RUNNING HEAD: DIABETES SELF-MANAGEMENT EDUCATION

Helping Diabetic Patients Help Themselves: Teaching Patients How to Manage Their Diabetes Through Diabetic Self-Management Education (DSME)

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"On my honor, as a student, I have not given nor received aid on this assignment" –Nneka Okoye

Abstract

A significant amount of the United States population is at risk for developing diabetes or has been already clinically diagnosed with the disease. The American Diabetes Association (2007) reported 1.6 million new cases of diabetes occurred in the age population 20 and older and 23.5 million of them have diabetes. That is almost twice the amount of those in the age 60 and older population (12.2 million). An intervention called diabetes self-management education (DSME) can help decrease the incidence of diabetes in this country. DSME involves monitoring blood glucose levels several times throughout the day, adhering to medication regimens, eating nutritiously, exercising appropriately, monitoring blood pressure and dealing with the stressors that accompany having a chronic disease. This intervention uses sound evidence-based research and is composed of standards that guide care for health care providers. The DSME focus on prevention, self-awareness, self-knowledge, health promotion and self-management are integral strengths that NPs contribute to help sustain optimal target outcomes in care for diabetic patients (Watts et al., 2009). In the end, DSME supports the premises of holistic health in that both the APN and patient can promote the patient's individual responsibility for self-care.

Over the years, diabetes mellitus is a chronic disease that has increasingly become prevalent in the United States population. The American Diabetes Association (2007) reported 17.9 million people are diagnosed with diabetes while 57 million people are pre-diabetic. Many of those who have diabetes are between the ages of 20 and 59. When one thinks about this disease, it is assumed that it affects mostly the older adult population. This is not the case. The American Diabetes Association (2007) reported 1.6 million new cases of diabetes occurred in the age population 20 and older and 23.5 million of them have diabetes. That is almost twice the amount of those in the age 60 and older population (12.2 million). The statistics indicate an alarming amount of adults are battling diabetes mellitus and are suffering from complications earlier in life. Interventions implemented by health care providers to prevent and delay the progression of this disease are important.

Advanced practice nurses can play an integral role in developing interventions to prevent complications and improve health outcomes. Many studies connote advanced practice nurses (APN^{s}) as having the knowledge, competence and skill set to manage chronic diseases such as diabetes mellitus. APN^{s} are trained to think holistically, to foster team building (a factor in implementing planned care), and to educate and motivate patients" (Watts, Gee, O'Day, Schaub, Lawrence, Aron & Kirsh, 2009) which is important in getting diabetic patients to learn about how to self-manage their diabetes and actively participate in their own care. The promotion of self-care through diabetic self-management education will be discussed in this paper. Helping and empowering diabetics to manage their health is an essential step in preventing pre-diabetics from being clinically diagnosed with diabetes and preventing or delaying diabetic complications. Dorothea Orem's Self-Care Deficit Theory will provide the theoretical foundation needed to support the intervention.

Clinical Nursing Problem

Diabetes mellitus is a disease that involves problems with the human body's ability to metabolize sugar. It is due to the body's inability to produce adequate amounts of insulin or respond to the presence of insulin. The insulin deficiencies can cause high blood glucose levels, which can contribute to ongoing health problems and complications. The Center for Disease Control (2009) reported high levels of blood

glucose could lead to health complications such as heart disease, blindness, stroke, hypertension, kidney failure, poor dental health, nerve damage and peripheral vascular disease. If not treated early, diabetes can quickly progress and as a result cause death from diabetes-related complications. More than 220,000 people die from diabetes-related complications each year, making it the 6th leading cause of death in the United States (CDCFoundation.org, 2009). The risk for death among people with diabetes is about twice that of people without diabetes of a similar age (CDC, 2007). Given the high incidence of diabetes in the ages 40-59 population, evidence-based interventions must be implemented to prevent this population from suffering complications attributed to the disease.

