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Educating Nursing Students about Patient Self-Management Preventive Care to Minimize Type II Diabetes Mellitus Complications

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Nursing education requires a stronger focus on chronic illness management through

patient education. Type II diabetes mellitus is a chronic disease seen throughout the lifespan

continuum and in both community and hospitals setting. All nurses need to educate patients on

nutrition, exercise, and the prevention of acute and chronic complications. The purpose of this

project was to educate student nurses about diabetes care coordination using constructivist,

transformational, and cooperative learning theories in association with diverse teaching and

assessment strategies such as lecture, low fidelity case study, and one minute reflection.

Background

Currently, the prevalence of diabetes in the world is 415 million adults and will escalate

to an estimated 642 million by 2040 (Ley et al., 2016). Between 2010 and 2014, the number of

newly diagnosed patients with diabetes in the United States increased by nearly four million

cases (American Diabetes Association [ADA], 2016). According to the Centers for Disease

Control and Prevention [CDC] (2015), the gender and ethnicity for the highest incidence of

diabetes are men, and African Americans. In 2015, the United States alone spent 315 billion

dollars on treatments related to diabetes, associated comorbidities, and complications (Ley et al.,

2016). When type II diabetes mellitus goes untreated or poorly managed, it can lead to acute and

chronic complications such as hypoglycemia, kidney failure, cardiovascular disease, stroke,

ulcerations or wounds, neuropathy, cataracts, retinopathy, and glaucoma (Amuta, Crosslin,

Goodman, & Barry, 2016; Bostock-Cox, 2015). Evidently, the complications associated with

type II diabetes mellitus accentuates the need to prepare student nurses on patient education and

lifestyle modifications.

Type II diabetes mellitus is a complicated disease process, associated with the development of preventable comorbidities and complications. Diabetes can be prevented 90 percent of the time with lifestyle and diet modifications; changing lifestyle and diet habits such as tobacco cessation, healthy eating, and weight reduction can slow the progression of comorbidities and complications for at risk individuals (Bostock-Cox, 2015; Ley et al., 2016; Vijan & Fagerlin, 2015). Nutrition has a direct effect on blood glucose, but good self-care improves glucose control; thus, lowering the severity of complications (Bostock-Cox, 2015; Ley et al., 2016; Wu, Tung, Liang, Lee, & Yu, 2014). The Western diet is an example of poor nutrition which consists of processed/red meats, refined grains, and sweets which increases the risk of developing type II diabetes mellitus (Ley et al., 2016). Educating patients on prevention and lifestyle modifications will help with early detection, monitoring, and interventions for diabetics at risk for associated complications. The goal for nurses is to offer support, guidance, and education to minimize associated comorbidities, financial implications of disease progression, improve patient outcomes, quality of life, and reduce the risk of diabetic complications.

Care Coordination

Care coordination is the collaborative process between interprofessional teams, community, and the patient for chronic illness management such as diabetes. Programs for diabetes self-management education (DSME) and the collaboration between Community Health Workers (CHWs) and Primary Care Providers (PCPs) provides diabetic management and empowers the patient and reduces the onset of complications (Burton et al., 2015; Collinsworth, Vulimiri, Schmidt, & Snead, 2013). According to Collinsworth et al. (2013), those who participated in the DSME program had statistically significant decreases in mean AIC levels and

systolic blood pressure. Diabetic programs, such as the Young Men's Christian Association (YMCA) Diabetes Prevention Program (CDC, 2016), create opportunities to help individuals manage diabetes and prevent further complications. Such programs offer leadership and support for preventing diabetic complications through cost effective evidence based care that was directed towards vulnerable or at risk populations.

