

Transitioning Maternal-Newborn and Pediatric Clinical Hours to Simulation Based Experiences in a BSN Program: A Comparison Study

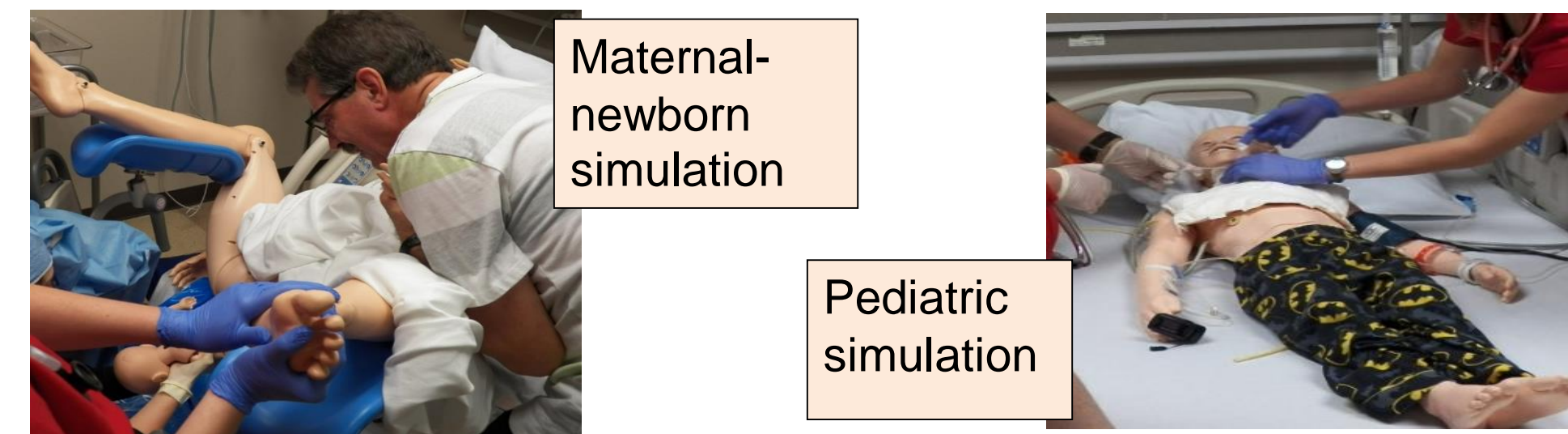
Patti White, DNP, RN, CHSE; Jane D. Champion, PhD, DNP, MA, MSN, FNP, AH-PMH-CNS, FAANP, FAAN; Stephanie Morgan, PhD, RN, FNP-BC

Background

Limited clinical practice sites, restrictions on student numbers, and varying clinical experiences all lead to difficulties in clinical placements, especially in the maternal-newborn and pediatric settings. This problem is seen nation-wide, contributing to low national benchmark exam scores (Bowling, Cooper, Kellish, Kubin, and Smith, 2018). Transitioning students' clinical experiences to immersive simulation-based education (SBE) could improve student knowledge, retention, and exam scores in these two clinical areas. SBE, including virtual simulation and evidence-based simulation activities, reinforces didactic content. A study done by the National Council of State Boards of Nursing (NCSBN) shows replacing up to half of traditional clinical hours with high-quality SBE yields comparable educational outcomes (Hayden et al., 2014).

