Sultan Qaboos University
COLLEGE OF NURSING

Impact of high fidelity simulation experiences on nursing students' anxiety and self-confidence: a systematic review

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Role of Clinical Nursing Education

Development of **nursing, caring, and cultural competencies**

Translation of theoretical knowledge to **nursing practice**

Development of **critical thinking, communication, and interpersonal skills**

Development **ethical reasoning and decision making skills**

Nursing Education Challenges

Limited clinical placement

Nurse faculty **shortage**

Increasing nursing student admission

Increasing complexity of healthcare system

Alternative teaching approaches such as **SIMULATIONS** are essential to enhance the preparation of nursing students to assume professional nurse roles.

- National Council of State Boards of Nursing (NCSBN)
- National League of Nursing (NLN)

SIMULATION

- confidence (Leigh, 2008)
- communication skills (MacLean et al. 2016)
- clinical judgement (Yuan et al. 2012a)
- critical thinking (Goodstone et al. 2013)
- motivation (Fawaz & Hamdan-Mansour 2016)
- knowledge (Gates et al. 2012)
- clinical competence (Foronda et al. 2013, Yuan et al. 2012b)
- clinical reasoning (Lapkin et al. 2010)

HFS SIMULATION

confidence?

- In Yuan et al. (2012a) review, HFS did **not sufficiently** enhance confidence and competence in nursing students.
- In Weaver (2011) review on HFS simulation, the findings were **inconclusive** with regards to knowledge, confidence, and student learners' satisfaction

anxiety?

- Several studies were reported examining the effects of HFS on students' anxiety.
- Studies on the impact of HFS on students' anxiety has **not been appraised**.

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Learner's Objectives

- The learner will be able to understand the influence of high fidelity simulation experiences on students' outcomes (self-confidence and anxiety).
- The learners will be able to understand the methodological challenges of the current HFS literature.

- **Methods**
- Findings
- Future Research Directions
- Conclusion and Implications

Review Aim

- To explore peer-reviewed publications on the influence of HFS utilization on nursing students' anxiety and self-confidence during nursing education.
- To identify gaps in the existing literature to inform future research.

Review Question

- Does high-fidelity simulation experience reduce anxiety and enhance self – confidence among nursing students when performing nursing skills or managing patients?