Importance in Nursing Education

Student nurses will encounter diabetic patients across the lifespan and in many settings. Requiring student nurses to learn how to support patient self-management of chronic diabetes, through care coordination, and patient education can help improve quality of care and therefore patient quality of life. Educating the patient about diabetes increases patient self-management and reduces BMI, A1C, and increases quality of life (Kim et al., 2016; Mohammed & Hassanein, 2016; Powers et al., 2015). The student nurses need to learn how to support patients, share knowledge, effectively communicate, and teach diabetes management skills to optimally promote health upon entering post licensure practice (Powers et al., 2015).

Project Setting

The project took place at a private university, outside of class, as part of the Graduate practicum course for undergraduate junior nursing students enrolled in a pathophysiology course.

Literature Review

Educating about strategies to prevent complications and treat type II diabetes mellitus is necessary for the student's future success in educating patients on self-management. During the teaching session, an educator's role is to maintain a positive learning environment that is structured to present students with the knowledge about type II diabetes mellitus using appropriate educational theories and assessments.

Learning Theories

Multiple theories were selected for the teaching strategies and learning activities of this project including the constructivist, transformational, and cooperative learning theories; all are designed to address the students' diverse learning styles. Piaget, Vygotsky, and Bandura were theorists devoted to the cognitive learning theory of constructivism (Barrett & Long, 2012; Candela, 2016; Dennick, 2012). The constructivist learning theory emphasizes the importance of assimilating, building, accommodating, and constructing new knowledge from previously learned knowledge that the students gain from experiences, lectures, and previous text readings (Barrett & Long, 2012; Candela, 2016; Dennick, 2012; Smith, Witt, Klaassen, Zimmerman, & Cheng, 2012). The learner's role is to think critically about past learning experiences to better understand the material being presented. Integrating new knowledge with previous knowledge creates a connection between information learned and adds value to the students' existing knowledge structures (Barrett & Long, 2012; Dennick, 2012; Smith et al., 2012). Educators' facilitate critical thinking by posing questions and giving examples of past experiences.

Cooperative learning occurs when two or more people learn together using both self and social modes of regulation (Goodyear, 2017; Schoor, Narciss, & Korndle, 2015). Self-regulation is a reference to the students' planning, monitoring, and regulating of cognitive, behavioral, and motivational processes in the attempt of completing an academic task (Goodyear, 2017; Schoor et al., 2015). In cooperative learning, the "co-construction of knowledge shared among members of the group" is the ultimate goal (Schoor et al., 2015, p. 98). The students' role is to participate during class activities and group work in order to engage with others in the learning environment (Goodyear, 2017). The faculty need to create a setting that promotes cooperation by creating

groups, providing well-designed group questions and worksheets, and the facilitation of the learning activities.

The transformational learning theory, developed by Mezirow, promotes learners to construct, validate, and reformulate information and concepts previously learned (Fazio-Griffith & Ballard, 2016). Students critically reflect on prior perspectives to produce new insights and contemplate different views (Fazio-Griffith & Ballard, 2016; Marrocco, Kazer, & Neal-Boylan, 2014; Smith et al., 2012). Through communication with others, transformational learning can engage the learner in a better understanding of the self or meaning of a topic (Marrocco et al., 2014; Smith et al., 2012). The student's role is to evaluate and analyze what was learned during the teaching session and reflect on new ideas and what was learned from peers. The educator's role is to ensure the learner understands the class is a safe space, encourage deep reflection, and honesty (Marrocco et al., 2014).

Teaching Strategies and Learning Activities

Several teaching strategies and learning activities were utilized for the teaching session. According to Yang, Hwang, and Yang (2013), learning styles are a principal factor for the understanding and presentation of material; each represents an individual's unique way in perceiving and processing information. Following the constructivist perspective, the lecture promoted cognitive thinking and was a time-efficient strategy that raised student questions about complex material (Phillips, 2016). The use of visual media technologies such as video and PowerPoint encouraged student participation and engaged visual learners (Phillips, 2016).