New Cases of Diagnosed Diabetes in People Aged 20 Years or Older, by Age Group, United States, 2007

Number of New Cases	Age Group (Years)
281,000	20–39
819,000	40–59
536,000	≥60

Source: 2004–2006 National Health Interview Survey estimates projected to year 2007
http://www.cdc.gov/chronicdisease/resources/publications/AAG/ddt_text.htm

The extremely large pre-diabetic population can also benefit from such interventions because those with pre-diabetes can reverse their symptoms decreasing their risk for developing diabetes and its complications. There are many interventions that can improve a diabetic's health outcome, but there is one intervention that seems to yield high quality health outcomes-teaching self-care (self-management).

The formal process for teaching self-care is diabetes self-management education (DSME). For diabetics, learning how to manage their care is vital in preventing complications and delaying the disease process; yet, many diagnosed with diabetes lack the skill, behavior and knowledge needed to optimally manage their care. DSME is a "collaborative process in which diabetes educators help people with or at risk for diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions" (CDC, 2007). It also requires the patient to possess health-seeking behaviors-behaviors that facilitate the learning process and self-care actions. Many pre-diabetics can also benefit immensely from DSME. Many research articles also proclaim the importance of DSME as an intervention that helps to improve

and maintain health in diabetics. A systematic review of 72 studies indicated self-management training in diabetic patients lowered blood pressure, improved glycemic control, lowered lipids and decreased weight (Norris, Engelgau, Narrayan, 2001). Understanding self-management is so important Healthy People 2010 created an objective aimed at having at least 60% of the population diagnosed with diabetes to have formal diabetes education and reducing the number of people clinically diagnosed with diabetes. In a survey conducted by the American Association of Diabetes Educators (AADE) and the American Diabetes Association, educators in half of the DSME programs reported an average visit volume of fewer than 50 visits per month and 19% reported only 51-100 visits per month. According to Healthy People 2010, only 45% received formal education in 1998. Trends have shown a steady increase in diabetics attending self-management classes, but goal of 60% has yet to be reached. The inception of the National Diabetes Education Program (NDEP) in 1997 has been attributed to the increasing numbers of people being educated about diabetes and self-management.

Percentage of Ever Attended a Diabetes Self-Management Class for Adults Aged ≥ 18 Years with Diabetes, by Age, United States, 2000–2007

Year	Number of States Reporting Data	Age Group								Total	
		18–44		45–64		65–74		75+			
		%	Std Error	%	Std Error	%	Std Error	%	Std Error	%	Std Error
2000	47	53.8	3.0	51.3	1.4	51.7	1.7	35.9	2.2	49.5	1.0
2001	43	53.2	2.1	54.4	1.3	50.1	1.5	40.7	1.9	51.2	0.8
2002	45	57.8	2.2	55.5	1.3	51.6	1.7	46.8	2.1	53.6	0.8
2003	47	57.8	2.1	52.2	1.1	51.6	1.4	41.4	1.5	51.2	0.7
2004	42	59.6	1.9	56.4	1.1	51.6	1.4	43.8	1.6	53.7	0.7
2005	39	55.4	2.2	55.4	1.0	52.4	1.4	45.5	1.5	53.1	0.7
2006	43	55.2	2.0	56.2	1.0	53.8	1.2	46.4	1.3	53.8	0.6
2007	38	59.8	2.1	58.2	0.9	54.0	1.3	46.5	1.3	55.4	0.6

Data Source: Information came from the CDC's Behavioral Risk Surveillance System. The data was computed by CDC's Division of Diabetes Translation personnel.
http://www.cdc.gov/diabetes/statistics/preventive/tNewDEduAgeTot.htm

Understanding the complexity of diabetes self-management can be very difficult for a diabetic patient. This is why DSME is needed in the community. Diabetes self-management involves monitoring blood glucose levels several times throughout the day, adhering to medication regimens, eating nutritiously, exercising appropriately, monitoring blood pressure and dealing with the stressors that accompany having a chronic disease. Assessing self-management skills and knowledge of diabetes at least annually and providing or encouraging continuing education is highly recommended for this population (ADA, 2001; Norris, Nichols, Caspersen, Glasgow, Engelgau, Jack, Snyder, Carande-Kulis, Isham, Garfield, Briss, & McCulloch, 2002). Self-care/management, self-care deficit, self-care requisites, self-care agency and nursing systems are major concepts of Dorethea E. Orem's Self-Care Deficit Nursing Theory. This theory will help to support DSME and confirm why it is important for diabetic patients to participate in diabetes self-management education.

