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Improving Quality of life in Older Adults with Depression and Diabetes through Medication Compliance Education

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,

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2016

Abstract

Improving Quality-of-Life in Older Adults with Depression and Diabetes through

Medication Compliance Education

by

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MSN, Adelphi University, 1997

BSN, Adelphi University, 1986

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Walden University

March 2016

Abstract

Diabetes and depression are prevalent diseases that cause morbidity and mortality. Diabetes is a heterogeneous metabolic disease in which hypoglycemia is a central feature. Depression is associated with abnormalities in metabolically significant biological pathways, increased counter-regulatory, hormone release, and alteration in glucose transport function. Depression occurs in some individuals with diabetes and is associated with poor metabolic control, inadequate control of diet, and poor adherence to medication that can decrease quality of life. The prevalence of depression in Type 2 diabetes mellitus patients is significantly higher in the over 55 year old population than in the general public. The purpose of this quality improvement project was to assess whether a medication compliance program would improve the quality of life of older adults diagnosed with depression and diabetes. Orem's self-care deficit theory provided a theoretical framework to guide and assist the patient with depression and diabetes to meet self-management regimen. The project question investigated whether compliance education program could improve the quality of life of adults with depression and diabetes. A convenience sample of 28 patients diagnosed with depression and diabetes participated in the program with pre- and post data collection. Outcome data were collected pre and post intervention via the World Health Organization's Quality of Life Questionnaire and calculated using percentage difference, revealing an improvement in quality of life. There were compelling improvements in physical health (+28.5%), social relationships (+32.3%), and environment (+25%). Measurable improvements were also seen in physical health (+15.1) and in general health (+3.6). These findings may serve to influence practice and can lead to positive social change in this population by decreasing the risk of complications and improve the well-being of these dual diagnosis patients.

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Dedication

I must first dedicate this work to my Lord and Savior, who provided me with the strength, guidance and the knowledge that I needed to complete this DNP journey. I will also dedicate this work to my husband,Nashroll, who has been very supportive throughout this process. Nash thank you for your patience, encouragement, and love.

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Section 1: Overview of the Evidence-Based Project

Introduction

The worldwide burden of diabetes is projected to be 5.4% of the adult population by the year 2025 (Hayek et al., 2013). Quality-of-life (QOL) refers to the ways in which health, illness, and medical treatment influence an individual's perception of functioning and well-being (Eren, Erdi, &Sahin, 2007). Diabetes mellitus (DM) is a chronic medical illness that places serious constraints on the life of the patient (Eren et al., 2007). Diabetes is a prevalent disease that causes significant morbidity and mortality and is associated with substantial health care cost in the United States (Edge, Zheng, &Simpson, 2002). The disease is associated with multiple medical complications that decrease health related QOL and contributes to early mortality (Hayek et al., 2013). Depression is equally prevalent in the United States. It is estimated that approximately 3% of men and 5-9% of women have clinical depression (Edge, Zheng, & Simpson, 2002). The prevalence of depression in Type II DM patients is two to three times more in diabetic patients compared to the general population (Eren et al., 2007; Zagarins, Allen, Garb, & Welch, 2012).According to Eren et al. (2007), DM is related to a significant deterioration in patients' QOL and depression is often accompanied by marked reductions in QOL.

Background

Depression is a significant problem among patients with diabetes, with an estimated prevalence of 15-20% compared with 2-9% of the population not suffering from depression in the United States(Gonzalez et al., 2007). Depression is a devastating

disease that adversely affects all aspects of one's existence. It is a pervasive disorder that afflicts individuals of all ages, cultures, and races. Nearly 340 million people worldwide, including 18 million in the United States, suffer from depression (Williams, Clouse, &Lustman, 2006). Given the high prevalence of depression in diabetes patients, understanding the relative importance of depression and diabetes-specific emotional distress on glycemic control is critical for formulating effective strategies to decrease diabetes-related morbidity and mortality (Zagarins et al., 2012). The increased prevalence of depression in diabetic patients shows that depression has a negative influence on QOL (Eren et al., 2007).

Project Question

DM is chronic medical illness that places serious constraints on the life of patients (Eren et al., 2007). The prevalence of depression in DM patients is greater when compared to the general population (Eren et al., 2007). Therefore, the project question is: Does medication compliance education improve QOL scores as measured by pre and post World Health Organization's Quality of Life Questionnaire (WHOQOL-BREF questionnaires in older adults with dual diagnosis of depression and diabetes? Educating and supporting patients in managing their daily life with depression and DM is an important goal. Thakurdesai, Kole, and Pareek (2004) believed that educating patients about their health will lead to a better adherence to treatment and will improve their health outcome.

Purpose Statement

This project's focus is on patients with a preexisting diagnoses of both diabetes and depression. The purpose of this quality improvement project was to assess whether medication compliance education improved the QOL in older diabetic patients with depression. The aim of this project was to improve the QOL of adults with depression and diabetes through medication compliance education.

Problem Statement

Depression has been associated with severe diabetes-related outcomes including poorer glycemic control, cardiovascular disease risk factors, a greater diabetes symptom burden, and poorer quality of life (Waitzfelder et al., 2010). DM is a chronic disease that causes serious health complications, such as heart disease, renal failure, and stroke (Kilbourne et al., 2005). Depression has an adverse impact on medication adherence and subsequent health outcomes among older, chronically ill adults (Kilbourne et al., 2005). Depressive symptoms are linked to inadequate treatment adherence of several chronic diseases, including DM, coronary artery disease, asthma, and hypertension (Kilbourne et al., 2005). Older patients may be especially at risk for the adverse consequences of poor medication adherence, in part because of multiple medication use, coexisting chronic conditions, and functional decline (Kilbourne et al., 2005).

Psychiatric disorders are known to deteriorate the control of chronic diseases such as DM (Cezaretto, Siqueira-Catania, Risso de Barros, Salvator, & Ferreira, 2012). Benefits induced by behavioral interventions on lifestyle have shown to be more

pronounced than pharmacological interventions (Cezaretto et al., 2012). Changing

behavior may be aggravated by the presence of psychiatric disorders, which have been

associated with decreased adherence to treatments (Cezaretto et al., 2012). If medication

education for the diabetic patient with depression improves self-care behaviors, it may

also positively affect other chronic medical illnesses with important self-care components

(Williams, Clouse, &Lustman, 2004). One of the most important targets in the

management of patients with diabetes is to control blood glucose levels by proper

treatment, including adherence to prescribed treatment (Al-Qazar et al., 2011).

Management of DM is a lifelong process that requires continuous efforts, both

from the primary care providersand the patients. Patients need to follow their medication

and meal plans, adjust their physical activity, lose weight if they are obese, and monitor

their blood glucose (Al-Qazar et al., 2011). Williams et al. (2004) hypothesized that a

collaborative care intervention may improve functional status, self-care behaviors, and

glycemic control. This quality improvement project evaluated whether medication

education improves QOL in patients diagnosed with diabetes and depression.

Significance/Relevance to Practice

According to Hodges and Videto (2011), a comprehensive needs assessment

begins by looking at a group's QOL. Kettner, Moroney, and Martin (2013) stated that in

determining if individuals have a need, it is important to evaluate existing conditions

against some socially established standards. They further stated that Maslow (1954)

argued that people become aware of their needs in a specific manner, by satisfying the

lower needs before the higher ones(as cited in Kettner et al., 2013).Until physiological survival needs are met (e.g., food and shelter), a person cannot be overly concerned with safety and security (Kettner et al., 2013). Achievement of this second level of need then allows attention to higher levels – the need for love and self-actualization (Kettner et al., 2013). According to Ventegodt, Merrick,and Andersen(2003), Maslow's philosophy concerning consciousness, existentialistic choices, personal growth, and self-actualization points to another way of helping patients. By supporting patients to assume responsibility for their existence and needs, they can improve their own QOL, health, and general ability to function (Ventegodt et al., 2003).

