

The Impact of HESI® Compass™ on Nursing Students' Readiness for the NCLEX-RN Exam®

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Abstract

This study examined the impact of HESI® Compass™, a virtual NCLEX-RN® exam preparation course, on 235 undergraduate nursing students' exam readiness across four US institutions in Spring 2020. For this paper, data was obtained over 8-10 weeks from two HESI Exit Exams. We examined changes in students' scores on the HESI Exit Exam from pre-test to post-test as a result of completing HESI Compass. Our analysis yielded positive findings -- students' HESI Exit Exam scores increased 111.9 points and the proportion of students scoring over 850 or 900 doubled. This paper contributes to nursing education and research by designing and studying the impact of learning solutions for supporting students' NCLEX-RN readiness. We conclude with implications for future research.

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Introduction

Successful completion of the National Council Licensure Examination for Registered Nurses (NCLEX-RN®) is a key outcome for nursing students and an important indication of effective nursing programs in the United States (US). Hence, supporting students' NCLEX-RN exam readiness is generally a high priority programmatic goal in nursing programs. The period leading up to graduation is crucial for supporting nursing students' academic performance, self-efficacy, and motivation for NCLEX-RN preparation. Nursing programs often administer the HESI® Exit Exam as an indicator of readiness for the NCLEX-RN. A long history of evidence suggests that performance on the HESI Exit Exam is a highly accurate predictor of NCLEX-RN success (Elsevier, 2018; Nibert & Morrison, 2013).

HESI® Compass™ is a virtual NCLEX-RN preparation course that provides nursing students with guided and personalized coaching support from experienced nursing educators. Students engage in a comprehensive content review to reinforce their understanding of nursing concepts. Quizzes and case studies enable students to practice, apply, and synthesize their knowledge. HESI exams are administered as critical checkpoints in the course to establish a baseline of performance, identify areas of improvement, and track changes in student performance. Students also gain familiarity with the NCLEX-RN test plan and master test taking strategies on the item types that they will encounter on the NCLEX-RN. Self-reflections help students to prioritize areas of study, manage time and anxiety, and build their self-efficacy to succeed on the NCLEX-RN.

For this paper, we examined the impact of HESI Compass on 235 undergraduate nursing students' readiness for the NCLEX-RN in pilot studies implemented across four US higher education institutions in Spring 2020. These institutions used a *bridge implementation model*, requiring students to use HESI Compass for 8-10 weeks in their last academic term and take a HESI pre-test and post-test.

In HESI Compass, the main goal for students is to demonstrate NCLEX-RN readiness by scoring 850 (with a recommended score of 900) on a minimum of one HESI Exit Exam. We present findings for change in students' HESI Exit Exam scores (benchmarked at both 850 and 900) and conclude with implications for future research. In this paper, then, we examine the impact of HESI Compass on nursing students' NCLEX-RN readiness by addressing the following research question: *"To what extent did nursing students' scores on the HESI Exit Exam (pre-test to post-test) change as they used HESI Compass?"*

Review of Literature

The National Council on Measurement in Education (2012) defines standardized high-stakes examinations as tests with results that have critical consequences for both the test-takers and the institutions that cultivate the knowledge and skills being assessed on the exam. For nursing students in the US, taking and passing the NCLEX-RN is a key and required milestone in their trajectory to becoming a licensed registered nurse.

Nursing programs strive to provide their students with both the knowledge and higher-order thinking skills needed to succeed in a clinical setting. Passing the NCLEX-RN is an indicator of readiness to care for clients' needs for (a) safe and effective care environments, (b) health promotion and maintenance, (c) psychosocial integrity, and (d) physiological integrity across the lifespan in a variety of settings. These four client needs categories also form the core content on which students are tested on the NCLEX-RN (National Council of State Boards of Nursing, 2019). There is a general trend towards learning these types of essential career skills online (Barmada & Baghaei, 2017; Miao & Hoppe, 2017), including for medical practitioners (Kanehira, Yamazaki, & Fujimoto, 2017). HESI Compass is one such program, using online coaching, learning activities, and assessments to support students' preparedness for the NCLEX-RN. Review courses and test preparation resources have been considered essential for nursing licensure preparation for over 40 years (McDowell, 2008). Although numerous studies have identified academic and non-academic factors that predict NCLEX-RN success (Kaddoura, Flint, Van, Yang, and Chiang, 2017), few have evaluated the impact of NCLEX-RN preparation programs (Hyland, 2012).