Based on the cooperative learning theory, a low fidelity simulation case study creates an impression of a real life clinical situation which has been shown to be effective in teaching students in a peer-to-peer level in baccalaureate nursing programs (Sharpnack & Madigan,

2012). A low fidelity simulation provided an opportunity for critical thinking, problem solving, and encouraged team work among students (Jeffries, Swoboda, & Akintade, 2016; Sharpnack & Madigan, 2012). The transformational learning theory guided the debriefing session following the case study. Debriefing facilitated student reflection, promoted the reexamination of clinical encounters, and engaged learners in meaningful discussions (Jeffries et al., 2016). The process of immediate reflection promoted student learning to new insights and information.

Learner Assessment Methods

The constructivist, cooperative, and transformational learning theories will be used to build, apply, and analyze preconceived and new knowledge. The students were taught using cognitive, psychomotor, and affective teaching strategies such as lectures, videos, and case studies (Appendix A). The students will be evaluated on the knowledge learned during the session and will be encouraged to reflect on personal biases as resources and time allow. The pre-test and post-test were used to evaluate the constructivist learning theory. The cooperative learning theory was assessed through observation and debriefing of the low fidelity case study. The transformational learning theory outcome was assessed through the one minute reflection. Pre-tests and post-tests are used to evaluate student learning based on the learning strategies and outcomes (Mager, 2014). The pre-test determined which concepts needed to be emphasized and elaborated upon during the teaching session and demonstrated the knowledge already learned about type II diabetes mellitus (Mager, 2014). A post-test was used to measure which learning outcomes were met by the students and if the teaching session was successful (Bourke, 2016). According to Mager (2014), the post-test is the same as the pre-test, an improvement between the pre-test and post-test will determine if the new concepts were learned (see pre-test in Appendix B and post-test in Appendix C). Simulations are a recommended activity to enhance the

learning, understanding, and critical thinking of the student (Sharpnack & Madigan, 2012). The one minute reflection was conducted to evaluate the affective domain and allow the students time to develop self-awareness, transform a point of view or elaborate on an existing perspective, and critically reflect on how the information learned impacted the student (Fazio-Griffith & Ballard, 2016; Halverson, 2014; Jeffries et al., 2016).

Educational Resources

Many educational resources are vital and positively influence students learning. According to Scheckel (2016), limitations that can significantly affect the integrity and rigor of the learning experience can occur with the classroom size, audiovisual equipment, or classroom design. Other internal educational materials are school resources for printing the MyPlate handouts, case studies, pre-tests and post-tests, and minute reflections, access to the online academic email for posting pre-class information, and a sign-up sheet for attendance. The curriculum for the pathophysiology class does not allow a deviation from the required material for any length of time. As a result, the external resources that were required included a classroom outside of scheduled class times, an internet connection for the video, and a projector.

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Methods

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The focus for the teaching session was to educate students on the acute and chronic complications of type II diabetes mellitus and the associated self-management concepts of diet and exercise. The students were educated on the pathophysiological process of diabetes and how poor management contributes to acute and chronic complications.

Learning Outcomes

Four learning outcomes that addressed the cognitive, psychomotor, and affective domains guided this project (see teaching plan in Appendix A). The focus of this scholarly project was to

educate the student nurses about limiting risks associated with chronic and acute complications and two patient-centered self-management techniques. Project learning outcomes for undergraduate nursing students included: (1) understand and discriminate between chronic and acute complications for type II diabetes mellitus; (2) apply two essential care coordination activities for diabetic self-care management; (3) demonstrate the ability to utilize MyPlate and carbohydrate counting for patient education on diabetic nutrition; and (4) examine and report how the teaching session impacted future nursing practice.

Teaching Strategies and Learning Activities

The pre-test, post-test, and one minute reflections were the methods used to assess the students' learning. For the pre-class learning activities, the students viewed a 17 minute video describing the pathophysiology of diabetes and how it leads to complications. The video offered the students a review of key concepts to promote an understanding about type II diabetes mellitus to better support the lecture focus on chronic complications and essential patient self-care management. In class, the students received a lecture with a PowerPoint that included a list of chronic versus acute complications of type II diabetes mellitus, an in-depth review of two chronic complications including chronic kidney disease and neuropathy, and two essentials of self-care management: exercise and nutrition with carbohydrate counting.