Education of diabetic patients has been shown to have a beneficial effect on general well-being, reducing negative well-being (depression), and improving positive well-being of the patients (Tankova, Dakovska, &Koev, 2004). It is well known that depression is about two to three times higher among people with diabetes compared with the general population. Tankova et al.(2004) asserted that education should be an integral part of diabetes care, with it having been shown to be beneficial not only on glycemic control, but also on the psychological well-being of patients.

Depression, when occurring in those suffering from diabetes, has consistently been associated with poor metabolic control (factors such as increased weight, high blood pressure, and high blood sugar and lipid levels), which leads to more complications of the disease (Chou, Ho,& Chi, 2005). Medication compliance education can have a positive effect on addressing the skills for self-management of the disease and reinforcing

patients' need for adherence to treatment, thereby potentially improving overall health status (Lal et al., 2011).

Evidence-Based Significance of the Project

The value that this project offers to practice is that it provides information to patients and strengthens their knowledge base which could improve their self-care management. According to Bradshaw (2010), evidence-based practice (EBP) informs caring and clinical practices with the best available knowledge, validating nursing as a profession grounded in science. During the past 10 years, EBP has become the dominant theme of practice, education, and policy in health care (Bradshaw, 2010). Professional guidelines on diabetes care all call for self-management education that facilitates effective self-care and positive behavior change for people with diabetes (Lipman & Sherr, 2013). The combination of diabetes and depression may account for at least some people's seeming inability to effectively self-manage their diabetes and achieve optimal outcomes (Lipman&Sherr, 2013).This project supports the Healthy People 2020 goals: to create social and physical environments that promote good health and QOL, healthy development, and healthy behaviors (U.S. Department of Health & Human Services, 2010). 2012). The potential for improving life really lies in helping the patient to acknowledge their own lust for life and the fulfillment of their needs (Ventegodt, Merrick,& Andersen,2003). According to Surucu and Turkey (2012), patients with diabetes must learn to evaluate themselves and decide what action is needed to attend to their needs.

Educating and supporting patients in managing their daily lives with a chronic disease like diabetes is an important goal of therapy (Thakurdesai, Kole, &Pareek, 2004).Therefore, this project is significant to practice through patient education, which focused on lifestyle modification, daily weight management, diet, and medication compliance to improve the QOL of adults diagnosed with depression and diabetes.

Implications for Social Change in Practice

The concept of empowerment is of increasing interest. Empowerment is associated with control, and without control there is a feeling of powerlessness (Lord & Hutchison, 1993). A growing number of people are searching to understand the meaning of empowerment and ways it can be used to change their lives (Lord & Hutchison, 1993). At the individual level, powerlessness can be seen as the expectation of the person that their own actions will be ineffective in influencing the outcome of life events (Lord & Hutchison, 1993).

According to Lord and Hutchison (1993), empowerment is understood as a process for people to take power, and in order to do so they need to gain information about themselves and their environment and be willing to identify and work with others for change. Education is an integral part of managing chronic diseases like depression and diabetes. Depression and diabetes not only have a negative effect on the QOL of patients, but also on their adherence to treatment, which prevents them from making change in their lives.

Definition of Terms

Chronic illnesses: Diseases that do not resolve spontaneously, but are often resolved or prevented by lifestyle changes. Chronic illnesses are responsible for an estimated 80% of the global disease burden worldwide (Nieman& Cheng, 2011).

Compliance or adherence: The extent to which a person's behavior coincides with medical or healthcare advice. Assessing compliance is important for both research and patient care purposes. Poor compliance leads to suboptimal treatment of medical conditions and may lead to adverse health outcomes (Lal et al., 2011).

Depression: A range of mental problems characterized by loss of interest and enjoyment in ordinary experiences, as well as low mood and associated emotional, cognitive, physical, and behavioral symptoms (Penninx, Milaneschi, Lamers, &Vogelzangs, 2013).

Diabetes mellitus: A group of metabolic diseases characterized by abnormally high blood glucose levels. Individuals with uncontrolled diabetes are at risk for developing serious health complications. Type 2 diabetes, in particular, occurs when the pancreas creates insufficient amounts of insulin or when the body becomes unable to use the limited supply of insulin effectively (Fortmann, Gallo, Walker, &Phillis-Tsimikas, 2010).

Empowerment: A process whereby patients have the knowledge, skills, attitudes, and self-awareness necessary to influence their own behavior and that of others in order to improve the quality of their lives (Assimakopoulou, 2007).

*Hemoglobin A1C:*A time averaged blood glucose level during the previous 2 to 3months. This amount is used as a gold standard for long-term follow-up of glycemic control (Hanas& John, 2013).

Needs assessment: Conducted to identify gaps that lead to the development of programs. The assessments are usually done before starting a new endeavor as a critical step for planning and program implementation. A carefully completed needs assessment will specify outcomes, variables, and key process points to be evaluated in the strategies to alleviate discrepancies (Hung &Altschuld, 2013).

Qualityoflife: The ways in which health, illness, and medical treatment influence an individual's perception of functioning and wellbeing (Eren et al., 2008). The World Health Organization Quality-of-Life –Bref (WHOQOL)has 26 items that are derived from WHOQOL-100, which is a multilingual, multicultural, generic quality of life instrument, developed across 15 field centers (Aigner et al, 2006). The instrument has four domains related to quality of life: physical health, psychological health, social relationships, and environment (Aigner et al., 2006).

Self-care: Engaging in behaviors that promote health and limit illness. Self-care maintenance refers to behaviors such as medication adherence and symptoms monitoring that are used to maintain physical stability (Tung et al., 2013). Self-care management refers to how patients respond to symptoms of their disease (Tung et al., 2013).

Self-efficacy: Concepts related to the beliefs about one's own capabilities to produce designated levels of performance that exercise influence over events that affect one's life (Sharoni& Wu, 2012).

Self-management: Extends beyond the patient merely following instructions; it entails teaching the patients to monitor their symptoms, make decisions, and evaluate the impact of such decisions. Self-management is viewed as a cognitive decision making response to symptoms and is conceptualized as a process with stages from novice to expert (Evangelista &Shinnick, 2008).

Assumptions

An assumption of this project was that the information from the mental health clinic database was current and that the participants were able to read and understand English, as the questionnaires were in English. It was also assumed that the participants were honest when answering the questionnaires. Another assumption I held during this project was that the participants would have a desire to improve their QOL. It was also assumed that the program's educational intervention would serve to improve participants' knowledge of how to take their medications to control symptoms.

Limitations

A major limitation of this project was that the population was from a single clinic, and there was no control group to limit the internal validity of the outcome. A second limitation was that the size of the sample was small, and therefore, the results may not generalize to the larger population. Thirdly, the cultural and language differences of the

participants may have influenced the results. Compliance to treatment can be problematic to measure with self-report questionnaires since some participants may have found it difficult to disclose their personal information. The potential for response bias may be attributed to the self-reporting nature of the data. There was always a risk that the patients overestimated their compliance.

Summary

Depression is associated with lower QOL, non-adherence to medical regimen, decrease in self-care behaviors, diabetic complications, and higher costs and healthcare utilization (Lamerr, Jonkers, Bosma, Knottnerus, & van Eijl, 2010). Furthermore, depression has a negative impact on physical activity, is associated with persistently higher hemoglobin A1c levels over time, and may reduce glycemic control through central nervous system regulatory changes (Lamerr et al., 2010).A person with diabetes must learn how to evaluate themselves, decide what actions need to be taken, and perform these actions. Diabetes self-management education is the process of informing, strengthening, and empowering the diabetes patient for diabetes self-care (Suruco& Turkey, 2012). QOL has become an important outcome in healthcare, especially for assessing treatment outcome, and it has become an important outcome criterion for psychiatric interventions in general (Aigner et al., 2006).

