An Educational Session to Teach the Concept of Genetics

An increasing understanding of the impact of genetic science requires an evolution in educational practices in undergraduate nursing education. The Essentials of Baccalaureate Education for Professional Nursing Practice (American Association of Colleges of Nursing, 2008) and the Essentials for Genetic and Genomic Nursing (Consensus Panel on Genetic/Genomic Nursing Competencies, 2008) provide guidance for nurse educators in determining expectations for student competency in relation to genetics for entry-level practice. However, little direction exists for nurse educators in relation to determining specific educational approaches to guide students toward meeting those competencies. This article details an educational session designed to meet a course competency related to genetics.

The educational session was implemented as a clinical component of a combined clinical and theory chronic illness course in a concept-based undergraduate baccalaureate nursing curriculum. Content related to the concept of genetics was threaded through the eight-semester curriculum. Students had been introduced to the concept of genetics in first-and second-semester coursework as an aspect of anatomy and physiology courses. In a health promotion course during the third semester of the curriculum, the influence of genetics was included as an aspect of screening. The educational session was offered in the fourth semester of the curriculum, in which the concept of genetics was taught concurrently as a component of pathophysiology and pharmacology courses.

Unfolding case studies, available at no cost from the Global Genetics and Genomics Community (2018), were used in the session to meet a course competency. The competency required students to “apply knowledge of genetics and genomics to the development of a plan of care.” Four open-ended questions were crafted to meet the competency. Each question tied to a variety of Clinical Performance Indicators described in the Essentials for Genetic and Genomic Nursing (Consensus Panel on Genetic/Genomic Nursing Competencies, 2008). Questions required students to: reflect on how modifiable risk factors were significant for a patient with a genetic predisposition to a chronic illness, reflect on the risks and benefits of providing genetic information to that patient, determine nursing interventions to address the patient’s knowledge deficit in relation to the implications of genetics on the patient’s plan of care, and determine credible resources of genetic information as teaching references.

Prior to the educational session, students were required to complete learning guide questions based on an article focused on genetics in nursing and attend a brief classroom lecture about the implications of genetics on the care of patients with chronic illness. Small groups of students then worked together in an on-campus computer lab to navigate an unfolding case study for an assigned patient with diabetes, breast cancer, or colon cancer. In these case studies, patients grappled with the implications of nonmodifiable (family history) and modifiable (diet, exercise) risk factors for these diseases. After the case study, a large group discussion was held to compare and contrast implications for genetics for each of the case study patients. Students submitted a group response to the questions at the end of the session.

A rubric was divided into four categories to evaluate student responses. The majority of students achieved an exemplary score as they addressed questions with language that reflected a full knowledge of nursing theory in relation to the influences of genetics on patient care. Proficient scores were achieved for some responses when questions were addressed partially with the inclusion of some knowledge of theory. No student achieved a developing or unacceptable score for answers that minimally addressed questions without clear reference to theory, did not address questions, or incorrectly addressed the questions.

The educational session using unfolding case studies and group discussion was an effective approach for teaching the concept of genetics. Group submissions consistently included descriptions of the emotional support that would be necessary in relation to teaching patients about the influence of modifiable behaviors on genetic predispositions to disease. In addition, each group was able to list a minimum of at least one reputable online resource as a reference for genetic information. The large group discussion was especially valuable for groups to explore perspectives related to ethical considerations associated with informing patients about genetic influences on chronic illness.

Student evaluations of the activity indicated agreement that the session helped to meet the course competency. The educational session will be repeated as it was demonstrated to be an effective approach to teaching about the influence of genetics on patient care within a chronic illness course.

References


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