NCLEX Readiness

It is important to recognize that many elements contribute to students' success on the NCLEX-RN (Kim, Nikstaitis, Park, Armstrong & Mark, 2019). Frameworks such as the Knowledge base, Anxiety control, Test-Taking Skills (KATTS) framework underscore the significance of a comprehensive and balanced approach to designing educational curricula and activities to maximize students' readiness for the NCLEX-RN (McDowell, 2008). Extant literature also yields strategies for programs to support students' NCLEX-RN readiness. For instance, Wiles (2015) underscored the significance of providing opportunities for students to receive individualized feedback that is tailored to their performance on an examination and areas needing attention for improving future performance. Wiles (2015) concluded, "By providing an examination review process that helps students understand the correct answers and rationale to missed questions, identifies patterns of mistakes, and provides potential individualized study strategies, students become more active learners and spend additional time studying difficult content areas, thereby improving their examination scores (p.58)." Many nursing programs also use the HESI Exit Exam and HESI specialty exams to predict students' success on the NCLEX-RN (Zweighaft, 2013).

HESI Exit Exams

Two decades of large scale validity studies with nationally representative samples have consistently reported the ability of the HESI Exit Exam to predict NCLEX-RN scores (Nibert & Morrison, 2013). Across twelve RN validity studies, the HESI Exit Exam was found to have 96.4% to 99.2% accuracy in predicting NCLEX-RN success for students who achieved the recommended score of 900 or greater on the HESI Exit Exam (Elsevier, 2018). Support for the HESI Exit Exam is also documented in smaller scale studies. For instance, Johnson, Sanderson, Wang and Parker (2017) found that the higher the scores that students (N=211) achieved on the HESI Exit Exam, the more likely they were to pass the NCLEX-RN on their first attempt. In addition, the researchers called for additional work that focuses on providing students and programs with a holistic package of strategies and checkpoints to support NCLEX-RN readiness. In another study, Kaddoura, Flint, Van, Yang, and Chiang (2017) compared potential predictors of NCLEX-RN outcomes in graduates of first-degree accelerated (FDA; n = 62) and second-degree accelerated (SDA; n = 173) BSN programs sharing a common nursing curriculum. They found that the HESI Exit Exam score was a significant predictor of passing the NCLEX-RN even after controlling for end-of-program GPA and the proportion of grades over C that a student received, within both the FDA and SDA programs. In each program, graduates who passed the NCLEX-RN had higher HESI Exit Exam scores than graduates who failed. Further analysis showed that each 10-point increment in total HESI Exit Exam score was associated with a 7% greater likelihood of passing the NCLEX-RN.

There are many different ways that the HESI Exit Exam is used by nursing faculty to improve student outcomes on the NCLEX-RN (Barton, Willson, Langford, & Schreiner, 2014). For instance, a survey of registered nurse (RN) programs helmed by the National League of Nursing (NLN, 2012) found that 12% of schools required students to meet benchmark scores on standardized exams. Unless students meet the minimum scores, schools may choose to hold students' names back from the state boards of nursing for licensure exam registration. In the context of the HESI Exit Exam, demonstrating mastery, and by extension students' readiness for the NCLEX-RN is typically benchmarked by a minimum score of 850 or higher (Elsevier, 2018; Langford & Young, 2013).

Methods

In this paper, we examine the impact of HESI Compass on nursing students' readiness for the NCLEX-RN, addressing the following research question: *"To what extent did students' scores on the HESI Exit Exam (pre-test to post-test) change as they used HESI Compass?"*

HESI Compass is a virtual NCLEX-RN preparation course that engages students in content review to reinforce their understanding of nursing concepts. Students use case studies, quizzes, and exams to practice, apply, and synthesize their knowledge. HESI Compass also enables students to gain familiarity with the NCLEX-RN test plan, master relevant test taking strategies, and self-reflect on their performance and self-efficacy.