Diabetes self-management continues to receive a lot of attention, both from researchers wishing to study ways of enhancing management and from clinicians who deal with the practical aspects of their patients' self-care efforts each day. Many studies

have indicated that education programs for patients with DM have produced significant

benefits in glycemic control (Hayek et al., 2013). The addition of depression to diabetes

has a severe impact on QOLas depression in the diabetic patient may affect the capacity

to maintain medication vigilanceandmaintain good diet and other lifestyle factors

(Goldney, Fisher, Phillips, & Wilson, 2004).

Section 2: Review of Scholarly Evidence

Introduction

The worldwide burden of diabetes is increasing and is projected to be 5.4% of the adult population by the year 2025 (Rasekaba et al., 2012). The United States population models predict that the prevalence of diabetes in adults will increase from 14% in 2010 to at least 21%by 2050 (Rasekaba et al., 2012). According to the World Health Organization (WHO), major depressive disorder is the leading cause of years lost to disability, and evidence consistently shows depressive disorder significantly impairs QOL (Vilhauer et al., 2013). The WHO defines QOL as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns (Vilhauer et al., 2013).

Depression has a major impact on the functioning of patients both mentally and physically (van den Akker, Schuurman, Metsemakers, &Buntinx, 2004). The co-occurrence of depression and other chronic medical conditions has been shown to increase functional impairment and to decrease the QOL (van den Akker et al., 2004). Diabetes and depression share common patho-physiological mechanisms, and depression leads to poorer outcomes and increased risk of complications as a result of peripheral glucose deregulation (Lee et al., 2009). The relationship between poorer QOL and greater depression is stronger in patients with poorer glycemic control than those with better control in individuals with Type II diabetes (Lee et al., 2009). Understanding which dimensions of QOL are associated with the co-morbidities of depression and diabetes is

important for day to day clinical management of this 2004).This review will discuss the etiology of both depression and diabetes, and studies that focused on teaching the participants how to formulate new ways of thinking about their diagnosis and the effect on their QOL, offering specific skills for setting goals, and making problem solving decisions.

Literature Review Strategy

The literature search was conducted to analyze and summarize the information that exists with regard to depression and diabetes and the effect of education on QOL. The search was completed using CINAHL and MEDLINE simultaneously and applying Boolean string searches. Other databases used in the research were Pro-Quest and Sage Full-Text. Burns and Grove (2009) stated that the Boolean operators are the three words: AND, OR, and NOT. The Boolean operators AND and NOT are used with identified concepts. The following key words were also used: *quality-of-life, depression, diabetes, medication compliance,* and *education*. The Boolean string operator AND was used when searching for the presence of two or more terms in the same citation. Only peer-reviewed articles were included and the literature search was based on relevancy to the DNP project. In searching the literature for diabetes and depression, 11,277,312 articles appeared, 330 were reviewed, and 52 were selected. In the search for diabetes and depression and adherence to medication education, 2,284,594 articles appeared, 234 reviewed, and 12 were selected. In the search for diabetes, depression and QOL,3,594,618 articles appeared, 145 were reviewed,and13were selected. In the search

for reliability and validity, five articles were reviewed and two were used. The total
amount of literature used for this project was79 articles.

Specific Literature

There is an increasing recognition that the impact of chronic illnesses and their
treatments must be assessed in terms of their influences on QOL in addition to more
traditional measures of medical outcomes, such as morbidity and mortality (Jacobson,
Samson, & Groot, 1994). Type I and Type II diabetes are typical of chronic illnesses that
can influence QOL because the treatments are burdensome and the complications can be
debilitating and life threatening (Jacobson et al., 1994). DMis a chronic disease that
causes serious health complications, such as heart disease, renal failure, and stroke.
According to Surucu and Turkey (2012), uncontrolled blood glucose level is the basic
problem in individuals with diabetes. Elevated blood glucose level leads to
cardiovascular diseases, nephropathy, neuropathy, lower extremity diseases, amputations,
and visual impairment(CITE).

Depression and DM may result from a common biological vulnerability or from
common environmental risk factors (van den Akker, Schuurman, &Buntinx, 2004).
Depression may increase the risk for DM through increased sympatho-adrenal system
activity or a dysregulation of the hypothalamo-pituitary adrenal axis (van den Akker et
al., 2004). Depression is estimated to be the second leading cause of burden of disease
worldwide (Lamers et al., 2011). According to the WHO, depression is responsible for
the greatest proportion of burden associated with nonfatal health outcomes, accounting

for approximately 12% total years lived with disability (Egede& Ellis, 2010). Depression is associated with lower QOL and nonadherence to medical regimes and self-care behaviors (Lamers et al., 2011).

According to Goldney, Phillips, Fisher, and Wilson (2004), a number of studies, including meta-analyses, have shown the association between diabetes and depression. This is an important public health issue because depressive disorders have generally been associated with the outcomes of chronic diseases like diabetes (Goldney et al., 2004). Empirical research has strongly suggested that depression is more prevalent among adults with diabetes than among the general population (Talbot &Nouwen, 2000). To date, the reasons for the higher prevalence rates of depression in diabetic patients are not yet fully understood (Talbot &Nouwen, 2000). The determination of the presence of a mood disorder caused by a medical condition is a complex issue, especially in the absence of specific markers for depression (Osborn et al., 2011). Individuals with diabetes and co morbid depression have been shown to have poor adherence to diabetes medications, poor adherence to dietary recommendations, poor glycemic control, and more related complications (Osborn et al., 2011).

Increasing evidence has suggested that depression plays an important role in the development and worsening of diabetes (Sacco et al., 2005). In people with diabetes, depression is associated with higher blood sugar levels, poorer adherence to treatment, more medical complications, and higher hospitalization rates (Sacco et al., 2005). Along with medication adherence, the primary components of the diabetic regimen involve

modification in diet and increased exercise (Sacco et al., 2005). Symptoms of depression (e.g., fatigue, hopelessness) may interfere with adherence to these relatively demanding recommendations, culminating in adverse health outcomes (Sacco et al., 2005).Studies have shown that enhanced involvement of patients in treatment decision making is associated with higher patient satisfaction, improved adherence, and improved clinical outcomes (Loh et al., 2007). However, a depressed patient's diminished ability to think, concentrate, or the indecisiveness associated with depression may impair the patient's competence to participate in treatment decision making (Loh et al., 2007).

The prevalence of clinical depression in diabetic patients is approximately twice that of the general population (Pibernik-Okanovic, Ajdukovic, Lovrencic, &Hermanns, 2011). The data in the literature have consistently demonstrated a synergistic interaction between diabetes and depression that increases the risk for poor health outcomes (Pibernik-Okanovic et al., 2011). Compared to patients with diabetes alone, patients with depression and diabetes have poorer self-management (i.e., adherence to diet, exercise regimen, and blood glucose monitoring) and significantly more lapses in refilling oral hypoglycemic, lipid-lowering, and antihypertensive prescriptions (Pibernik-Okanovic et al., 2011).

Depression, long recognized as a consequence of physical illness, is increasingly being perceived as a potential risk factor for compromised health, particularly among older adults (Black et al., 2003). A number of studies cited by Black et al. (2003) have shown that depression predicts the onset of many medical conditions, including

hypertension, heart disease, cancer, stroke, and angina, as well as Type 2 diabetes. Prior research has also shown depression as a predictor of mortality, as well as the onset of disability (Black et al., 2003). Despite this evidence, few studies have examined the influence of depression on the course of chronic disease, particularly with a large sample of older adults living in the community (Black et al., 2003).

In earlier studies, Black(1998,1999) using the Hispanic Established Population for the Epidemiologic Study of the Elderly (EPESE) survey, demonstrated that depressive symptoms were associated with a number of poor health indicators among older diabetic Mexican Americans. These health indicators included elevated rates of co morbid medical conditions (Black et al., 2003). In the study, Black et al. (2003) used longitudinal data from the Hispanic EPESE survey to assess the separate and combined influences of depression and diabetes on the incidence of macro-vascular and micro-vascular complications, functional disability, and mortality among older Mexican Americans. This was a particularly appropriate population for the examination of this relationship because older Mexican Americans experience elevated rates of both diabetes and depression as 25-30% of Mexican Americans aged >65 years have Type 2 diabetes and as many as 25% of these individuals report significant levels of depression (Black et al., 2003).