The students participated in a low fidelity in class case study (Appendix F). The low fidelity case study was based on a complicated type II diabetes mellitus patient. The case study required students to discuss recommended actions for patient education and care coordination and to create a diabetic diet meal plan using the MyPlate, the meal plan handout, and carbohydrate counting. The students divided into discussion groups of three or four to complete the case study questions (15-minute activity). The class then debriefed by discussing the case

study together and answering any additional questions the students might have about the case

study (5-10 minute activity). The students received two handouts to assist in the discussion and

completion of the case study. The handouts included a meal plan document with a list of

different food choices for the patient with the associated carbohydrate servings per food item,

and a diabetic MyPlate diagram.

Learner Evaluation Methods

The teaching session ended with a post-test to analyze if the students met the cognitive

learning outcomes (see post-test in Appendix C). The psychomotor domain learning outcome

was assessed using the case study and debriefing session. Finally, the affective domain learning

outcome was assessed with a one minute reflection on how the information learned impacts

future nursing practice and what was one concept learned that the students will take away from

the teaching session (see one minute reflection in Appendix D).

Evaluation of Teaching Effectiveness

The evaluation of the teaching effectiveness was assessed after the teaching session using

a rating scale (see teaching evaluation tool in Appendix E). The purpose for evaluating the

instructor was to guide future course revisions. Also, the students feedback illustrated whether

the teaching methods were effective.

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Results

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The learner evaluation methods for the pre-test, post-test, case study, and one minute

reflection measured the four learning outcomes and teaching effectiveness ($N = 25$). A paired

sample *t*-test was performed to evaluate whether the students gained a better understanding of

complications related to type II diabetes mellitus, patient self-management, and the diabetic diet.

The results revealed increased knowledge between the pre-test (M = 7.580, SD = 1.304) and the

post-test (M = 8.700, SD = 1.155), t (24) = - 4.33, p = .0002 (see Appendix G). The overall mean

score for the pre-test was 7.58 (SD = 1.304) out of 10 and the post-test mean was 8.7 (SD =

1.155) out of 10 (see Appendix G). The difference in pre- and post-test scores was a 1.12 mean

increase between the pre-test and post-test.

The third learning outcome, for the psychomotor domain, was observed during the low

fidelity simulation. All students attending the lecture participated in the case study. Based on

faculty observation and class debriefing discussion, the students appeared to demonstrate a

change in their ability to organize educational priorities for a patient based on a patient scenario

and develop a meal plan using the diabetic diet and carbohydrate counting. The students

recognized that patient education was needed for the patient in the case study for nutrition, foot

care, and exercise. Also, the students accurately utilized the MyPlate and carbohydrate counting

meal plan to create breakfast, lunch, and dinner. Through discussion as a class, many groups of

students recognized the patient's preferences for nutrition and created a plan that involved some

of the foods the patient liked such as pizza or pasta with sides of vegetables.

The one minute reflection was completed by the students (N = 25) following the

presentation and case study to evaluate what the students learned and how that information will

impact the students' future nursing practice. Following a thematic content analysis, key learning

themes emerged for each question (Appendix H). Multiple student responses indicated similar

themes for the first and second questions. A total of 44 percent of the students listed the diabetic

MyPlate and carbohydrate counting as a concept the students will take away from the teaching

session; for example, a student stated, "[learned] how to monitor carbs in your diet and how

much you should have each meal" (Appendix H). The second question asked how the concepts

learned would impact their future nursing practice. Fifty-six percent of the students reported they learned how to educate patients with type II diabetes mellitus, and 24 percent learned how to manage symptoms (Appendix H). As one student stated, the information learned during the session will impact future nursing practice by helping them, "implement the tools to educate patients on their management of [type II diabetes mellitus]."