Self-Care Deficit Nursing Theory

The Self-Care Deficit Nursing Theory (SCDNT) is a general theory that encompasses three different theories: theory of self-care, theory of self-care deficit and theory of nursing systems. This paper will discuss the three theories and also focus on 3 other concepts: self-care agency, therapeutic self-care demand and self-care requisites. The theory of self-care is described as the practice of activities that maturing and mature people initiate and perform, within time frames, on their own behalf in the interest of maintaining life, healthful functioning, continuing personal development and well-being through meeting known requisites of functional and knowledge development (Orem, 2001; Marriner-Tomey & Alligood, 2006). "Self-care must be learned and it must be performed deliberately and continuously in time and in conformity …" (Marriner-Tomey & Alligood, 2006; Taylor, Renpenning, Geden, Neuman & Heart, 2001). This theory helps one to understanding what is required for the average maturing and mature human to participate in self-care or to take car of self. The human being must learn to perform duties that benefit their health and also understand why they must perform these duties. The human being must perform self-care duties deliberately and with free will. They

cannot be forced or coerced to perform self-care duties because it will take away the human being's free will and initiative which is what is needed to adequate perform self-care activities. In order for the person to participate in self-care, they must have self-care agency. Self-care agency is the person's innate ability to actually meet the requirements needed to participate in adequate self-care. It is the person's internal drive. It is the driving force within the person to establish a goal for oneself and meet the goal within an established period of time. Without self-care agency, the person can have deficit in self-care to which they are unable to adequately manage and maintain health on their own. Marriner-Tomey & Alligood (2006) explain self-care deficit to be "a term that expresses the relationship between the action capabilities of the individuals and their demands for care" (p. 273). The human being possesses limitations that can prevent them from adequately participating in self-care. These limitations causes the person to completely or partially be incapable to care for themselves and engage in the continuing performance of care measures to control or in some manage their own care (Marriner-Tomey & Alligood, 2006). If the nurse is aware of the limitations of the patient, the nurse can adjust the delivery of care to meet the needs of the patient and help patients help themselves. Self-care deficit is the relationship between the patient's care measures (e.g., keeping blood pressure below < 130/80) and their powers of self-care agency in which developed self-care capabilities within self-care agency are not operable or not adequate for knowing and meeting some or all components of the existent or projected summation of care measures (Marriner-Tomey & Alligood, 2006; Orem, 2001). It is important for patients to understand what is required of them to maintain life, healthful functioning, personal development and well-being and the actions needed to fulfill them.

Self-care requisites are formulated and expressed insights about actions to be performed that are known or hypothesized to be necessary in the maintenance of life, healthful functioning, continuing personal development and well-being. They are the reasons why self-care is undertaken (Marriner-Tomey & Alligood, 2006; Orem, 2001). Orem divides self-care requisites in three parts: universal, developmental and health deviation. Universal self-care requisites focus on the needs common to all individuals participating in self-care. They include:

