

**A Pilot Study on Nurse Practitioner (NP) Student Competency Attainment and
Direct Care Clinical Hours**

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Nurse Practitioner Competency Attainment and Direct Care Clinical Hours

Background and Purpose

Nurse practitioner (NP) programs routinely monitor clinical hours to meet regulatory and accreditation requirements; however, the relationship between accumulated clinical hours and demonstrated competency remains insufficiently understood. This evidence gap presents challenges for programs seeking to justify clinical hour requirements and establish consistent expectations across educational settings.

The purpose of this observational pilot study was to **examine the relationship between direct care clinical exposure and Family Nurse Practitioner (FNP) student competency**, as measured by the **Nurse Practitioner Student Competency Assessment (NPSCA)**. Two research questions guided this investigation:

1. **Does the percentage of completed required direct care clinical hours influence NPSCA scores in FNP clinical education?**
2. **Does the total number of completed direct care clinical hours influence NPSCA scores in FNP clinical education?**

Clinical preparation in NP education reflects a complex interaction between supervised patient-care exposure and both learner- and program-level characteristics. Because clinical exposure varies widely among students, even within the same stage of training, identifying the level of clinical experience at the time of standardized simulation provides essential context for interpreting competency outcomes. Simulation offers a controlled and standardized environment that enables meaningful comparisons of competency across students with varied clinical exposure histories.

Methodology

The study sample consisted of **104 Family Nurse Practitioner students** enrolled in **Master of Science in Nursing (MSN) and Doctor of Nursing Practice (DNP) programs** across **six accredited university programs**, representing both public and private institutions. Post-graduate certificate students were excluded. All participating programs used hybrid instructional models, with five institutions conducting face-to-face simulation experiences and one utilizing an online didactic structure with in-person simulation. Exclusively virtual, manikin-only simulation programs were excluded.

Eligibility criteria required students to have completed at least 300 direct-care clinical hours and to have prior exposure to simulation experiences.

Primary study variables included:

- Total direct care clinical hours completed at the time of simulation
- Percentage of program completion
- Competency performance measured using the **Nurse Practitioner Student Competency**

Assessment (NPSCA)

The NPSCA is a faculty-completed competency instrument consisting of **17 items scored on a 1–4 scale**, evaluating multiple domains of clinical performance.

Conceptual Framework

This study was guided by **Miller’s Pyramid of Clinical Competency (1990)**, a widely recognized model describing progressive development of clinical competence. The model conceptualizes competency across four hierarchical levels:

- **Knows** (knowledge acquisition)
- **Knows How** (application of knowledge)

- **Shows How** (demonstration of competence)
- **Does** (performance in authentic clinical settings)

The model provides a structured framework for evaluating clinical skill acquisition and aligns closely with competency-based education models. Rutherford-Hemming (2012) demonstrated meaningful associations between simulation-based performance and clinical skill development, supporting the use of standardized simulation as a valid competency assessment method.

Study Design

This investigation employed an observational pilot design to identify patterns in relationships among clinical hours, program progression, and competency outcomes. The study was exploratory in nature and intended to inform the design of a larger multi-institutional investigation.

Results

Competency outcomes demonstrated variability across domains. Communication and caring relationship competencies were consistently stronger, likely reflecting foundational skills introduced early in nursing education and aligned with entry-level competencies described by national nursing education frameworks. In contrast, diagnostic reasoning and patient management competencies demonstrated comparatively lower performance levels, reflecting advanced clinical skills typically developed during graduate-level education.

Key findings included:

- All participants achieved **NPSCA total scores greater than 2**, indicating novice-level competency performance.

- For every **additional 100 direct care clinical hours completed**, NPSCA scores increased by approximately **0.19 points**, indicating a modest association between hours and competency.
- **Percentage of program completion demonstrated more consistent alignment with higher competency scores than total clinical hours alone**, regardless of program-specific clinical hour requirements.
- Total completed clinical hours were associated with only a limited number of individual competency items, primarily within communication, caring relationships, and diagnostic reasoning domains.
- Variability in competency performance appeared to reflect **program-level characteristics** as well as **individual student exposure patterns**.

Overall, observed associations were **minimal to modest in magnitude**, suggesting that clinical hour accumulation alone does not fully explain competency development.

Limitations

Several limitations should be considered when interpreting these findings. The recruitment of participating institutions may have introduced selection bias, potentially limiting the generalizability of results. Additionally, variability in program characteristics across institutions may have influenced competency outcomes. As an observational pilot study, the design does not permit causal inference. Despite these limitations, the findings provide important preliminary insights into factors influencing competency attainment.

Implications for Practice

Findings from this pilot study suggest that clinical hour accumulation alone may not serve as a reliable indicator of competency attainment. Instead, program progression and

structured educational experiences appear to be more closely aligned with competency development. These results support the continued evolution toward competency-based educational models, which emphasize demonstration of skill mastery rather than completion of fixed clinical hour thresholds.

Additionally, findings highlight the potential influence of program structure, educational sequencing, and learning environmental quality on competency outcomes. These factors may be more critical determinants of clinical readiness than the volume of clinical exposure alone.

Future Directions

Findings from this pilot study support the need for a larger, multisite national investigation designed to evaluate competency attainment across diverse educational settings.

Future research should:

- Include **multi-institutional sampling across geographic regions**
- Conduct **power analysis to support clustered data analysis**
- Examine **program-level structural variables**, including curriculum sequencing and simulation placement
- Evaluate **student-level clinical exposure patterns**
- Assess **inter-rater reliability** and faculty consistency in NPSCA scoring
- Examine **degree-level differences** between MSN and DNP programs
- Evaluate the timing and integration of foundational coursework, including pharmacology, pathophysiology, and physical assessment
- Explore variability in simulation placement and exposure across programs

This pilot study was not intended to establish causality but rather to refine research questions and inform the design of a rigorously powered national study capable of identifying meaningful predictors of nurse practitioner competency development.

References

- Miller, G. E. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine*, 65(9), S63-S67. <https://doi.org/10.1097/00001888-199009000-00045>
- Rutherford-Hemming, T. (2012). Simulation methodology in nursing education and adult learning theory. *Adult Learning*, 23(3), 129–137. <https://doi.org/10.1177/1045159512452848>