The evaluation of teaching effectiveness was measured using a rating scale (1 = strongly disagree and 5 = strongly agree). The students (N = 21) completed the rating scale to evaluate the instructor for the value of the learning experience (M = 4.476, SD = .602), how well the teaching strategies encouraged learning (M = 4.381, SD = .669), if the environment helped learning (M = 4.381, SD = .590), and the effectiveness of the communicator (M = 4.381, SD = .590) (Appendix I). The majority of the students rated either "agree" or "strongly agree" for all the variables measured.

<div align="center">**Discussion**</div>

Overall, the students showed enhanced learning and knowledge of type II diabetes mellitus, complications, and patient self-management following the teaching session. The results of the pre-test and post-test showed a statistically significant p value, indicating that students improved test scores and gained a better understanding of complications, and self-management. The first learning outcome, which measured the students understanding and ability to discriminate between acute and chronic complications, was not met. After further evaluation, the pre-test and post-test only measured the students' ability to label diabetic complications and not discriminate between acute and chronic complications. Therefore, the pre-test and post-test did not adequately measure the entirety of the first learning outcome. The second learning outcome was better identified within the pre-test and post-test by having the students identify self-

management activities and explain why these activities were important. The pre-test was a

helpful way to measure the students' knowledge about type II diabetes before the lecture. The

constructivist learning theory encouraged the instructor to be aware of the students' background

knowledge before attending the learning session (Dennick, 2012). Knowing the students had

completed two assignments related to type II diabetes mellitus gave the instructor an idea of

which content needed to be explained further. As an example, the instructor expanded the

information already learned and focused more on the patient self-management techniques of

nutrition and exercise.

Evidence of cooperative learning was noticed through the observation and debriefing of

the case study. In alignment with cooperative learning theory, the students were encouraged to

work in small groups of three or four providing opportunities to facilitate each other's efforts in

peer to peer learning (Goodyear, 2017). However, evaluation of this outcome was limited to the

informal discussion, without further measurement or collection of data. The students were

brought together to discuss the answers and every group was called upon during the discussion to

share at least one answer with the entire class. One way this data could have been collected was

by asking each group to return the handwritten document as evidence of the groups work.

Conducting a content analysis would show if the groups understood the concepts taught during

the presentation and if the cooperative group work supported learning.

The one minute reflection allowed the students an opportunity to contemplate the content

learned and examine how to incorporate learning into future clinical placements and nursing

practice. Multiple student responses demonstrated an understanding of type II diabetes mellitus

and how the information learned during the teaching session will impact future nursing practice.

Through transformational learning and reflection, students were able to construct and validate

what was learned in the lecture and how these new insights will assist them in their nursing

practice (Fazio-Griffith & Ballard, 2016; Marrocco et al., 2014; Smith et al., 2012). Students

learned that nursing is not only the management of symptoms and complications, but also the

importance of education for patient self-management. Patient self-management can reduce

hospitalizations through primary and secondary prevention strategies which minimize acute

illnesses or complications.

A small percentage of students rated faculty effectiveness as "neutral" in selected

categories. The neutral rating could have been influenced by classroom size, seating, time of day,

and knowledge level among student groups. The class setting was set in a large auditorium,

which allowed room for a large class size; however, some students sat far away, making the

presentation of the information difficult to hear which could also inhibit the effectiveness of the

communication.

Limitations

Time was a constraint for this project, the teaching session was limited to only 60

minutes which left little time for questions or clarifications from the students. The timing of

when the learning session occurred was a limitation, as it was late at night after a long day of

classes. The limitation of time could have affected the value of the learning experience for some

students. There was also a limitation with the classroom setting as there were issues with

available rooms, lighting, and lack of equipment such as a white board. The room was too large

and the students were unable to move the chairs into groups during the case study which would

have enhanced the peer to peer learning. These variables may not have been optimal for student

learning. Finally, another limitation was the small sample size and the variability of the

population, that impacted the reliability and the ability to generalize the results to a larger

population.