DM is a heterogeneous metabolic disease in which hyperglycemia is a central feature (Musselman, Betan, Larsen, & Phillips, 2003). The associated abnormalities in protein, carbohydrate, and fat metabolism are the result of insufficient insulin action on peripheral target tissues due to insufficient insulin secretion (Type I), diminished tissue

response to insulin (Type II), or some combination of both (Musselman, Betan, Larsen, & Phillips, 2003). Depression is associated with important patho-physiologic alterations that may contribute to the increase vulnerability of depressed patients to DM (Musselman et al., 2003). Although the underlying mechanisms are poorly understood, depression is associated with abnormalities in metabolically significant biologic pathways--increased counter-regulatory hormone release and action, alterations in glucose transport function, and increased immune-inflammatoryactivation (. Such abnormalities could contribute to insulin resistance and/or pancreatic B-islet cell dysfunction (Musselman et al., 2003). Understanding the bidirectional relationship between depression and diabetes, including the biological, psychological, and socio-cultural pathways of influence, is critical to the treatment and prevention of diabetes (Musselman et al., 2003).

Self-management of chronic illnesses includes working together with healthcare providers, self-monitoring of blood glucose, implementing medication regimens, and following prescribed diet and exercise regimens (Eren, et al., 2006). In the Eren et al. (2006) study, the authors believed that diabetes can have considerable consequences on the quality of everyday life, with possible limitations in physical activity, social life, family relations, and leisure activities. According to Ciechanowski, Katon and Russo(2000),chronic illnesses have shown that depression has been associated with poor adherence to diet and exercise regimens in patients with diabetes. In Eren et al.'s study, there were negative correlations between HbA1c, an indicator of metabolic control, and

QOL scores. The significant overlap between depression and diabetes is also reflected by results from neuropsychological and neuro-imaging investigations (Rustad et al., 2011).

Gonzalez et al. (2007) believed that major depression is a significant problem among patients with diabetes, with an estimated prevalence of 15-20%, compared with 2-9% in the general population. The study by Gonzalez et al. contributed to the extant literature by challenging the categorical conceptualization of major depression as a risk factor for non-adherence to diabetes self-care. Other literature also has suggested that clinically significant levels of depression are associated with a range of poorer self-care behaviors, including adherence to diet, exercise, and prescribed medications (Gonzalez et al., 2007).

DM is the fifth deadliest disease in the United States, and more than a million people develop the disease each year (Grandy, Chapman, & Fox, 2008). The primary risk factors for the development of Type 2 DM include overweight, sedentary lifestyle, age over 45 years, and/or family history (Grandy et al., 2008). African Americans, Latinos, and Native Americans are at increased risk, as are women who have had babies weighing more than nine pounds at birth (Grandy et al., 2008).Grandy et al. (2008) provided evidence of the impact on health-related QOL and depression in a large sample of Type II DM, high risk and low risk groups with a high survey response rate, representative of the U.S. population.

The challenge of poor adherence to medication has been debated for at least 3 decades. This problem has been generally ignored or not perceived as a serious public

health issue (Hayek et al., 2013). Patients' lack of adherence to their medication regimen probably rests on the fact that they perceive their role in their care as largely passive (Hayek et al., 2013).

The worldwide burden of diabetes is projected to be 5.4% of the adult population by the year 2025 (Hayek et al., 2013). The disease is associated with multiple medical complications that decrease health-related quality of life and contribute to early mortality (Hayek et al., 2013). It is well-established that DM requires continuous medical care, self-management by patients, education, and adherence to prescribed medication to reduce the risk of long term complications (Hayek et al., 2013).The mechanism by which behavioral adherence influences depression, remains unclear. Although the effects of physical activity on depression may be physiologically mediated, the influence of both diet and exercise adherence on depression can be more parsimoniously explained by cognitive processes (Sacco et al., 2005). Previous research has supported the association of anxiety/depression and hyperglycemia (Hayek et al., 2013). When these conditions coexist, the risk of developing comorbidities and complications increases, resulting in greater patient suffering and escalating costs (Hayek et al., 2013). Depressive symptoms markedly impair quality of life, especially for those with Type 2 diabetes (Hayek et al., 2013).

General Literature

DM, one of the fastest growing chronic illnesses in the United States, refers to a group of metabolic diseases characterized by abnormally high blood glucose levels. In

2008, the Center for Disease Control and Prevention reported that 24 million people in the United States were diagnosed with diabetes and estimated that another 57 million people met criteria for prediabetes, a condition that puts people at risk for developing diabetes (as cited in Fortmann et al., 2010). Diabetes is a prevalent health condition that is associated with significant morbidity and mortality. An improvement in medication adherence may lead to better glycemic control, which, in turn, may reduce complications and healthcare utilization, such as the likelihood of hospitalization and emergency department visits.

Depression is not a normal part of aging. However, depression is the most prevalent, yet least recognized and most untreated, psychiatric disorder among older adults (Karakus& Patton, 2011). The increased prevalence of depression in diabetes is explained partially by the fact that depression is an independent risk factor for development of type 2 diabetes (Williams, Clouse,&Lustman, 2006).

According to Egede& Ellis (2010), reports from the International Diabetes Federation (IDF) have indicated that the prevalence of DM has reached epidemic levels globally. Estimates for 2010 indicate that 285 million adults have diabetes in the seven regions of the IDF(Egede& Ellis, 2010). It is also believed that by 2025, more than 75% of the world population with diabetes will reside in developing countries (Egede& Ellis, 2010). The countries with the largest populations of adults with diabetes will include India, China, and the United States (Egede& Ellis, 2010).

Depression is another condition with high prevalence worldwide. Approximately 349 million people worldwide suffer from depression at any given time, including 18 million in the United States (Egede& Ellis, 2010). Osborn, Kozak, and Wagner (2010), stated that patients with comorbid depression develop decreased physical functioning and experience increased health care costs and higher rates of disabling and life-threatening complications. Osborn et al. believed that up to half of depressed patients in the general population are undiagnosed or undertreated, but the rates for patients with diabetes are lower (Osborn, Kozak& Wagner, 2010).

Major depressive disorder is a leading cause of disability in the United States (Henke, Chou, Chanin, Zides, &Scholle, 2008). Nearly one in eight individuals have an episode of depression once in their lifetime, and 18.8 million adults suffer from a depressive illness each year (Henke et al., 2008). Henke et al. (2008) described several barriers to the care of depression, which included difficulty diagnosing depression, patient resistance, fragmented mental health system, insurance coverage, and lack of expertise. These barriers are largely consistent with previous empirical research identifying barriers through physician survey (Henke et al., 2008).Given the negative consequences associated with depression, addressing depressive symptoms in diabetic patients is of vital importance and may improve self-care behaviors and help the burden of diabetes-specific symptoms and emotional distress (Lamers et al., 2011).

According to Egede and Ellis (2010), two major hypotheses currently exist to explain the casual pathway between diabetes and depression. One hypothesis asserts that

depression precedes Type 2diabetes. Unfortunately, the mechanisms underlying the association are not clearly understood. In theory, the increased risk of Type 2 diabetes in individuals with depression is believed to result from increased counter-regulatory hormone release and action, alteration in glucose transport function and increased immune-inflammatory activation (Egede& Ellis, 2010).

