Developing and Validating Clinical Simulations for Education and Research Purposes

Lainie Jackson, BSN Student, **Clarissa Shaw**, PhD, RN,
Katie Knox, PhD, RN, & **Heather Bair**, DNP, ARNP, CRNA, CHSA
University of Iowa College of Nursing

IOWA College of Nursing

IOWA NURSING

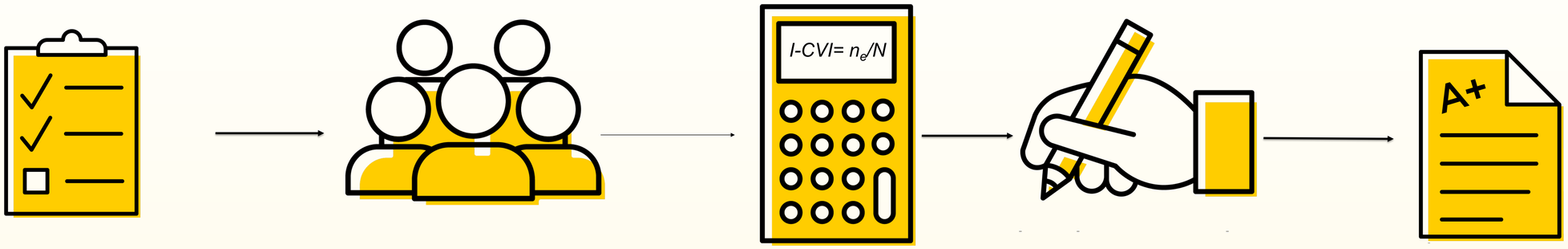
Introduction

- Using simulations to answer research questions provides an innovative opportunity to conduct research in settings or with populations that may be challenging to reach or recruit.

Purpose

- This research provides an exemplar for developing and validating simulations for a research study on communication in dementia care.

Methods



- The National League for Nursing (NLN) Simulation framework was used to design dementia care simulations.
- The templated framework includes sections on objectives, client, scenario, roles, environment, equipment, participant preparation, and debriefing.

- N=8 interdisciplinary experts from three universities reviewed the simulations.
- Experts evaluated content validity for each section using a 4-point ordinal scale for relevance:
  - (1) Not, (2) Somewhat, (3) Quite, (4) Extremely *Relevant*
- N=2 simulation experts, N=3 acute care experts, N=3 dementia care experts.

- Each section of the NLN framework was evaluated using the Lynn Method to determine an individual-content validity index (I-CVI).
- *I-CVI= n_e/N where n_e indicates the number of experts giving a rating of quite relevant (3) or highly relevant (4) and N indicates the total number of experts.*

- The standard threshold for validity is 0.78 and anything below required revisions.
- The results of the I-CVI were combined with the expert's comments to modify and improve the realism of the simulation.

- Simulations ready for use in educational and research settings.

Results

Key Findings

- The overall Simulation Content Validity Index (S-CVI avg) was 0.95.
- One section fell below the standard 0.78 threshold and was modified.
- The I-CVIs in the remaining sections ranged from .88 to 1.0.

Template Section	Number of Sections	CVI Range
Objectives	4	0.875-1
Client & Scenario	6	0.875-1
Roles, Environment, & Equipment	4	0.750-1
Preparation	3	0.850-1
Debriefing	3	1

Expert comments for each section were used to enhance the face validity of the simulations regardless of score:

- Additional details were added to scenario such as the patients baseline cognition and discharge planning.
- Aspects of the simulations were removed such as the patient having hearing aids and delirium.
- Word choice changes in the instructions, such as 'standard approach' to 'normal approach', helped to provide clarity for participants.

Conclusions

- Validating simulations for research and education is an important procedural component to accurate learning.
- Developing simulations with the NLN framework and then quantifying the validity ensures that simulations will achieve the objectives.
- Certifying the content of simulations with experts across disciplines with verify the accuracy.

Acknowledgements

This study was funded by the Council for Advancement in Nursing/Sigma Theta Tau International and the Csomay Center Woodrow W. Morris Gerontology Research Award for Faculty

Contact

lainie-jackson@uiowa.edu