the effectiveness of implementing high-fidelity simulation in addition to traditional hospital-based clinical experiences as opposed to traditional hospital-based clinical experiences alone. The researcher's goal was and *continues to be* to improve clinical nursing experiences for senior maternity nursing students.

THEORETICAL FRAMEWORK



RELEVANT LITERATURE

The use of HFS has been found to (a) improve knowledge acquisition and enhance the transfer of knowledge to the clinical setting (Bearnson & Wiker, 2005; Birch et al., 2008; Brannon, White, & Bezanson, 2008; Ruggenberg, 2008), (b) promote improved practical skills (Shoemaker et al., 2009), (c) promote critical thinking skills (Radhakrishnan, Roche, & Cunningham, 2007), and (d) improve student self-confidence and self-efficacy (Feingold et al., 2004; Smith & Roehrs, 2009).

Ultimately, by providing practical experience, simulation supports effective learning (Issenberg & Scalese, 2007; Wagner et al., 2009)—allowing nursing students to become confident, competent (Feingold et al., 2004; Smith & Roehrs, 2009; Terman, 2007), and able to perform nursing practices safely (Garrett et al., 2010).

RESEARCH QUESTIONS

RQ1. Do senior maternity nursing students who receive instruction through HFS in addition to traditional hospital-based clinical instruction (HBCI) achieve greater practical learning, as measured by higher content scores on the ATI content mastery series test, than students who are taught by traditional HBCI alone?

RQ2. Do senior maternity nursing students who receive instruction through HFS in addition to traditional HBCI demonstrate greater critical thinking skills as measured by higher content scores on the ATI content mastery series test, than students who are taught by traditional HBCI alone?

RQ3. Do senior maternity nursing students who receive instruction through HFS in addition to traditional HBCI demonstrate higher NCLEX potential as measured by higher content scores on the ATI content mastery series test, than students who are taught by traditional HBCI instruction alone?

PROCEDURES

De-identified student data were provided by *Assessment Technologies Institute* (ATI). The sample included 279 senior baccalaureate nursing students. Because the focus of this study was the effect of simulation on student test scores and proficiency levels *specifically* with respect to pregnancy induced hypertension, placental abruption, and postpartum hemorrhage, the researcher retrieved data from *custom reports* based on specific questions determined to be applicable to those three critical care conditions.

DATA ANALYSIS

Descriptive and inferential statistics were calculated.

Inferential statistics included

- independent sample *t* tests (at a .05 significance level) on the two dependent variables (practical skills and critical thinking skills), and
- A Mann-Whitney test on the third dependent variable (NCLEX performance potential).

FINDINGS

Descriptive statistics for NCLEX performance potential indicated that

- 133 (90.5%) of the students from the simulation group scored at Level 2 or above (indicating students are likely to exceed performance expectations on the NCLEX), whereas
- only 81 (61.4%) of the students from the nonsimulation group scored at Level 2 or above.

Inferential statistics (*t* tests) for ATI content scores (practical and critical thinking skills) indicated a significant difference between the simulation students ($n = 132$) and the nonsimulation students ($n = 147$).

Inferential statistics (Mann-Whitney test) for NCLEX performance potential indicated a significant difference between the simulation students and the nonsimulation students.

LIMITATIONS

The majority of the students were females and from one nursing program.

2008 fall semester data were not available for analysis.

Students may have been exposed to simulation in other courses.

Student motivation and persistence (contributors to skills and cognitive competencies according to Bandura [1977]) were not measured.

Qualitative inquiry was not conducted.

CONCLUSIONS

High-fidelity simulation can provide students with opportunities to engage in hands-on application of theoretical knowledge which supports the transfer of that knowledge to practical skills while also improving critical thinking skills.

According to Bandura's (1995) theory of self-efficacy, HFS as an implemented instructional strategy may improve students' self-efficacy, which supports the development of practical and critical thinking skills.

HFS may be a viable solution for improving nurse preparedness.

SOCIAL CHANGE IMPLICATIONS

As indicated in the literature and suggested by the findings in this study, HFS may be an effective vehicle for promoting the learning experiences necessary to produce well-prepared nurses.

The findings of this study are valuable because they could lead to changes in instructional strategies that not only improve nurse preparedness but patient care as well.