

Introduction

The addition of simulation training as a complement to existing didactic curricula provides the necessary educational component to advance knowledge and promote confidence in step-down nurses cross-training to the ICU

- Mechanical ventilators are complex and require thorough competency training to ensure proper management to avoid negative patient outcomes
- Previous studies assessed simulation-based learning in nursing however, the process has not been adequately explored or standardized in invasive mechanical ventilation training

Background & Significance

Step-down nurses were not satisfied with the current didactic cross-training program and were lacking confidence and knowledge in caring for invasive mechanically ventilated patients in the ICU



- Simulation provides opportunities for deliberate practice of skills in a safe and active learning environment
- The turn-over rate of ICU nurses is approximately 1-2/year
- A new-hire to the surgical ICU costs \$45,000 while cross-training costs \$6,539; \$39,000 year – net savings for the unit
- Healthcare could benefit on a national level from the standardization of nursing education by incorporating simulation

Methodology

Design

Quality Improvement project using a pre- post- post-test design with a convenience sample

Sample

60%  40% 

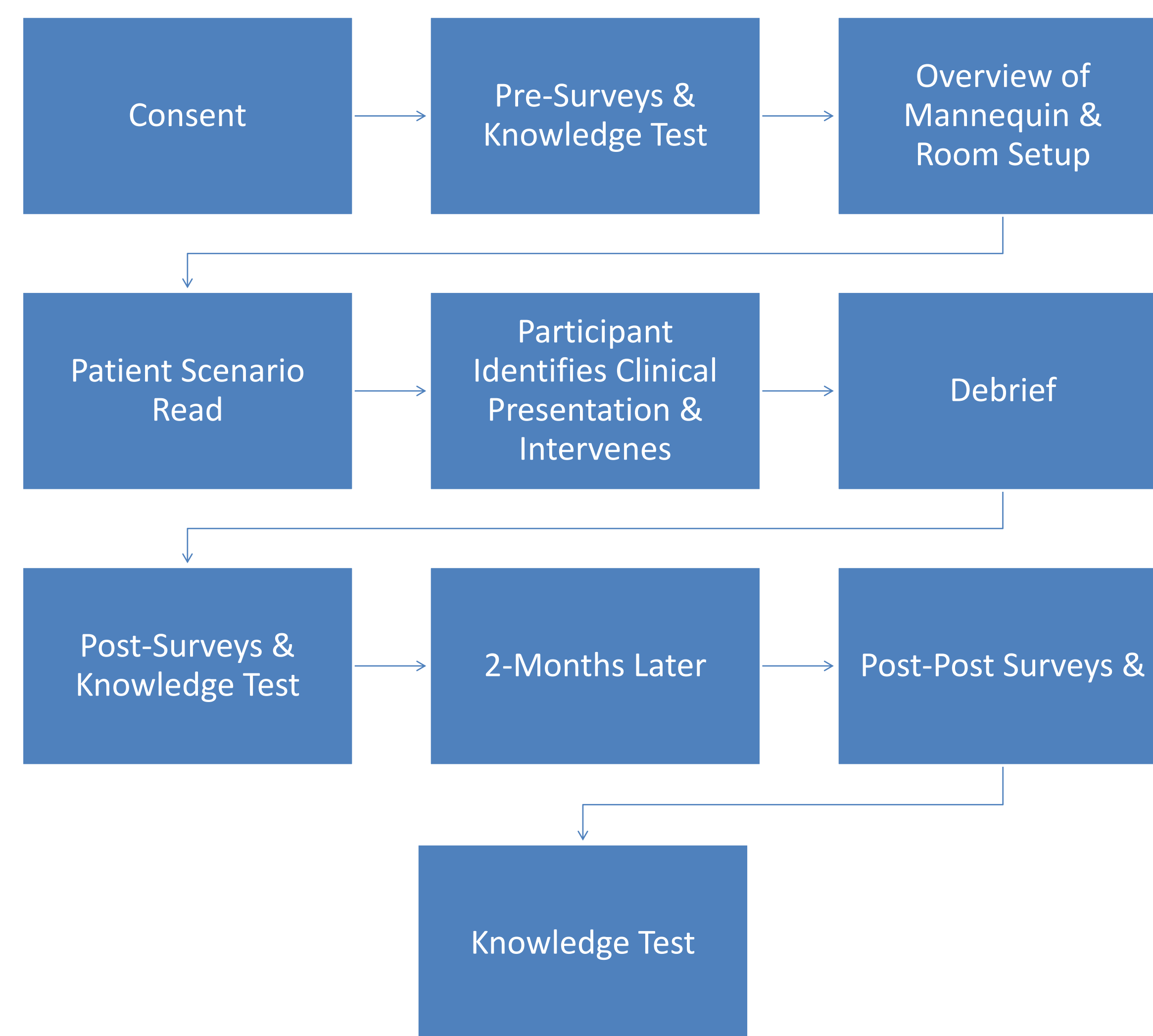
Factor	N	Factor	N
Age		Years as RN	
21-25	2	1-2	1
26-30	4	3-5	6
31-35	3	5-6	1
35+	1	6+	2
Highest Degree		Step-Down Years	
Associates	1	1-2	4
Bachelors	8	3-5	6
Masters	1	Simulation Experience	
		Yes	7
		No	3
Total # of participants	10		

