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Using Interdisciplinary Teaching to Illustrate the Relationship Between Nursing Specialities & Statistics

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Background

PICOT: How do nursing students in a statistics course, with a cognitive-affective intervention, perceive the role of statistics in nursing practice at the completion of the course?

- *Cognitive Motivation:* Statistics Required Course for Completion of BSN Degree & Maintain Current GPA. Goal(s)
- *Affective Obstacles:* Math & Statistical Anxiety, K-12 Inadequate Math Instructional Foundation & Non-Rewarding Teaching Strategies.

Aim

Goals

- To Build Motivation & Self-Efficacy for Learning & Applying Statistics in Nursing Students.
- Use Bandura' observational learning stages: Attention to behavior, Create memory of the behavior, Transform memory representation into an action, & Motivation to initiate the behavior (Bandura, 1986)
- Develop an Interdisciplinary Team of Nursing & Statistics Faculty to achieve positive cognitive and affective student outcomes (Alberto & Herth, 2009).

Objectives

- Increase Positive Self-Efficacy & Appreciation for Statistics (Bandura, 1986).
- Disengagement from Negative Thoughts about Statistics.
- Developing Student Competency with Statistics & Nursing (Oernann, 2015).
- Apply Statistics & Nursing Practice to Chronic Disease Prevention, Patient Education, & Clinical Decision-Making.

Method

Participants (N=169) Bachelor of Science in Nursing students. The Health Statistics (HLTH 320) is a course scheduled for third year, Fall semester (i.e., 16 weeks). The course is designed to introduce the nursing students to statistics.

Independent Variable

RESOURCES

- Interdisciplinary Statistics & Nursing Faculty Team (Alberto & Herth, 2009)
- Developed hypothetical data set based on published researching for Chronic Diseases
- SPSS software
- Related trends in the data to risk factor stratification to Chronic Diseases
- Application of Statistical finding to EBP in Nursing

Method (Cont'd)

Independent Variable

PLAN

- 20-minute presentation by nursing faculty (i.e., caring, angina, hypertension, leadership, food desert, mental health, death/dying)
- 10-minute demonstration by the statistics faculty converting nursing constructs to nursing variables
- Students received a graded worksheet assignment and interpreted the SPSS findings based on ANOVA and linear regression.
- Interdisciplinary faculty reported experiential learning (Alberto & Herth, 2009)

HYPOTHESIS: It was hypothesized that interdisciplinary team-teaching could increase student comprehension and application.

INSTRUMENTATION:

Participants (N=169) answered pre/post-test assessing knowledge about the 20 minute nursing faculty presentations and the 10 minute statistics and nursing faculty presentation of the hypothetical data base and SPSS findings.

Findings

Intervention quantitative, qualitative, behavioral evaluation: (1) significant pre-post data, dependent t-test (p=.001-.031); (2) qualitative theme analysis revealed meaning, relevancy to nursing practice; and (3) approximately twenty students volunteered to participate in research project (design, implementation), not grade.

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Student Reflections

Positive Self-efficacy for Stats (Bandura, 1986)

- "Statistics can help solidify current reasoning for treatments and be used to update them. Some medications are statistically more significant at treating some individuals than others, given their particular circumstances."
- "What I found professionally meaningful is that statistics is pretty much applicable everywhere including topics like hypertension."
- "I never really think about statistical significance or probability when it comes to health care subjects. This class helped me consider that statistics are used in health care."

Disengage from Negative Thought about Stats

- "The concept of utilizing statistics in healthcare was both professionally and personally meaningful to me. Statistics when combined with healthcare can have a tremendous impact on outcomes and how we shape care."
- "I was able to put myself in the shoes of a patient receiving information on not just treatments, but how meaningful and helpful statistics can be."
- "I found it professionally meaningful to watch stats be applied to my profession. Especially since I work on a stroke floor. I was able to see the correlation between stroke and hypertension and that is something I can apply at work."

Students Competence with Stats, Nursing, & EBP

- "Yes, at clinical last week I had a patient who was hypertensive. I remembered this presentation and applied all that I remembered to it. Also, the presentation has reminded me of why I would like to be a nurse which is to help and treat patients."
- "I will be able to understand statistical data at a smarter level. Throughout my profession I will see statistical data that will help me provide better care for my patients."
- "I found it interesting that we used something health related for our in class activities and enjoyed messing around with data from the presentations and using it statistically."
- "Seeing that lifestyle changes is one of the greatest risk factors for hypertension, encourages me to educate my patients on healthy lifestyle to decrease the risk for hypertension."
- "I found that the ability to use statistics to predict the probability of a patient getting hypertension or having their hypertension worsen was personally meaningful. If you can decrease the chances of hypertension getting worse in a patient you increase their likelihood of a longer and enjoyable life with less health complications." (Oernann, 2015).

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