Recommendations

A recommendation for future nurse educators is to assess the learning environment and

be creative with the space. If the room is too large, students could be asked to sit closer to the

front to promote communication between the student and the instructor. Students could also

move out of the chairs to sit on the floor in circles within the group to facilitate discussion of the

case study. According to Brookfield (2015), taking even one moment to stand up and stretch or

move in class is crucial to brain functioning. Another recommendation would be to conduct a

survey on the best time to meet outside of class for the students' schedule. Also, a

recommendation for future research is to evaluate when type II diabetes mellitus should be

taught in the curriculum to undergraduate nursing students. Having a larger sample size could

increase the reliability of the results; however, increasing the sample size would be difficult to

accomplish because the instructor is not able to work around every students' schedule or

motivate the students to attend the learning session. Also, the sample size for the project was

equivalent to the size of a pathophysiology class.

Lessons Learned

An important lesson learned from the experience of educating this student population is

that patient education for type II diabetes mellitus needs to be required and incorporated into the

nursing curriculum starting early in the curriculum. Students are taught many of the skills and

knowledge needed to treat and manage the symptoms of type II diabetes mellitus throughout

nursing school, but lack the ability to educate patients on how to monitor, treat, and manage

diabetes. Information learned about type II diabetes mellitus is important for student nurses and

can improve future nursing practice by providing quality and effective patient care. Finally, nurse educators need to utilize a diversity of teaching strategies to keep students engaged and thinking critically. Students learn differently and nurse educators need to consider other opportunities and strategies to teach during class to meet the needs of the class.

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Appendix A

Teaching Plan

Teaching Plan Title: Educating Nursing Students about Patient Self-Management Preventive Care to Minimize Type II Diabetes Mellitus Complications

Purpose: To introduce and learn about diabetic complications, both acute and chronic, identify 2 strategies for patient self-management, and demonstrate how to teach the patient about the diabetic diet.

Goal: Students will be able to apply the principles of chronic complications and self-management techniques to educate patients and promote health and well-being.

Learning Context/Environment: The diabetic education will be taught in person, in a classroom setting, NRS 313: Pathophysiology. The students will be junior level.

Project Outcomes: Knowledge Level Domain	Learning Theories to support project focus:	Content Outline with key concepts:	Teaching strategies & Learning activities for key concepts:	Simulation & Debriefing Plans (NESP only):	Session Resources for anticipated class enrollment:	Method of Learner Assessment & Evaluation:
Cognitive: 1. By the end of the teaching session, the student will understand and discriminate between chronic and acute complication for type 2 diabetes. 2. The students will apply	Constructivist Learning Theory: The student possesses knowledge of the topic being learned, is able to assimilate and build knowledge from previous experiences, readings, and lectures (Barrett & Long, 2012). The students will use the knowledge	Overview of pathophysiology and how diabetes leads to chronic and acute complications. (Through pre-class video) List/Overview of chronic and acute complications of type 2 diabetes. In depth review of chronic kidney disease (CKD), and neuropathy (Amuta, Crosslin, Goodman, & Barry, 2016). Define patient self-management and compliance/ noncompliance. Self-	Pre-Class: Pre-Cass: 45 minutes Students will review the type 2 diabetes text in the pathophysiology book. View 17-minute pathophysiology video	A low fidelity simulation will occur using a case study on a complicated diabetic patient. The case study will require the students to discuss recommended education for the patient and how the students would give the	Equipment Needed: Internet connection, projector, computer, online academic forum for pre-class information and student sign-up sheets for	Pre-test and Post-test will be used to evaluate the effectiveness of the transfer of information based on how well the students do after the teaching session (Mager, 2014). Using