The second hypothesis is that depression in patients with Type 1 and Type 2 diabetes results from chronic psychosocial stressors of having a chronic medical condition(Egede& Ellis, 2010). This hypothesis is supported by at least two important studies. The first was a study of 8,870 participants from the National Health and Nutrition Examination Survey Epidemiologic Follow-up Survey, who were free of diabetes at baseline, were assessed for depression, and were followed for nine years (Egede& Ellis, 2010). There was no evidence that depression was associated with an incident of diabetes; however, the study did show 3.7-fold increased odds of depression in those with a prior diagnosis of diabetes (Egede& Ellis, 2010). The National Institute of Health defined health disparities as the difference in the incidence, prevalence, morality, and burden of disease and other adverse health conditions that exist among specific population groups in the United States. The Hispanic population exhibits a higher prevalence of Type 2 diabetes, more frequent complications, greater disease severity, and worse outcomes than nonHispanic Caucasians (Fortmann et al., 2012).

Black, Markides and Ray (2003) concluded that speculation regarding the pathways by which depression impacts diabetes falls into two broad categories: psycho-

behavioral and patho-physiological. Depression may influence diabetes through decreased motivation to maintain behaviors that will protect against the development or worsening of diabetes, such as proper weight, diet, and exercise. Black et al. further stated that the study was unique in that it was the first large, population-based study to show that the interaction between depression and diabetes has a synergistic effect on mortality and the development of complications and disability (Black, Markides& Ray,2003).

Rustad, Musselman, and Nemeroff (2011) concluded that diabetes and depression are conditions characterized by systemic inflammation, and both are considered risk factors for cardiovascular disease and mortality. The authors further stated that much of the current literature regarding the intertwined nature of diabetes and depression is cross-sectional in nature. They therefore asserted that future research should focus on longitudinal, prospective studies to determine casual factors (Rustad et al., 2011).

Depression adversely affects the course of coexisting medical illness, contributing to increased symptom burden, functional impairment, and mortality (Williams et al., 2004). Depression first presents in medical settings, rather than mental health settings. Health care providers must be better prepared to manage depression in their diabetes patients (Osborn et al., 2010). Osborn et al. (2010) believed that gaps in the diagnosis of depression may be due to barriers on many levels, including, but not limited to, lack of clear depression treatment guidelines.

Compliance or adherence is defined as the extent to which patients take medications as prescribed by a health care provider and in accordance with instructions given (Cohen, Christensen,& Feldman, 2012; Lal et al., 2011). An accurate assessment of adherence is essential for effective treatment planning. Although there is no gold standard for measuring adherence, the use of a variety of methods has been reported in the literature (Meece, 2013). Other barriers include visit duration, reimbursement structures, and the availability of affordable mental health services (Osborn et al., 2010). Diabetic patients with comorbid depression develop decreased physical functioning, experience increased health care costs, and higher rates of disabling and life-threatening diabetes complications (Osborn, et al., 2010). Collaborative care and structured care, involving a greater role for non-medical specialists to augment primary care, has emerged as a potentially effective intervention to improve quality of care and patient outcomes in patients with depression and medical illnesses such as diabetes (Rustad et al., 2011).

In diabetes, the incidence and severity of complications can be reduced through tight metabolic control, something that can be attained through strict patient self-management and medication compliance (Huang et al., 2007). Assessment of compliance in diabetic care can be accomplished by having the patients monitor their blood glucose levels daily using a glucometer(Huang et al., 2007). To achieve good glycemic control and delay or prevent the disease related medical complications, diabetes self-care management should be adopted as the main modality of care; this includes adherence to diet and exercise, blood glucose monitoring, and compliance with medications.

Symptoms of depression can be measured by using a depression scale and managed with medications and referral to psychotherapy (Huang et al., 2007).

Depressive symptoms in individuals with diabetes are related to worsening of diabetes self-management, poor functioning, and high HbgA1C (Huang et al., 2007). Therefore, medication education may help improve disease management and improve self-care behaviors, improving QOL. Williams, Clouse, and Lustman (2006) stated that the increased prevalence of depression in diabetes is explained partially by the fact that depression is an independent risk factor for development of Type 2 diabetes. Depression adversely affects a number of behaviors that could be relevant, including dietary behavior, tobacco use, and physical activity, cognitive functioning, and adherence to medical treatment (Williams et al., 2006).

Apart from the considerable technological and scientific progress of the last decades in the field of DM, patient education is considered the most noticeable innovation in patient care (Tankova, Dakovska, &Koev, 2004). Numerous studies have demonstrated the beneficial effects of education in terms of glycemic control, decreased hospitalizations, and lower rates of acute complications (Tankova et al., 2004). Because the population is aging, most patients seeking care from primary care physicians will have more than one chronic illness. A coordinated therapeutic approach that considers coexisting chronic disease is essential to effective care (Lin et al., 2006).

Patient education is accepted as an integral part of treatment and effective management of any chronic disease (Tankova et al., 2004). Strategies needed to

maximize the effectiveness of treatment for patients with Type 2DM include improving adherence to medication, physical activity, and nutrition (Meece, 2013). Programs designed to help communication among all health care providers, including doctors, diabetes educators, nurses, and pharmacists, can help to ensure that patients receive the best available collaborative care (Meece, 2013).

In recent years there has been an attempt in nursing to provide care based on evidence-based research (Hashemi et al., 2013). Since the theories and models of nursing direct clinical, research and training activities in this field, the use of using models is one of the key steps to achieve this goal (Hashemi et al., 2013). Orem's Self Care Model is a suitable clinical guideline for planning and implementing the principles of self-care and is used as a conceptual framework to guide self-care programs (Hashemi et al., 2013).

Theoretical Framework

Because conceptual frameworks and models guide the plan and implementation of care in a purposeful way, Orem's self-care deficit theory provides a theoretical framework to guide assistance of a client with diabetes to meet self-management requirements (Kumar, 2007). Through her experiences of nursing and education, Dorothea Orem developed a nursing model based on the concept of self-care deficit (Comley, 1994). Models such as Orem's can be beneficial to the development of the DNP project because they assist with understanding the influences if health behaviors (Hodges &Videto, 2011). Zaccagniniand White (2011) stated that in order to understand her general theory, it is essential to grasp the following six concepts.

First, self-care is initiating and performing activities to maintain life, health, and well-being (Kumar, 2007). It is the patient's continuous contribution to his/her own existence, once the education is given. In this concept, the patients will be able to perform the actions to regulate their health and functioning (Kumar, 2007). They should include daily exercise, should maintain self-monitoring of blood glucose, and should maintain a balance of diet and daily medication regimen.

Secondly, self-care agency is the individual's ability to practice self-care (Kumar, 2007). If, after gaining the knowledge, the patients are not able to take care of their daily lives, then it would show negatively on the care-giver (Kumar, 2007). The patients should be able to perform the function gained by the knowledge through the program and make better decisions regarding their care.

Third, therapeutic self-care demand is the set of self-care activities needed to meet self-care needs (Kumar, 2007). This would include follow-up with providers to prevent further problems.There are certain demands that patients are expected to meet during their lifetime (e.g. maintaining integrity structure and function – be aware of the various changes in the life cycle, follow-up with medical care). The demand for therapeutic self-care in regard to health deficit refers to those health changes that bring about needs for action to prevent further problems (Kumar, 2007).

Fourth, self-care deficit is the gap between self-care agency and self-care demand (Kumar, 2007). This represents the difference between what the individual can do and

what is needed. Many of the patients verbalized that they may not be able to meet their demand due to noncompliance and poor self-care, and so will need an assistant.

The fifth concept is nursing agency, which is the nurse's ability to meet the demands of others (Kumar, 2007). Here, the DNP graduate will be able to share the experience gained through the development and initiation of the program with the patients. This will increase the power of these patients to engage in self-care.

Lastly, the sixth concept associated with Orem's theory is the nursing system, which is the package of nursing responsibilities, roles, relationships, and actions that is organized to meet the client's demand (Kumar, 2007). This concept is similar to the clinic environment in which patients are treated and follow-up care is given (Zaccagnini& White, 2011). The patients in the mental health clinic will have access to a supportive educative nursing system, where the DNP graduate provides information about depression, diabetes, quality ofcareand self-management to enhance self-care (Kumar,2007).