Methods

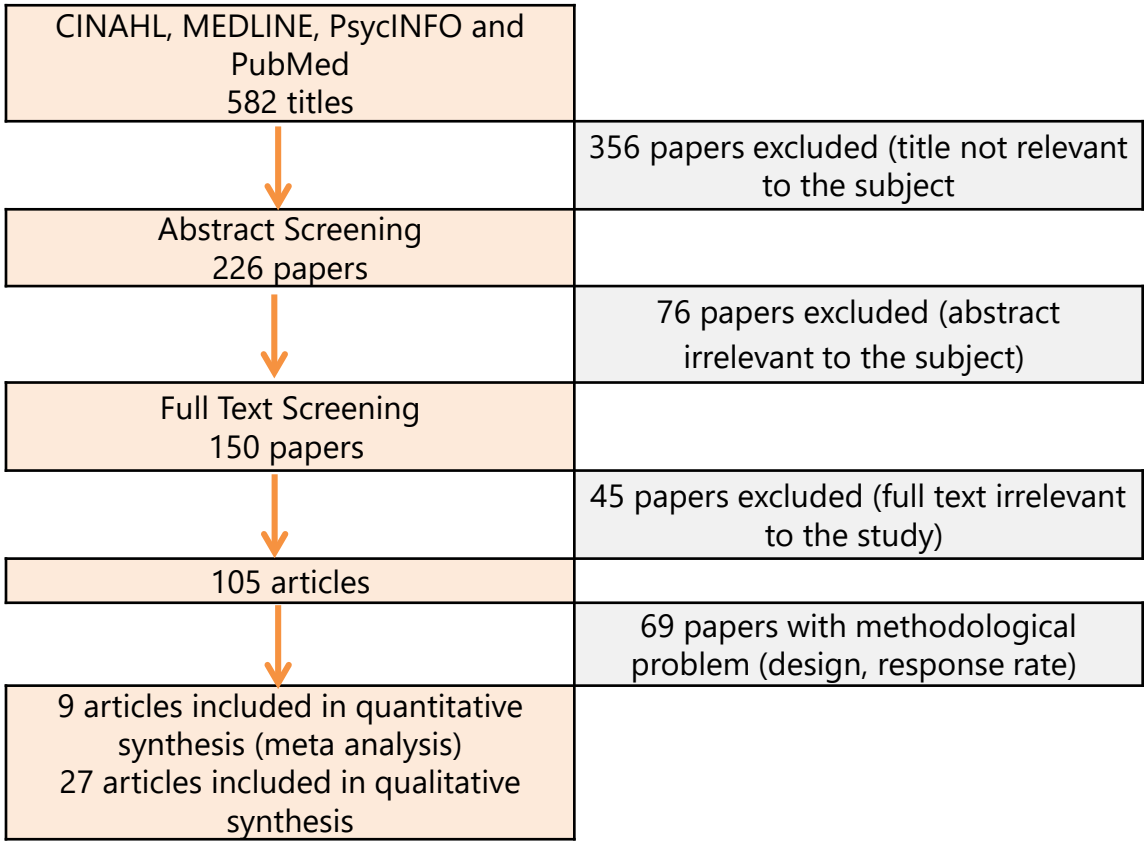
- Systematic Review

- ‘Simulation’, ‘anxiety’, ‘confidence’, ‘nursing student’, and ‘high fidelity’

- SCOPUS, MEDLINE, PubMed, CINAHL and PsychINFO

- 1) peer-reviewed articles which primary objective of the research was to evaluate the effects of using HFS on nursing students’ anxiety levels and self-confidence, (2) published in English language and (3) published between 2006 and 2016.

Flow Diagram



- **50%** were conducted in USA
- Sample size ranged from **10-219**
- Clinical scenarios using **human patient simulators** were used
- Control group used **LFS, MFS, and traditional lectures**

Methods

Findings

Future Research Directions

Conclusion and Implications

Review Findings

9 articles included in quantitative synthesis (meta analysis)
27 articles included in qualitative synthesis

HFS was found to **increase confidence** among nursing students when managing patients or performing nursing skills.

Quantitative Studies (Zulkosky 2012; Scherer et al. 2016; (Smith & Roehrs 2009; Mould et al. 2011; Khalaila 2014; Basak et al. 2016, Dickinson et al. 2016; Martins et al. 2017)

Qualitative Studies (Reilly & Spratt 2007; Kaddoura 2010; Reid-Searl et al. 2012, Najjar et al. 2015; Sundler et al. 2015; Fawaz & Hamdan-Mansour 2016)

HFS did not enhance confidence in among students in three studies (Brannan et al. 2008; Megel et al. 2012; Wang et al. 2013b)

HFS was found effective in **reducing anxiety** in students (Reid-Searl et al. 2012; Szpak & Kameg 2013; Khalaila 2014; Hollenbach 2016)

Review Findings

9 articles included in quantitative synthesis (meta analysis)
27 articles included in qualitative synthesis

Outcomes	Study	Experimental group	Control group	*SMD (95% CI random)*	*Overall Effect*	*P Value*
		Mean± SD(n)	Mean± SD(n)			
Confidence	Scherer et al. (2007)	27.48 (5.9) (13)	31.20 (3.6) (10)	−0.71 (−1.56, 0.14)		
	Tawaldeh (2016)	4.41 (0.89) (35)	4.21 (0.78) (34)	0.24 (−0.24,0.71)		
	Shinnick & Woo (2014)	2.47 (0.86) (89)	2.08 (0.97) (72)	0.43 (0.11,0.74)		
	Cobbett & Snelgrove-Clarke (2016)	115.25(21.95)(28)	104.89 (17.52) (27)	0.51 (−0.02,1.05)		
	Liaw et al. (2012)	24.53 (6.56) (15)	20.63 (6.05) (16)	0.60 (−0.12,1.32)		
	Butler &Veltre (2009)	61.87 (2.23) (15)	55.33 (7.19) (15)	1.20 (0.42,1.97)		
	Total			**0.40 (0.05, 0.75)**	**Z=3.05**	**0.03**
Anxiety	Gore et al. (2011)	11.0 (2.8) (47)	13 (3.4) (23)			
	Megel et al. (2012)	31.7 (9.2) (27)	31.9 (7.9) (25)			
	Total			**-0.36 (-0.74, 0.08)**	**Z=-1.91**	**0.06**

Methods

Findings

Future Research Directions

Conclusion and Implications

Future Research Directions

Future studies utilizing **larger sample** size and rigorous sampling method

Future research using **established instrument**

Simulation research using **RCT design**

Multi-country study to achieve international perspective

Consideration of factors such as clinical experience, level of education, personality, and students' characteristics

Methods

Findings

Future Research Directions

Conclusion and Implications

Conclusion & Implications

- HFS enhances confidence in nursing students
- Mixed contribution of HFS to anxiety

- Inclusion of simulation activities to all nursing courses
- Provision of adequate simulation supplies and equipment
- Simulation trainings to faculty

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Thank you!