100% eligible participants

Setting

ICU at a specialized orthopedic hospital located in an urban area of the Northeast

Intervention



Measures

Learners' objectives and knowledge assessment questions derived from:

- American Association for Respiratory Care, University Health System Consortium, and Lippincott's essentials for nurses providing care to patients requiring invasive mechanical ventilation.

Pre- and post-simulation modified tool to assess confidence and learner satisfaction with simulated scenarios:

- The Student Satisfaction and Self-Confidence in Learning instrument, designed by the National League for Nursing (NLN)

Data Analysis

Independent variables

- Pre and post simulation-based learning

Dependent variables used to measure outcomes

- Scores on Student Satisfaction and Self-Confidence in Learning Scale and Knowledge Questionnaire

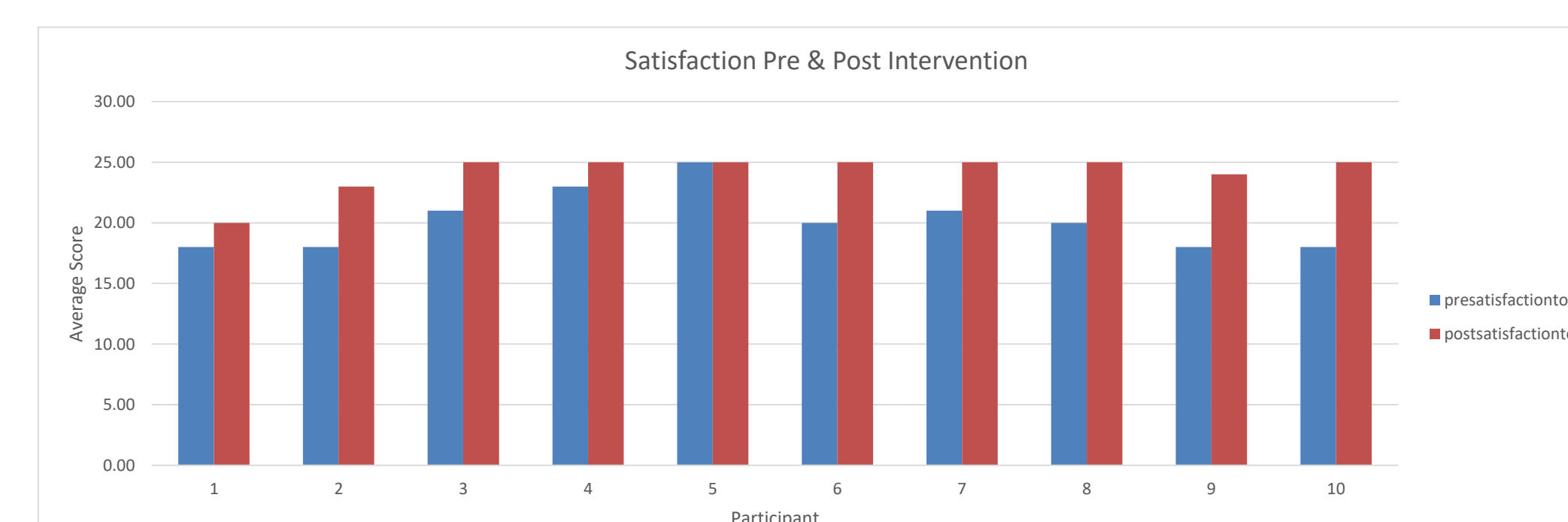
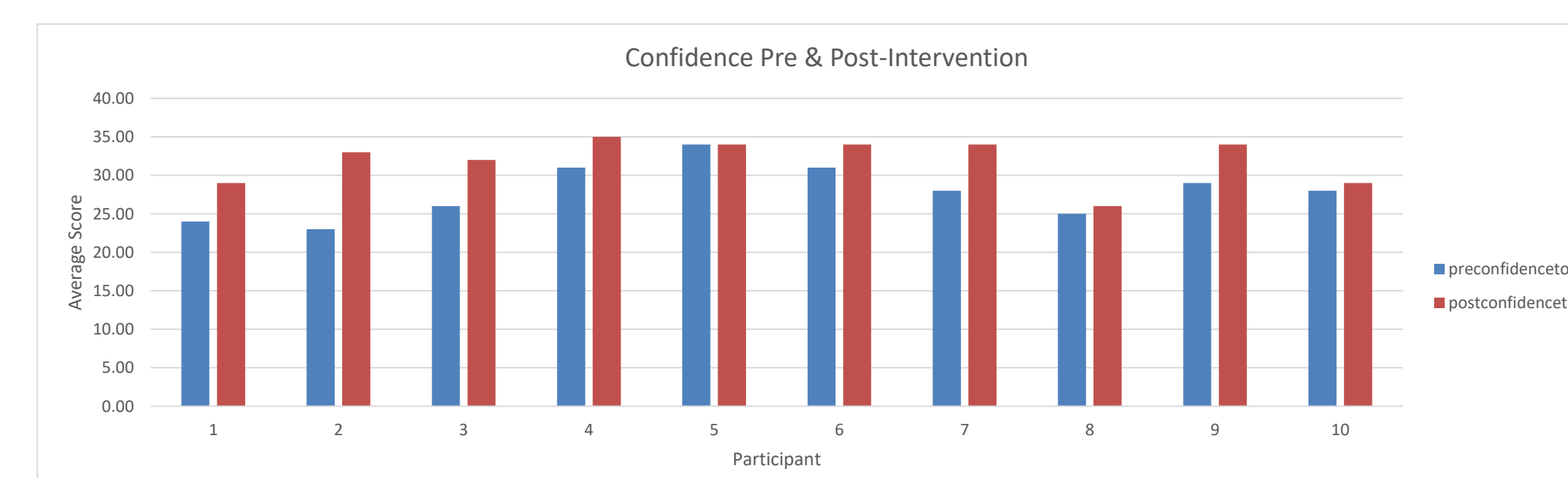
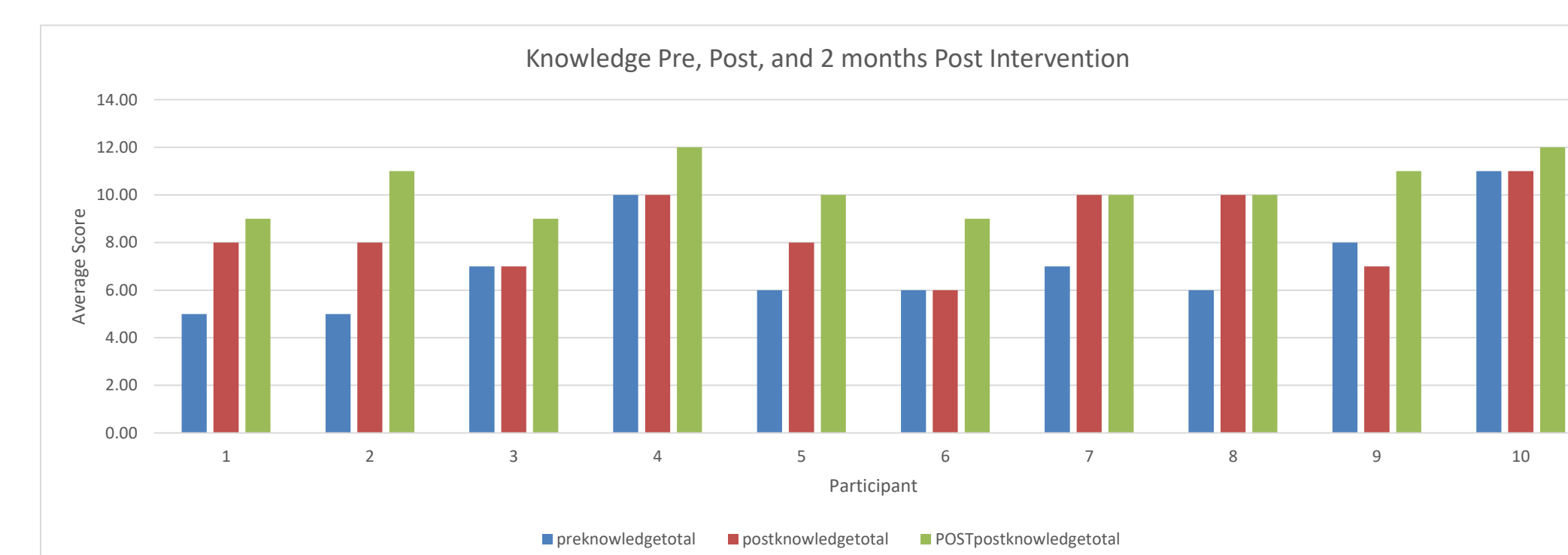
Demographics