Orem believed that nursing is a practical science with both theoretical and practical knowledge. She taught that nursing is different from other disciplines and services because of its focus on human beings and the human experience (Zaccagnini& White, 2011).Orem's theory is relevant for guiding practice in any care setting or specialty area and can be used to organize care for the identified population of the dual diagnosed patients, based on their self-care deficit and their readiness to learn. According to Terry (2012), readiness to learn and motivation are directly linked to the need to know,

andadult learners must identify a gap in their learning and need to know, placing value on the information presented for the learning to be effective. Using Orem's nursing theory, concepts can be integrated with middle range theories pertaining to health promotion and family systems to guide health assessment, selection of appropriate health outcomes, and carrying out nursing intervention.

According to Comley (1994), Orem views humans as bio-psychosocial beings, capable of and willing to provide care for themselves. This self-care behavior is a learned behavior directed at meeting needs that is continuous throughout adult life. This relates to this DNP project because the aims of patient education extend beyond dissemination of information (Wilson, Mood, Risk, & Kershaw, 2003). The overall intent is to provide patients with information and instructions that will enable them to achieve an optimal level of health and prevent risk (Wilson et al., 2003).

Summary

Living with diabetes is known to impact the individuals' health related QOL and may be associated with an increased risk of developing depression (Rasekaba et al., 2012). Depression leads to poorer outcomes and increased risk of complications due to peripheral glucose deregulation and lower adherence to glucose monitoring, exercise, diet and medical management (Lee et al., 2009). The relationship between poorer QOLand greater depression is stronger in patients with poorer glycemic control than those with better glycemic control (Lee et al., 2009).Renn, Feliciano and Segal (2011) reported that one line of research seeks to demonstrate that depression is a consequence of diabetes,

and that people with diabetes are more likely to develop depression than those without diabetes. Renn et al. (2011) stated that despite the promising yet somewhat contradictory theories, the exact nature of the relationship, and the direction of the relationship remain unknownTankova et al.(2004) stated that patient education is considered the most noticeable innovation in patient care, and that education of patients helps dramatically, but its efficacy varies to great extent according to which aspect of the disease has to be controlled and to the behavioral changes needed.

Section 3: Approach

Introduction

The primary purpose of this program was to determine whether compliance medication education can improve the QOL in older adults diagnosed with diabetes and depression. The aim of this program was to evaluate the impact that a 4-week, one day per week education program on diabetes and depression have on the QOL of these older adults following their participation in the program. This section outlines the approach used in this project.

Project Design/Methods

The design for this project was a quality improvement program based on using a QOL and demographic questionnaire to gather data from patients diagnosed with depression and diabetes. This was a prospective pre-post intervention quality improvement project. The QOL questionnaire was used before and after the educational program to compare the difference in percentage change. According to Dimitrov and Rumrill (2003), the measurement of change provides a vehicle for assessing the impact of services, as well as the effects of specific counseling and allied health intervention. Participants were asked to complete a QOLquestionnaire (Appendix B), which took approximately 10minutes to complete.TheQOLquestionnaire consistedof 26questions asking about participants' physical health, psychological issues, social relationships, and their environment.

Population and Sampling

This project used a convenience sample from an outpatient mental health clinic in a suburban area in thenortheasternregion of the United States. Convenience sampling was inexpensive, accessible, and provided a means to acquire information in explored areas (Burns & Grove, 2011). This method of sampling was selected because the participants shared the same common diagnosis. The population for this projectincluded male and femalepatients between the ages of 50 to 89 admitted at the facility and diagnosed with diabetes and depression. The patient population at the facility was mixed and varied in age. Burns and Grove (2011) considered convenience sampling a weak approach because it provides little opportunity to control bias. Mygoalsin sampling wereto obtain a representative sample; this means that the sample wassimilar to the population from which it was drawn in all areas except that it contained fewer people than the population (Terry, 2012). The sample size for this program was 28 participants.

DataCollection

For the protection of the human subjects, approval fromWalden University Institutional Review Board (IRB) was sought. According to Terry, (2012) this signified participant fulfillments, minimized risk, equitable selection, data monitoring, and provisions to ensure confidentiality and privacy. Before any program-related procedures were instituted, permission was obtained from Walden University IRB (No 07-22-15-0317569). The clinic coordinator was notified of the commencement date for the program. Of the participants that were referred by the clinicians of the facility, 50 were

contacted via telephone for the initial program meeting. The total attendance of participants in the program was 28. There was no consenting for this program, the attendance of these patients to the program indicated that they had consented to participate in the program. The participants signed the attendance sheet at the beginning of each program. The demographic questionnaire (Appendix A)was completed, which consisted of seven items: gender, age, educational level, marital status, race, language, and type of diabetes.

A compliance questionnaire (Appendix C) was also completed by participants. This included questions on participants' symptoms, diet, physical activities, medication regimen, and medical care. The compliance questionnaire information was important in terms of establishing the knowledge, compliance, and the degree of functioning of participants. The success of this education program was dependent on the willingness of these participants to carry out activities that would improve their QOL. Using the QOL instrument (Appendix B), each applicant indicated their responses to perceptions of their QOL on a 5-point Likert scale ranging from 1=very poor or not at all to 5=very good or very satisfied.

After completion of the educational program, at the end of the 4th week, 28 participants took the QOL questionnaire (posttest)at the clinic immediately following the program. The data were collected and kept by meat the clinic and will be kept for a period of 7 years. I input data collected into a secure, password protected computer for my analysis. All demographic and QOL information obtained were protected by placing

the data in a secure paper generated file that was be locked in a secure drawer in my office. Each QOL questionnaire was identified by a three-digit code (e.g.,Bxx). The first digit indicated the questionnaire used and the subsequent two digits indicated the number of participant who completed the program. Data were permanently removed from the computer following analysis completion. This file will be kept for a period of 7 years, as is the policy of the organization and the Walden University IRB.

Timeline

Task A: Upon approval from the IRB, I notified the clinic coordinator of the commencement date of the program, and the participants were also contacted.

Task B: The QOL Demographic and Compliance questionnaires were given to participants and were completed.

Task C: I collected the demographic data, medications compliance form, and the pretest QOL data. Pretest QOL data were input into my secure, password protected computer, were analyzed, and then stored in a locked filing cabinet.

Task D: The 60-minute long,4-week educational program was implemented at the clinic. The educational program was conducted in a group format and the participants took part in the discussion. The physiology of both diabetes and depression were discussed, including discussion on specific symptoms and medications and side effects.

Task E: At the end of the 4-week program, on the last day of the teaching

session, the participants were given the post QOL questionnaire, which they

returned to me before leaving the clinic.

According to Terry (2012), provisions to ensure participants' confidentiality and

privacy will be maintained by simply using a code to identify each participant.The

postsurvey data were entered into the secure, password protected computer for analysis.

Paper copies of the surveys will be stored in a locked filing cabinet designated for this

project for 7 years. After completion of the analysis, the data were permanently removed

from the computer

Instruments

World Health Organization's Quality of Life Questionnaire (WHOQOL-

BREF).This tool measuredthe QOL of the participants in the study. Data were collected

using thisscreening tool at the initial visit (preeducation data). It was also used at the end

of the educational program (post education data). This tool was usedbecause it measured

the participants' QOL, was a reliable and validated tool, and the results can be

generalized to other situations.

The WOQOL-BREFwaschosen as a QOLmeasurement because it has been used

already in studies on several medical conditions such as rheumatoid arthritis, back pain,

also in depression, and has successfully detected changes after effective treatment of pain

conditions (Aigneret al., 2006). According to Dimitrov and Rumrill (2003), internal

validity is the degree to which the experimental treatment (i.e., education) makes a

difference in the specific experimental settings. External validity is the degree to which the treatment effect can be generalized across populations (Dimitrov&Rumrill, 2003). In this study, the pretest and posttest controlled the participants' knowledge, health, etc., and this could contribute to the program's validity. The tool used in this program measured the participants' QOL, and the results of this program can be generalized to other situations. Test criteria were found to be good to excellent, justifying the use of this instrument with a range of patients with chronic and acute illness (Aigner et al., 2006).Reliability, validity, test-retest and sensitivity to change analyses show that the WHOQOL-BREF performs according to international standards (Aigner et al., 2006).