This pilot study is situated in a larger quasi-experimental study focusing on continually examining the overall effectiveness of HESI Compass. Participants were selected from four public nursing institutions spread across the US. As mentioned above, these programs used a *bridge implementation model* for 8-10 weeks in Spring 2020, requiring students to take a HESI pre-test and post-test. HESI Compass was integrated midway in the final academic term of the program and extended 2-3 weeks after the term. HESI Compass was available to students 90 days after completion of the post-test. Students were not randomly assigned a condition. Convenience sampling was employed; that is, institutions were chosen based on their willingness to participate in the HESI Compass pilot.

Data Sources and Analysis

Table 1 outlines data that was used for this paper to examine students' readiness for the NCLEX-RN. Paired sample t-tests were conducted to ascertain change in students' HESI Exit Exam scores from pre-test to post-test, and McNemar's test was used to see if the proportion of students scoring over the 850 and 900 benchmarks increased from pre-test to post-test. Across institutions, a small number of students missed an exam -- since this was a small proportion of the data, students were simply not included in analyses where their data was missing, rather than adopting a more complex data imputation process.

Results

The average post-test (M=914.5, SD=142.6) was statistically significantly higher than the average pre-test (M=802.6, SD=133.3), for a paired t-test, $t(234)=12.50$, $p<0.001$. Statistically significantly more students achieved a score of 850 on the post-test (68.1%) than the pre-test (34.5%), $\chi^2(1) = 64.04$, $p<0.001$ for McNemar's test. Statistically significantly more students achieved a score of 900 on the post-test (53.2%) than the pre-test (23.4%), $\chi^2(1) = 49.59$, $p<0.001$ for McNemar's test. Detailed results are given in Table 1.

Table 1. HESI A2 results across all four institutions

Institution	Number of students who took both tests	Pre M (SD)	Post M (SD)	Average Gain
A	69	852.6 (95.2)	955.5 (111.5)	102.9
B	73	738.9 (126.2)	811.4 (132.1)	72.5
C	39	871.0 (110.9)	985.6 (118.0)	114.6
D	54	775.4 (152.7)	950.2 (135.1)	174.8
All Institutions	235	802.6 (133.3)	914.5 (142.6)	111.9

Scholarly Significance

The U.S. Bureau of Labor Statistics (2020) projects the need for an additional 203,700 new registered nurses (RNs) each year through 2026 to fill newly created positions and replace retiring nurses. Leaders in nursing education have called to the field to continue their commitment to quality research and education, especially in light of the COVID-19 pandemic where the demand for well-trained nurses is higher than ever (D'Antonio, Naylor & Aiken, 2020). As such, it is imperative that educational programs that are designed to prepare students for the NCLEX-RN, and by extension the nursing profession, continue to obtain evidence about their effectiveness.

In this paper, we examined the impact of HESI Compass on 235 undergraduate nursing students' readiness for the NCLEX-RN by investigating changes in their HESI Exit Exam scores (pre-test to post-test). A score of 850 and above on the HESI Exit Exam indicates nursing students' readiness for the NCLEX-RN (Elsevier, 2018; Nibert & Morrison, 2013), and a higher score of 900 is recommended to be confident that students will succeed on the NCLEX-RN. Our analysis yielded positive findings -- students' HESI Exit Exam scores increased 111.9 points, from the first test to the second test. The proportion of students scoring over 850 or over 900 doubled from the first test to the second test.

One limitation of this paper is that the researchers could not obtain participating students' NCLEX-RN pass rates. Although beyond the scope of this paper, future studies will include an examination of additional metrics within HESI Compass that inform students' NCLEX-RN preparation, such as engagement and self-efficacy (McDowell, 2008; Wiles, 2015). In addition, we will correlate HESI scores with NCLEX-RN outcomes to further assess the impact of HESI Compass.

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