Summer Institute in Nursing Informatics 2019
Poster Presentation

DNP Student Experience with Data and Mastery of Informatics Competencies on Data Analysis of Patient Outcomes

Barbara Kupferschmid, PhD, MSN, RN; Marsha Lesley, PhD, MLIS;
and Connie Creech, EdD, MSN, RN, ANP-BC

Problem Statement: The Doctor of Nursing Practice (DNP) program should prepare DNP graduates to use information technology to "analyze data from practice, predict and analyze outcomes, and examine patterns of behavior and outcomes" (AACN, 2006, p.12). However, minimal literature exists on the course content necessary to adequately prepare DNP graduates to attain competency in this area. To increase student skills working with data, we provided additional content on working with data using outcome metrics. We also developed an agreement with a regional medical center to obtain de-linked actual patient data providing students with experience exploring clinical data to assess patient outcomes. The aim of this study was to assess students' prior experience with data and their ability to master competencies including an advanced competency with a focus on analysis of patient outcomes such as length of stay (LOS) and readmission rates (RR). **Methods:** A retrospective descriptive design was used to examine prior data experience and competency mastery using a convenience sample of students enrolled in an online Informatics course. Data collected included student demographic characteristics and self-assessment of baseline experience with datasets or databases (A), working with "Big Data" (B), or working with data to improve patient outcomes (C). Student mastery of competencies focused on datasets (simple Excel skills), exploration of public databases, or analysis of data on patient outcomes (LOS and RR) were scored as follows: 1 (competent) or 2 (not competent). The proportion of students mastering the competencies were compared using the exact McNemar test. Frequencies were also performed. P-values less than 0.05 were considered statistically significant. The Institutional Review Board designated the study as exempt. **Results:** Students held BSN (n=36) or MSN degrees (n=10). Most were female (84%). DNP concentrations included Family Nurse Practitioner (48%), Adult Geriatric Acute Care (28%), Adult Geriatric Primary Care (6%), and Psychiatric (10%) tracks. Analysis of students' previous experiences revealed that 48% did have experience working with datasets, 14% with "Big Data", and 78% with data to explore patient outcomes. Those with previous experience reported that most of the experience was obtained in statistics courses (A; n=12), use of datasets in the work setting (B; n=3), and experience in the work setting using information to make changes to care delivery (C; n=20). An exact McNemar's test determined there was a significantly greater proportion of students who mastered competencies working with datasets (88%; p=.001) or database exploration (76%; p=.049) in comparison to the competency focused on analysis of clinical data examining patient outcomes (58%). There was no difference between the proportion of students mastering the dataset and database competencies. **Significance:** Students had minimal prior experience with datasets or databases with most occurring in academic course work but were able to master these competencies. While many used data in the work setting to improve patient outcomes, it did not translate to the mastery of a competency focused on analysis of patient outcomes. This indicates that additional content may be necessary to ensure student proficiency in this area.