The patients indicated on a Likert scale of 0 to 5 the degree to which they have been bothered by symptoms/issues during the past month. A low score indicated poor QOL, while a higher score indicated better QOL (Aigne et al, 2006).The Likert scale is the most commonly used psychometric scale among psychological measurements that require self-reporting (Wakita, Ueshima, & Noguchi, 2012). According to Burckhardt and Anderson (2003), the QOL is scored by adding up the score on each item to yield a total scorefor the instrument. Scores can range from 16 to 112. The average total score for healthy populations was about 90 (Burckhardt &Anderson, 2003). I received permission (Appendix G) from the WHOQOL-BREFto use the survey for this evaluation.

Demographic Questionnaire. The information obtained from this questionnaire (Appendix A) included the self-report of participant's gender, age, educational level, marital status, cultural background, language, and type of diabetes. These data

werecollected to describe the sample across demographic characteristics, and the variables were expressed as range, frequency, means, and percentages. Results are presented in Section 4.

Compliance Questionnaire. The information on this questionnaire (Appendix C) was collected only at the initial visit. It included the participants' report of their symptoms of diabetes and depression, medical condition and treatment, diet, medications, and physical activities. The compliance report was used by me to obtain information about each participant's knowledge of specific self-care behaviors. It simply asked about their symptom management, dietary and medication regime, and their physical and medical routine. The compliance questionnaire was a self-developed tool, that was based on a" no" or "yes" answer, and is scored on a scale that ranges from 1 to 28 (Scale: Selections 1 to 10 = 1 point each, Selection 11 = 1 to 3 points, Selection 12 = 1 to 4 points, Selection 13 = 1 to 4 points, and Selection 14 = 1 to 7 points).

Protection of Human Subjects

The demographic information did not contain any patient identifiers, and the data were entered in a secured, password protected computer. The copies of the paper data were stored in a locked filing cabinet at the clinic with access only by me. I will not remove any paperwork from the organization that may contain patient identifiers and did not use any patient identifiers in the program evaluation.

Intervention

Creating compelling and effective health programs is an important, though often challenging role. A health program may be defined as any educational activity designed to inform and teach about health-related topics with the goal of affecting behavior (Wyatt, Krauskopt, & Davidson, 2008). The focus of this program was medication compliance. Compliance, as defined by Cohen, Christensen, and Feldman (2012), is the extent to which patients take medications as prescribed by a health provider and in accordance with instructions. Medication compliance is a significant problem that primarily affects patients with chronic diseases (Cohen et al., 2012). Noncompliance is harmful to the health care system, from a clinical as well as an economic standpoint. Barriers to adherence include out-of-pocket costs for pharmaceuticals, side effects, difficulty of managing multiple prescriptions, and patients' understanding of disease and ability to navigate the health care system (Cohen et al., 2012).

According to Darden (2014), adults have intrinsic motivation that relates to real life, they are goal oriented, and the information given must be purposeful and practical. The aim of patient education is to make the patient more knowledgeable about their disease, build a more positive attitude, and make the person an active partner in therapy (Thakudesai, Kole,&Pareek, 2004).In my education program, the physiology of both diabetes and depression were explored, including specific medications and their side effects. This was 90 minutes in total for the first and fourth weeks, and 70 minutes for the second and third weeks. The weekly sessions consisted of group discussion and

information included diabetic and depression handout and booklets. Video tapes with information on nutrition, self-monitoring of blood sugars, and taking medications appropriately were viewed by the participants followed by open discussions. Adults learn differently and have different motivations. The educational program covered all the major aspects of diabetes and depression and the effects on QOL. The self-management goals of this program were to improve psychosocial skills—to address attitudes, beliefs, and behaviors to chronic disease; and to improve QOL. For this program, the evidence for practice on both DM and depression were obtained from the American Diabetes Association May/June 2015 magazine, and Diabetes A to Z, revised edition published by the American Diabetes Association, best practice seminars, information received from the AANP conference, June of 2014, pharmaceutical research videos on understanding depression, and a guide to weight management.

Program Evaluation

The evaluation model that was aligned with this program was impact evaluation. According to Kettner, Moroney, and Martin (2013), impact evaluation differs from other types of evaluation in that the focus is on changes in program participants and not changes in organizations and communities. Impact evaluation is aimed at providing feedback to help improve the design or programs and policies (Kettner et al., 2013). In addition to providing for improved accountability, impact evaluations are a tool for dynamic learning, allowing policymakers to improve ongoing programs and ultimately to better allocate funds across programs (World Bank, 2013). As a component of the

monitoring and evaluation process, impact evaluations are an essential instrument to test

the validity of specific approaches (Hodges &Videto, 2011). Hodges and Videto (2011)

stated that impact evaluation is the measurement of the event to which the program has

caused the intended short-term changes in the target population. The QOL questionnaire,

the impact evaluation tool was used at the initial visit with each participant to assess their

overall QOL baseline, and at the end of the education program to evaluate the outcome.

At the end of the program, the change in patients' perceived QOL from pre to post

educational program participation was measured through the difference in survey

response scaled scores in terms of a percent change. The responses were analyzed using a

spread sheet and bar graphs to assess the effectiveness of the program at improving the

QOL of these participants by comparing the pre and post program data in terms of

percent change. Demographic data were analyzed and presented using frequencies,

percentages, and mean values where appropriate to describe the sample.

 The aims of patient education extend beyond dissemination of information. The

overall intent was to provide patients with information and instructions that will enable

them to achieve an optimal level of health and prevent risk (Wilson et al., 2003).

Consistent and aligned with the aims of patient education is the presentation of an

evaluation model that can guide practitioners in determining whether the materials used

are congruent with the therapeutic self-care and self-care abilities of the patient (Wilson

et al., 2003).

Summary

Two common disorders, depression and diabetes, are complex diseases with manifold genetic and environmental contributors to pathogenesis. There is clearly an increased prevalence of depression among diabetic patients (Rustadet al., 2011). The design for this project was a quality improvement program based on using a QOL and demographic questionnaires to gather data from patients diagnosed with depression and diabetes. This was a prospective pre-post intervention quality improvement project. The measurement of change provides a vehicle for assessing the impact of rehabilitation services, as well as the effects of specific counseling and allied health interventions (Dimitrov&Rumrill, 2003).The success of this medication education program was dependent on the willingness of these participants to carry out activities that will improve their QOL. In this DNP project, the evaluation determined if a 4-weekmedication education program provided toa sample of adult patients diagnosed with diabetes and depression has a positive effect on their QOL.

Section 4: Findings, Discussions,& Implications

Introduction

The purpose of this quality improvement project was to assess and evaluate whether medication compliance education improved theQOL in older adults diagnosed with diabetes and depression. The WHOQOL-BREF questionnaire was used pre- and post implementation to assess whether the medication compliance education program improve the QOL of the participants. The objective of this program was to enable participants to assume a primary role in managing their diagnosis including monitoring their symptoms and adherence to their medication regimen. The goal was to evaluate whether medication compliance education can improve QOL as measured by the QOL questionnaire. Therefore, the question for this program evaluation concerned the use of medication compliance education to improve QOL. In this compliance education program, all 28 participants were diagnosed with diabetes and depression. The QOL questionnaire also measured the program's effectiveness in improving QOL of the participants and results revealed measurable improvement in all three categories including physical health (28.5%), social relationship (32.3%), and environment (25%).