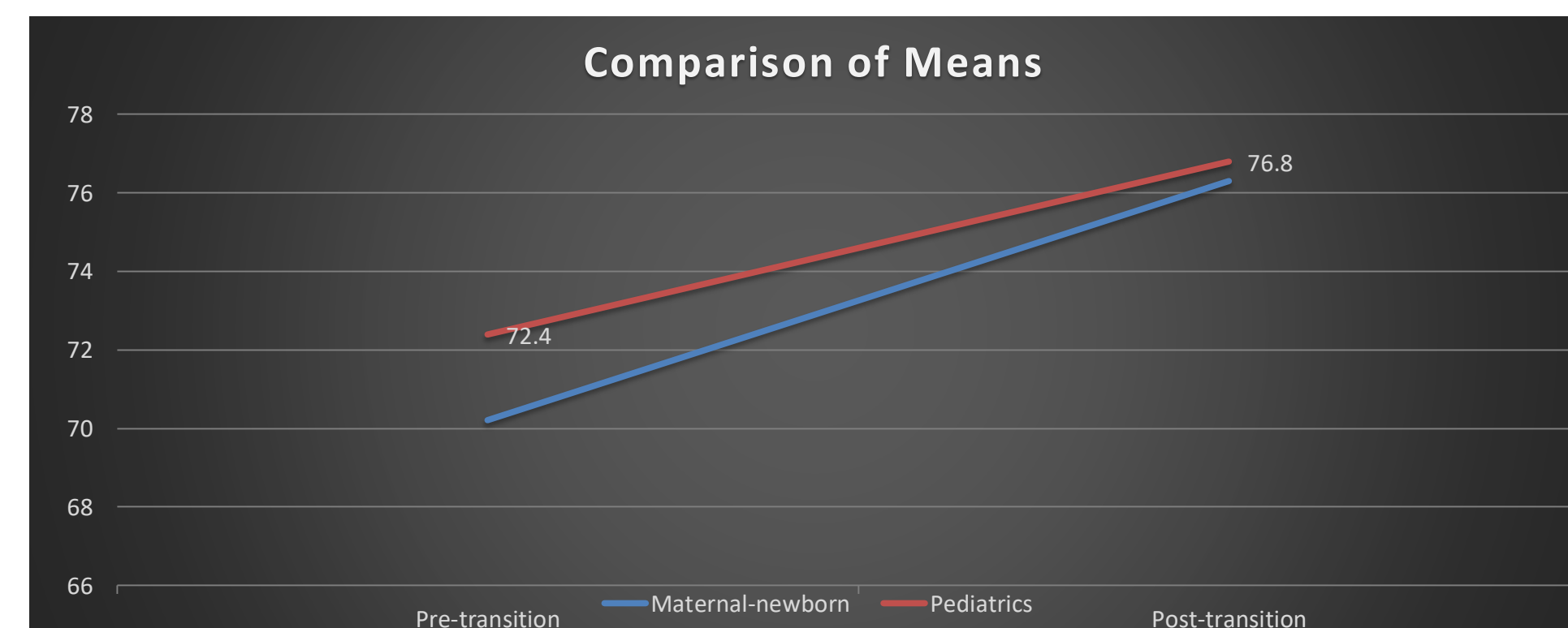
Method

A comparison study was done using national benchmark exams in maternal-newborn and pediatrics. Students in a traditional undergraduate BSN program (n=640) took exams in a proctored, single setting. Scores collected from three semesters pre-transition (n=282) to SBE were compared to exam scores from three semesters post-transition (n=358). Thoughtful development as to needed content and course objectives and testing for reliability and validity are essential to SBE. Course objectives aid in deciding which modalities to use: virtual avatars, unfolding case studies, or Standardized Patients (SP). Simulations in the project were designed, facilitated, and debriefed using the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: SimulationSM (2016). Simulation centers involved are accredited with the Society for Simulation in Healthcare (SSH).



Results

Analysis of pre-transition and post-transition exam scores shows knowledge gains, skill gains, and retention with larger gains in maternal-newborn.



Statistics	Pre MN	Post MN	Pre Pedi	Post Pedi
Mean	70.20	76.28	72.39	76.83
Median	70.00	76.70	73.30	76.70
Mode	70.00	78.30	75.00	80.00
Std. Deviation	6.86	8.03	7.39	7.34
Variance	47.04	64.53	54.56	53.94
Range	40.00	40.00	38.30	45.00
Minimum	53.30	53.30	50.00	51.70
Maximum	93.30	93.30	88.30	96.70
Percentiles				
25	65.00	70.85	68.30	71.70
50	70.00	76.70	73.30	76.70
75	75.00	81.70	78.30	81.70

References available upon request.

Implications

Healthcare simulation has been shown to be an effective part of the learning process and provides a safe environment for students to learn essential skills and gain crucial knowledge. Critical thinking is developed in simulation through the process of caring for patients with varying illnesses and disease processes. Additionally, didactic content is reinforced in simulation. Replacing traditional clinical practice hours with SBE can be a valuable method of meeting course and clinical objectives and outcomes. Comparing national benchmark exam scores shows one measure of the effectiveness of simulation and its use in replacing up to 50% of traditional clinical practice hours. Long term outcomes include increasing our supply of critically thinking nurses.

Conclusion

Simulation can meet the growing demands for more nurses who are knowledgeable, skilled, and can transition to practice efficiently and safely. The iterative process in simulation deemed necessary to improve student knowledge and skills is shown by increased maternal-newborn and pediatric exam scores. Additional studies need to be performed in this area for a stronger body of evidence. With our current Corona Virus 19 (COVID-19) pandemic, simulation will play an even greater role in the education of our undergraduate nurses. Future studies will be needed to determine the effectiveness of an increased use of online as opposed to face-to-face simulation during the pandemic.

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