two essential care coordination activities for diabetic self-care management. Psychomotor: 1. Students will demonstrate the ability to utilize MyPlate and carbohydrate counting for patient education on diabetic nutrition. Affective: 1. The students will examine and report how the teaching session will impact future nursing practice.	learned from pathophysiology class and the PowerPoint for internal regulation systems to apply it to the information given during the teaching session. Cooperative Learning Theory: Self-regulation and social modes of regulation are involved in learning (Schoor et al., 2015). Cooperative learning is a situation where two or more people attempt to learn together (Schoor et al., 2015). Students will utilize this method with the case study by applying what was learned from	management will include two preventive methods of complications that include: exercise and nutrition with carbohydrate counting (Ley et al., 2016).	In class: In class: 75 minutes Pre-Test: 10 minutes List/Overview of chronic and acute complications of type 2 diabetes, chronic kidney disease (CKD), and neuropathy, two essentials of self-management, and carbohydrate count via lecture, and PowerPoint (25 minutes). The PowerPoint will be posted online prior to class for students to view. Simulation using a case study and application of	education. Using MyPlate and meal plan handout the students will create a meal plan for the patient and practice carbohydrate counting. (15 minutes). Low fidelity simulation will be utilized because it can produce high-value principles to the students and create a semblance of reality for the students (Sharpnack & Madigan, 2012). Students will be debriefed during a class discussion. The students will also	the teaching session, desks, chairs, and classroom. Lecture: PowerPoint, Handouts for MyPlate and case study School resources for printing handouts and pre-test/post-test. Request faculty reserve a classroom for teaching session. Also, request help from faculty in recruiting students for	a pre-test will determine which concepts the students understand and which concepts need more emphasis (Mager, 2014). Minute Reflection after teaching session for students to reflect on how the concepts learned can impact future nursing practice and what one thing the student will take away from the

| | the PowerPoint presentation. Transformational Learning theory: Learners construe, validate, and reformulate the information or concepts learned and reflect on prior perspectives to formulate new perspectives (Fazio-Griffith & Ballard, 2016). The students will examine and reflect on prior learned knowledge about diabetes and understand the importance of patient education and self-care management. | | MyPlate and carbohydrate counting (15 minutes).

Debrief and discuss what was learned as a class (5-10 minutes)

Minute reflection (3 minutes)

Post-test related to chronic and acute complications of type II diabetes mellitus, self-management, and carbohydrate counting/ utilization of MyPlate (10 minutes) | discuss during this time perceived compliance or noncompliance patient concerns (5-10 minutes). | teaching session.

Required students needed: 15-20 | teaching session. Critical reflections allow the student to transform their points of view and/or elaborate on existing perspectives (Fazio-Griffith & Ballard, 2016; Jeffries et al., 2016; Halverson, 2014). |

Appendix B

Pre-Test

1. Name 4 complications related to type II diabetes mellitus.

    a.

    b.

    c.

    d.

2. What is self-management? How does it help patients?

3. List 2 self-management methods.

    a.

    b.

    Why are these methods important?

4. Using the diabetic diet and carbohydrate counting, give an example of a healthy dinner:

5. A patient with type II diabetes mellitus comes into the hospital's Emergency Department with an infected wound on their right foot that has not healed for three months. What will most likely happen to the patient?

    a. the patient will be admitted to the hospital and given IV antibiotics
    b. the patient will be given oral antibiotics and sent home with a follow up appointment
    c. the patient will be admitted to the hospital, given IV antibiotics, and scheduled for surgery to have the foot amputated

Appendix C

Post-Test

1. Name 4 complications related to type II diabetes mellitus.

    a.

    b.

    c.

    d.

2. What is self-management? How does it help patients?

3. List 2 self-management methods.

    a.

    b.

    Why are these methods important?