1. Maintenance of sufficient intake of air

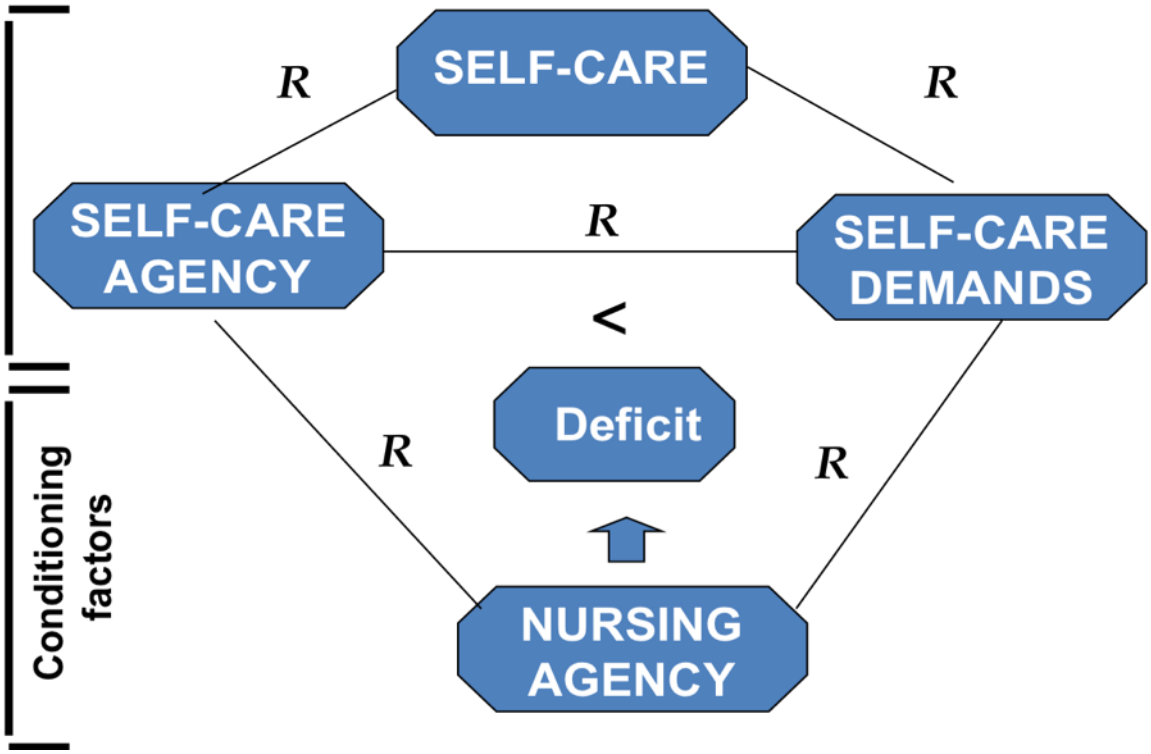
2. Maintenance of sufficient intake of food.
3. Maintenance of sufficient intake of water.
4. Provision of care associated with adequate elimination processes and excrements.
5. Maintenance of balance between rest and activity.
6. Maintenance of balance between solitude and social interaction.
7. Prevention of hazards to human life, human functioning, and human well-being.
8. Promotion of human functioning and development within social groups in accordance with human potential, known human limitations, and the human desire to be normal (Orem, 2001).

Developmental self-requisites are needs resulting from maturity or developed from a condition or event. It is targeted towards the prevention of or overwhelming effects of human conditions and life situations that can adversely affect human functioning and development (Marriner-Tomey & Alligood, 2006; Orem, 2001). The person and environment can affect health. It is important to understand how to have the environment and person positively influence the person. Health deviation self-care requisites are needs resulting from illness, injury and disease or its treatment. "The characteristics of health deviation as conditions extending over time determine the kinds of care demands that individuals experiences as they live with the effects of pathological conditions and live through their durations" (Marriner-Tomey & Alligood, 2006, p. 270). If one understands the health deviation self-care requisites of the patient, goals can be established that attribute towards health maintenance, healthful functioning, personal development and well-being. The goals also drive actions (care measures) needed to meet therapeutic self-care demand. Therapeutic self-care demand "consists of the summation of care measures necessary at specific times or over a duration of time for meeting all of an individual's known self-care requisites" (Marriner-Tomey & Alligood, 2006, p. 270) specifically for existent conditions and circumstances using actions and methods that create a balance between health, life, and well-being. Care measures for fulfilling self-care demand also have a technological aspect to which instruments can be utilized to measure and monitor factors of health. Nurses are important part of SCDNT because it is with the help of the nurse; patients can participate in adequate self-care. With that, Orem developed the theory of nursing systems to which describes the series of actions a nurse must take to meet the patient's self-care requisites and self-care demands as determined by the patient.

Orem suggests that the nurse should use their role to create a system that helps the patient who is at risk for self-deficit or is has existing self-care deficit. Orem created three variations in the nursing system:

1. Wholly compensatory- the patients cannot meet their own self-care demands at all and relies on the nurse to fulfill the demands.
2. Partially compensatory- the patient can meet some self-care demands, but the nurse must help meet others.
3. Supportive-educative- the patient can meet self-care demands, but needs help in decision-making, behavior control or knowledge acquisition.

