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The Impact of Supplemented Simulation on Student Competence

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An emerging nursing education trend is to substitute a portion of traditional clinical learning experiences with simulation as a means to optimize student competency and decision-making skills. Nursing programs encounter constant demands to provide quality education in an increasingly complex healthcare system. Driven by these complexities including cost, limited training facilities, and limited nursing faculty, one College of Nursing implemented a revised adult health nursing clinical curriculum to better prepare nursing students for current and future practice.

The best method of incorporating simulation into nursing curricula has yet to be determined. Previous studies found no difference in student performance (Meyer et al., 2011; Schlairet & Fenster, 2012; Hansen & Bratt, 2017), clinical judgment (Meyer et al., 2011), critical thinking (Schlairet & Fenster, 2012) or self-perception of clinical decision making (Woda, Gruenke, Alt-Gehrman, & Hansen, 2016) based on the sequence or timing of simulations during the semester. Results from the National Council of State Boards of Nursing (NCSBN) National Simulation Study support using high-quality simulation experiences to substitute up to 50% of traditional clinical hours experiences (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014) but gives no guidance on the impact of simulation used for supplementation learning.

Substituting traditional clinical learning experiences with simulation means that students use simulation to meet their required clinical hours. This can include low, mid, or high fidelity simulations. In contrast, supplemented simulation provides additional student simulation learning time with no change to the hours met with traditional clinical experiences. In a supplemented model, time caring for human patients in the healthcare setting is not decreased but instead, additional learning opportunities are provided using simulation. Prior to this study, little was known about the impact of supplementing traditional clinical learning experiences with simulation versus substituting one for the other, on learner outcomes, and ultimately patient care.

The purpose of this study was to explore the differences in clinical competence between two different cohorts of senior baccalaureate nursing students in their final semester of a traditional pre-licensure program in the United States (n=71). A quasi-experimental design was used to compare students who had substituted their traditional hospital-based medical-surgical clinical experiences with simulation (Cohort 1, n=35) with a group of students who had robust supplementation of simulation in addition to their traditional adult health (medical-surgical nursing) clinical experiences (Cohort 2, n=36).

Both cohorts were evaluated in a simulation at the completion of their pre-licensure program. To evaluate participants on behaviors that demonstrate clinical competence, a modified version of the *Creighton Competency Evaluation Instrument* (CCEI) was used (Hayden, Keegan, Kardong-Edgren, and Smiley, 2014). The CCEI measures four areas of competency: assessment, communication, clinical judgment, and patient safety. Participants are evaluated on whether they consistently perform an important nursing behavior, and given a numerical score based on the CCEI tool. Cronbach's alpha levels for this tool have been reported to range from .97-.98 (Hayden, Keegan, et al., 2014); for this study sample the CCEI $\alpha = .78$.

Demographic characteristics between the two cohorts were non-significant except for employment in healthcare. Cohort 2 had statistically significantly more participants who were employed as a certified nursing assistant or nurse intern/extern ($p < .01$). However, when controlling for work experience, it was not a predictor of clinical competence. Cohort 2 had significantly higher CCEI total scale scores when

compared to Cohort 1 ($p < .01$). Further analysis of the subscale scores of the CCEI revealed that only the assessment subscale was significantly higher among Cohort 2 participants ($p < .01$).

Cohort 2 also had higher mean scores than Cohort 1 on the remaining subscales (communication, clinical judgement, and patient safety). Under the subscale of communication participants were rated on their ability to gather assessment data prior to calling the health care provider. Once contact was made with the provider, the participant needed to relay pertinent information using SBAR (situation, background, assessment, and recommendation). Assessing clinical judgement tested the participants' ability to interpret subjective and objective data and prioritize the abnormal assessment findings. In this simulation, the priority focus was on the respiratory system, requiring the participant to provide the appropriate nursing interventions (elevate the head of the bed, and apply oxygen etc.). The area of patient safety tested safe medication administration. Participants in Cohort 2 identified the patient, utilized the 5 rights of medication administration, managed the equipment, and performed the procedure correctly more often than Cohort 1.

Although more research is needed in this area, the findings demonstrated that when simulation was used as a supplement to traditional clinical experiences, participants had higher assessment scores.

Title:

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References:

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Abstract Summary:

Supplementation of traditional clinical learning experiences vs. substituting may impact competency. Current findings suggest that when simulation was used as a supplement to traditional clinical learning experiences, graduating nursing students participants performed better patient assessments.

Content Outline:

- Overview study design related to simulation and traditional clinical learning experiences.
- Provide an example of how to supplement simulation within a semester clinical course.
- Present information on pertinent instruments including psychometric data.
- Discuss study findings including the impact on student's and competence.
- Participant discussion and questions.

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Author Summary: Aimee Woda PhD, RN is an Assistant Professor at Marquette University College of Nursing. She has 12 years of experience teaching undergraduate nursing students. Her program of research explores student learning using simulation pedagogy. She is the author of several articles evaluating the impact of simulation on learner outcomes.