- Descriptive statistics

SPSS

- Paired t (normal distribution)

Results



Conclusion/Implications

Incorporating simulation into a didactic curriculum has many positive benefits for mechanically ventilated patients.

Implication for Clinical Practice

- Adding simulation to an established didactic program generated positive outcomes in confidence and learner satisfaction

Implication for Education

- Simulation may improve patient outcomes because nurses are better able to identify and intervene appropriately to ventilator alarms

- Shorter ICU days, decrease in VAP & complications

Implications for Policy

- Recommended that simulation be included in policy for any nurse providing care for invasively ventilated patients; it is also cost-effective

- Adding simulation to nursing education day and use it as an evaluation tool for a skills checklist

Implications for Economy

- Shorter ICU days; increase in available budget
- Employee retention

References

- Aebersold, M. (2018). Simulation-based learning: No longer a novelty in undergraduate education. *OJIN: The Online Journal of Issues in Nursing*, 23(2).
- American Association for Respiratory Care & University HealthSystem Consortium. (2016). Safe initiation and management of mechanical ventilation [White paper].
- Bliss, M., & Aitken, L. M. (2018). Does simulation enhance nurses' ability to assess deteriorating patients? *Nurse Education in Practice*, 28, 20-26.
- Cook, D. A., Brydges, R., Hamstra, S. J., Zendejas, B., Szostek, J. H., Wang, A. T., ... & Hatala, R. (2012). Comparative effectiveness of technology-enhanced simulation versus other instructional methods: A systematic review and meta-analysis. *Simulation in Healthcare*, 7(5), 308-320.

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