Utz & Ramos, 1994, p 117



Source: UVACollab https://collab.itc.virginia.edu/portal/site/d162ed0f-70d7-42e7-b958-5a636982e040/page/12c12b81-8d0e-4fec-a0ab-8c0e677d5f48

The Self-Care Deficit Nursing Theory is a theory that can guide nursing practice. It can help direct interventions and help them be executed in a way that can positively affect the person as a whole. It can help the nurse understand the complex demands patients face when dealing with a chronic disease. It can also help patients incorporate their innate strength (self-care agency) to perform actions required to improve and maintain health.

Diabetes Self-Management Education (DSME)

Funnell, Brown, Childs, Haas, Hosey, Jensen, Marynuik, Peyrot, Reader, Siminerio, Weinger & Weiss (2007) describe diabetes self-management education (DSME) as the ongoing process of facilitating the knowledge, skill, and ability necessary for diabetes self-care. It is a process that incorporates the needs, goals, and life experiences of the person with diabetes and is guided by evidence-based standards. The overall objectives of DSME are to support informed decision-making, self-care behaviors, problem-solving and active collaboration with the health care team and to improve clinical outcomes, health status, and quality of life. DSME is an intervention that has several components targeting knowledge, skill and behavioral development. It is designed to improve diabetes knowledge, problem solving, and skill performance through instruction, counseling and behavioral interventions (Jack, 2003). For diabetics or pre-diabetics, the goal is to "improve self-management and adherence practices by affecting intermediate outcomes such as diabetes knowledge (e.g. basic procedures to manage hypoglycemia, role of insulin), psychological measures (e.g. locus of control, problem solving, self-efficacy, coping skills, optimism, self-esteem), and behavioral measures (e.g. blood glucose testing, physical activity, eating behaviors, foot care), which affect short-term outcomes (e.g. weight, body mass index (BMI), blood pressure, HbA1c, blood glucose)" (Jack, 2003).

Funnel et al. were part of task force put in charge to deem the DSME current standards as appropriate, relevant and with scientific merit. According to the standards, an APN implementing this intervention would:

1. Determine the diabetes educational needs of the target population(s) and identify demographic variables to maximize the effectiveness of DSME and focus on maximizing resources available.

2. Designate a coordinator to oversee the planning, implementation, and evaluation of diabetes self-management education. The coordinator would have academic or experiential preparation in chronic disease care and education and in program management. This role is essential because it ensures that quality diabetes education is delivered through a coordinated and systematic process. An APN has the skills required to meet this standard especially with a diabetes educator certificate.

3. Provide one or more instructors. The instructors will have recent educational and experiential preparation in education and diabetes management or will be a certified diabetes educator. The instructor(s) will obtain regular continuing education in the field of diabetes management and education. At least one of the instructors will be a registered nurse, dietitian, or pharmacist. A mechanism must be in place to ensure that the participant's needs are met if those needs are outside the instructors' scope of practice and expertise.

4. Provide a written curriculum reflecting current evidence and practice guidelines with criteria for evaluating outcomes. Assess needs of the individual with pre-diabetes and diabetes to determine which of the content areas listed below are to be provided:
    a. Learning about diabetes disease processes and treatment options
    b. Incorporating nutritional management into lifestyle
    c. Incorporating physical activity into lifestyle
    d. Using medication(s) safely and for maximum therapeutic effectiveness
    e. Monitoring blood glucose and other parameters and interpreting and using the results for self-management decision making
    f. Preventing, detecting, and treating acute complications
    g. Preventing detecting, and treating chronic complications
    h. Developing personal strategies to address psychosocial issues and concern
    i. Developing personal strategies to promote health and behavior change

5. Develop an individual assessment and education plan the participant and instructor(s) collaboratively create to direct the selection of appropriate educational interventions and self-management support strategies. This assessment and education plan and the intervention and outcomes will be documented in the education record.