4. Using the diabetic diet and carbohydrate counting, give an example of a healthy dinner:

5. A patient with type II diabetes mellitus comes into the hospital's Emergency Department with an infected wound on their right foot that has not healed for three months. What will most likely happen to the patient?

    a. the patient will be admitted to the hospital and given IV antibiotics
    b. the patient will be given oral antibiotics and sent home with a follow up appointment
    c. the patient will be admitted to the hospital, given IV antibiotics, and scheduled for surgery to have the foot amputated

Appendix D

Minute Reflection

What is one thing that you will take away from today?

How will the information you learned today impact your future nursing practice?

Appendix E

Teaching Evaluation Rating Scale

For each of the following questions, circle the response that best characterizes how you feel about the statement, where:

1 = Strongly Disagree and 5 = Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor provided a valuable learning experience.	1	2	3	4	5
The teaching strategies (i.e. PowerPoint, lecture, case study) encouraged my learning.	1	2	3	4	5
The instructor maintained an environment to help me learn.	1	2	3	4	5
The instructor was an effective communicator.	1	2	3	4	5

Appendix F

Case Study

JT, a 66 y.o. male patient comes into the clinic for a yearly checkup. He states has not been sick, but his blood sugar has been around 420 for a couple of months and he does not know why. Currently he is on oral medications and taking them every day. JT's ability to check his blood sugar accurately was assessed and the blood sugar today was 236. JT was able to demonstrate this technique appropriately. The nurse asked the patient what his usual meals consist of during the day. JT states, "Oh…you know a normal diet….I eat pizza, pasta, ten pieces of fruit a day at least. I do make sure that I get my vegetables in though because I really like potatoes, corn, and peas." After further assessment, the vital signs included: blood pressure (BP) 160/82, heart rate (HR) 88, temperature (T) 37° C, peripheral capillary oxygen saturation (SpO2) 98% room air. JT claimed he exercises once a week by walking around the block multiple times, but has been unable to continue this due to a wound on his foot that has been bothering him for weeks. JT's history included: obesity (BMI of 38), dyslipidemia, atherosclerosis, coronary artery disease, and type II diabetes mellitus (diagnosed 2 years ago). Also, JT's recent glycated hemoglobin (HgbA1C) is 10%.

What are 3 educational priorities you would recommend for the nurse to implement with their education plans? How or what teaching strategies would work best based on this scenario?

Using the MyPlate and meal plan handout create three meals (Breakfast, Lunch, and Dinner) for the patient using the diabetic diet and carbohydrate counting.

Appendix G

Table 1

Pre-Test and Post-Test Evaluation Results

	Pre-Test Overall	Post-Test Overall
Mean (M):	7.580	8.700
Standard Deviation (SD):	1.304	1.155
Mean Difference:	-1.120	
Degrees of freedom (df):	24	
Eta Squared:	.429	
T-Score:	-4.33	
p:	.0002	

$p < .05$

Appendix H

Table 2

Content Analysis Results for the One Minute Reflection

Question 1: What was one thing that you will take away from today?

Themes	Number of Students	% of Students
Diabetes Can Lead to Amputation	1	4
Diabetic MyPlate and Carbohydrate Counting	11	44
Diabetes has many Comorbidities	1	4
Patient Education on Disease Prevention	3	12
Hormones Released from Kidneys	1	4
How to Work with Patients	1	4
Exercising is Important	3	12
Complications of type II diabetes mellitus	3	12
Diabetic Statistics	3	12

Question 2: How will the information you learned today impact your future nursing practice?

Themes	Number of Students	% of Students
Educating Patients with type II diabetes mellitus	14	56
To Better Manage Symptoms	6	24
Develop Skills in Meal Planning with Patients	3	12
Help Facilitate Patient Discussion	3	12
How to Prevent Complications	2	8

Appendix I

Table 3

Rating Scale for Teaching Effectiveness

1 = strongly disagree   5 = strongly agree

	Mean (M)	Standard Deviation (SD)
Valuable Learning Experience	4.476	0.602
Teaching Strategies Encouraged Learning	4.381	0.669
Environment Helped Learning	4.381	0.590
Effective Communicator	4.381	0.590