6. Develop a personalized follow-up plan for ongoing self-management support collaboratively created by the participant and instructor(s). The patient's outcomes and goals and the plan for ongoing self-management support will be communicated to the referring provider.

7. Measure attainment of patient-defined goals and patient outcomes at regular intervals using appropriate measurement techniques to evaluate the effectiveness of the educational intervention.

8. Measure the effectiveness of the education process and determine opportunities for improvement using a written continuous quality improvement plan that describes and documents a systematic review of the entities' process and outcome data (Funnell et al., 2007).

These standards help to create measureable goals and outcomes and are geared towards helping diabetics help themselves with the help of evidence-based practice and educated healthcare professionals.

The APN involved in DSME must be a certified diabetes educator (CDE). DSME can be reimbursed for up to 10 hours of initial education and 2 hours annually for follow-up; therefore, services geared towards follow-up maintenance visits, newly diagnosed patient education sessions, patients learning new skills and medication routines, patients with complex regimens, and patients who were having diabetes management issues should be encouraged (Siminerio, Ruppert, Emerson, Solano & Piatt, 2008). DSME must be implemented based on evidence-based practice and in conjunction with the American Diabetes Association (ADA) Medical Standards of Care and the National Standards for DSME "to provide consistency and benchmarking for the provision of DSME within the practices" (Siminerio et al., 2008, p. 68). Included along with providing patient education, the APN must also provide the practice with updates on new therapies, and treatment algorithms, reminders on meeting standards of care and evidence-based literature for both staff and patients (Siminerio et al., 2008). This intervention is best implemented in the community, but should not replace the role of the clinical/in-patient setting.

Self-Care Deficit Nursing Theory in Relation to Diabetes Self-Management Education

SCDNT emphasizes APN[s] can play an integral role in the care of a diabetic patient through self-management education. Helping patients become active participants in the management of their care yields positive outcomes that empower the patient. DSME facilitates the act of self-care, the actual performance of self-care actions by individuals to manage their diabetes. With DSME, a diabetic can participate in self-care by learning to maintain near-normal glucose levels. According to the DSME standards, this by participating in self-care actions such as: incorporating nutritional management into lifestyle, incorporating physical activity into lifestyle and using medication(s) safely and for maximum therapeutic effectiveness. DSME instructors should possess the ability to help patients engage in these self-care actions and believe they have the capacity to

react to their needs accordingly. DSME creates an environment conducive to patients learning to be capable of perceiving and evaluating their needs. Self-care can be influenced by age, gender, developmental state, health status, and personal and environmental resources (Orem, 2001) and DSME attempts to cover those bases by providing services such as counseling, education, goal-attainment processes and personal development strategies. Orem (2001) proposes self-care as the person's exercise of self-care agency and performance of diabetes self-care actions that promotes the maintenance of life and healthful functioning.

DSME promotes self-care agency. Internal factors such as self-confidence, self-esteem, self-awareness, self-knowledge, personal beliefs and values can interfere with a person's self-care agency. Orem explains these human characteristics result from interactions with the environment. Environmental factors contribute to the development of internal factors. Any negative disturbance of environment factors can affect the patient's self-care agency; thereby; disrupting self-care actions. DSME enables patients maintain self-care agency by promoting the personal development, diabetes knowledge and treatment options, coping skills, self-care skills, health value, motivation, decision-making, interpersonal skills, persistence, and purposeful goals. SCDNT lets APN[s] understand the relationship between self-care agency and therapeutic self-care demands is influenced by basic conditioning factors that may or may not be expressed as a deficit (Sousa & Zauszniewski, 2005).

Therapeutic self-care demands include diabetic patients keeping a tight control over their blood pressure (<130/80), monitoring blood glucose, eating nutritiously, and dealing with environmental stressors appropriately over time. It also includes interpreting health measurement data (e.g., glucose, BP, lipid and HbA1C levels) and using the results for self-management decision-making. The demand for therapeutic self-care in regard to health deviation self-care requisites refers to those health changes that bring about needs for action to prevent further problems or to control or overcome the effects of the existing deviations from health (Kumar, 2007; Orem, 2001). DSME helps patients to learn and utilize personal strategies to address psychosocial issues and concern and personal strategies to promote health and behavior change (Funnel et al., 2007).

DSME helps to determine whether there is a self-care deficit within the patient. If there is a deficit, DSME will help the patient overcome self-care deficit and help the patient become capable of performing self-care actions to meet the needs for maintaining life, health, personal development and well-being. DSME supports self-management by providing methods and opportunities for patients to be empowered and prepared to meet self-care requisites and demands. A diabetic patient's health can be influenced by both internal and external factors and can affect self-care agency. DSME provides ways for patients to be engaged in their health outcomes and puts them at the forefront of their health. "Four influencing factors are proposed in the research model for diabetes self-care management: Diabetes knowledge is a personal (internal) conditioning factor proposed by Orem. Social support is an environmental (external) conditioning factor proposed by Orem" (Sousa & Zauszniewski, 2005, p. 63) while self-care agency is another major concept in Orem's SCDNT.

The nursing systems theory is applied in DSME because APN[s] in the clinical setting help diabetic patients hone decision-making skills, practice physical skills and develop self-knowledge based on the patient's self-care demands. In order for this to be done, the APN must gather, "organize and utilize data to promote efficient and effective" self care (Watts, 2009, p. 168). DSME is a supportive-educative system that helps the patient with knowledge acquisition, behavior control or change and decision-making. It based on what the patient needs and what the patient is able to do. The APN is involved in the patient's continuity of care and acts an agent for facilitating evidence-based, quality care and education to satisfy the needs of the diabetic population. The APN is involved in measuring outcomes that indicate the result of a process and progress (Funnel et al., 2007). Doing this helps to provide continuity of care and visually see if the intervention is working for the patient. It requires a therapeutic relationship to exist between the APN and patient.

Discussion

This intervention is clearly supported by the Self-Care Deficit Nursing Theory based on the concepts involved and evidence that supports the concepts. The theory delineates what it takes for humans to engage in self-care actions that prevent or delay complications in diabetes. The theory provides a guide for pre-diabetics actively

participate in care measures that prevent them from being clinically diagnosed with the disease. Once the theory is understood, one can see how DSME parallels concepts of the theory. SCDNT is also very applicable to the standards of DSME. Many studies show DSME is an effective way to decrease the clinical diagnosis of diabetes and prevent or delay diabetic complication. The standards of DSME as written by Funnel et al. (2007) wants formal diabetic education to be responsive to advances in knowledge, treatment strategies, educational strategies, psychosocial interventions, and the changing health care environment. They would like continuous quality improvement that leads to improvement in the delivery of patient education.

Conclusion

Teaching and encouraging self-care management among the adult diabetic population is more than just providing tools and information; it is about the exchange of information between the APN and patient. It is about understanding the complexities involved in managing diabetes and that a relationship must be established. A relationship between the APN and patient and a relationship between the patient and their body must be established. Creating an empowering and motivational environment for teaching self-management stimulates the patient to actively participate in their care and seek information about their care. Self-management is important because no one understands the patient's body more than the patient themselves. They, in turn, have the ability to adjust treatment and practices because of their self-care agency. Of course, this is under the consultation of DSME educators and practitioners involved in their care. Implementing the DSME into the community and primary care practice "provides an opportunity to reach the majority of diabetes patients with DSME services and has the potential to enhance care for those patients who are unable to meet target goals" (Siminerio et al., 2008, p. 272). Dorothea Orem's Self-Care Deficit Nursing Theory provides the theoretical foundation needed to understand this. It gives rise to the assumption that diabetic patients, along with the evidence-based education provided by the APN, can learn to successfully manage their diabetes. The learning of self-management, in turn, will delay the progression of diabetes and/or prevent complications. The APN's role provides continuity and organization for other team members to collaborate for optimal outcomes in DSME. The DSME focus on prevention, self-

awareness, self-knowledge, health promotion and self-management are integral strengths that NPs contribute to help sustain optimal target outcomes in care for diabetic patients (Watts et al., 2009). In the end, DSME supports the premises of holistic health in that both the APN and patient can promote the patient's individual responsibility for self-care.

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