Summary of Findings

Demographic Data

The demographic questionnaire (Appendix A), was completed by all28 participants and then collected by me. This consisted of seven items, included gender, age, educational level, marital status, race, language, and type of diabetes. The population

of this program consisted of 79% females and 21% males. The mean age of the participants was 65.5, the median age was 64.5, and the ages ranged from 52 to 84. The ethnic composition of the sample was African American/Black 29%, Caucasian 21%, Hispanic 36%, and other 14%. Seventy- five percent of the participants had some form of high school and/or college education (see Table 1).

Table 1

Demographic Data

Characteristics	Number of Participants	Percentage
Gender		
Female	22	79%
Male	6	21%
Age		
50-59	8	29%
60-69	12	43%
70-79	6	21%
80-89	2	7%
Ethnicity		
African American/Black	8	29%
	6	21%
Caucasian/White	10	36%
Hispanic	4	14%

Other			
Education			
None	7	25%	
High School	12	43%	
College	9	32%	
Language			
English	22	79%	
Spanish	6	21%	
Marital Status			
Single	9	32%	
Married	11	39%	
Divorce	3	11%	
Widow	5	18%	
Diabetes Type			
Type 1	5	18%	
Type 2	23	82%	
Depression	28	100%	

Note: N= 28

Compliance Questionnaire

A compliance questionnaire (Appendix C) was also completed by all participants at the initial meeting to assess each participant's behavior in terms of taking medications,

being aware of symptoms, following a proper diet, being physically active, and following up with medical care. Through this educational program the participants were taught proper management of medication and diet and how to incorporate some form of physical activities in their daily routine.

Table 2

Compliance Data

Characteristics	Frequency	Percentage
Awareness of symptoms		
Non-compliant	21	75%
Compliant	7	25%
Diet		
Non-compliant	18	64.3%
Compliant	10	35.7%
Medication		
Non-compliant	12	42.9%
Compliant	16	52.1%

Medical Follow-up

Non-compliant	15	53.6%
Compliant	13	46.4%

Motivation/Physical activity

Non-compliant	19	67.9%
Compliant	9	32.1%

Note: N = 28

A compliance score was calculated for each participant and was then converted into a total percentage score (see Table 2). The outcomes were categorized as noncompliant (<50%)or compliant (>50%). The best compliance score was for medication management (52.1%). More than 50% believed that lack of motivation and not being able to afford the more nutritious foods was the reason for the high noncompliant rate in diet (64.3%). Two areas that showed poor compliances were being aware of the symptoms of the diagnosis (75%)and physical activity (67.9%). Some participants believed that lack of knowledge in preparing specific meals was the main reason of the noncompliance, and that unhealthy foods were cheaper for them to purchase.

Quality of Life Questionnaire Findings

The QOL instrument developed by the WHO was used at the initial visit with each participant. The 28 participants completed the QOL questionnaire, which were then collected by me. The QOL measures reflect a personal sense of physical and mental health and the capacity to react to diverse factors in the environment (Drewnowski &Evans, 2001). QOL addresses physical state, social functioning, and emotional well-being. According to Aigner et al.(2006), there are 26 items in four domains (physical health, psychological health, social relationships, and the environment) and they are rated on a 5-point Likert scale, with a higher score indicating a better QOL. Burckhardt and Anderson (2003) stated that the QOL is scored by adding up the score on each item to yield a total score for the instrument. The score ranges from 16 to 112, with an average score for a healthy population being about 90 (Burckhardt & Anderson, 2003). The WHO instrument produces a profile with four domain scores and two individually scored items dealing with individual's overall perception of QOL and health (Appendix E). According to the WHOQOL-BREF, the four domain scores are scaled in a positive direction with higher scores indicating a higher QOL.

The score for this project ranged from 26 to 112, with a mean score of 95. The first two items dealt with overall health. All 26 items were given a score on a 5-point Likert scale: 1= strongly disagree, 2= disagree, 3= neutral, 4 = agree, and 5= strongly agree. Each participant answered the question on the QOL questionnaire, the total point value for each was taken based on the answers and a numerical point value represents the pretest.

Table 3

Pre implementation Data

Characteristics	*n*	Percentage
General health	11	39.2%
Physical health	12	42%
Psychological health	11	39.2%
Social relationships	9	32%
Environment	10	35.7%

Note: The numbers indicate the participants who agree that compliance education does improve QOL.*N* = 28.

At the end of the program, after the 4th week, another QOL questionnaire was completed by the 28 participants, and again the total point value was repeated for the post test. A comparison was then made between both the pre- and posttest results. At the end of the program, the change in patients' perceived QOL, from pre- to post education was measured through the difference in survey response scale scored in terms of percentage change.

Table 4

Post Implementation Data

Characteristics	*n*	Percentage
General health	12	42.8%
Physical health	16	57.1%
Psychological health	19	67.8%
Social relationships	18	64.3%
Environment	17	60.7%

Note: The numbers indicate the participants who agreed that compliance education does improve QOL.*N* = 28.

These results indicated that the use of compliance education had a beneficial effect on patient well-being. Educating and supporting patients in managing their daily life with chronic disease like depression and diabetes is an important goal of therapy. The aim of this education program was to make the participants more knowledgeable about depression and diabetes, help build a positive attitude, and increase interest in daily care.

Table 5

Comparison of Pre- and Post-implementation Data

Characteristics	Pre- Percentage	Post- Percentage	Percentage Difference
General health	39.2%	42.8%	+3.6%
Physical health	42%	57.1%	+15.1%
Psychological	39.2%	67.8%%	+28.5%

health			
Social relationships	32%	64.3%	+32.3%
Environment	35.7	60.7%	+25%

Note: The numbers indicate the participants who agreed that compliance education does improve QOL. *N* = 28.

Summary and Evaluation of Findings

Patients develop complications as a result of poor understanding of the disease and inadequate glycemic control. According to Tankova et al. (2004), patient education is accepted as an integral part of chronic disease management. In the Healthy People 2000 report, the chief goal of health promotion was to increase the span of healthy life. In the Healthy People 2010 report, the emphasis was helping people to increase life expectancy and to improve their QOL. The objective of this program was to determine whether medication compliance education can improve patients' QOL. The findings showed that this program had a positive effect on this sample population. There were compelling improvements in physical health (+28.5%), social relationships (+32.3%), and environment (+25%). Measurable improvements were also seen in physical health (+15.1%) and in general health (+3.6%). The medication compliance was (57.1%). These results suggest the effectiveness of this intervention as poor compliance was seen in participants not being aware of symptoms (75%), having a poor diet (64.3%), and decreased motivation/physical activity (67.9%).

The 28 participants in this program were diagnosed with both depression and diabetes. The dual diagnosis of depression and diabetes can cause significant

deterioration in patients' QOL. From the participants' perspective, the education program

consisted of an overwhelming amount of information, which was usually presented in

one session. Although they were able to have this program for 4 weeks, they verbalized

the need for the program to be a continuous process. Patients' lack of compliance to their

medication regimen is based on the notion that patients perceive their role in their care as

passive. After the 4 weeks of the education program, there were overall improvements in

the level of adherence and an improvement in participants' QOL. Compliance data were

not collected at the end of the program, which would have been beneficial to compare the

difference in pre- and post-implementation.

Discussions of Findings in the context of the Literature

According to Mahmound (2012), the level of compliance varies from patient to

patient, and other factors can affect compliance, including behavioral change, the

complexity of the regimen, and how easy the patient can incorporate the change into his

or her daily routine. The literature on compliance is dominated by reports of patient

noncompliance with prevention and treatment recommendations, and there are fewer

reports on how behavior of health care professionals and the delivery of medical care

contribute to patient compliance (Mahmound, 2012).The results of this program support

the conclusion of Tankova et al. (2004) that structured patient education improves QOL

of diabetic patients, reducing their depression and increasing their positive well-being.

According to Chen et al. (2013), diabetes education is an important aspect in diabetic

care. Although patents can get information through the Internet, professional classes are

still irreplaceable (Chen et al., 2013). Egede and Hernandez-Tejade (2013) believed that there is a need to study the mechanisms by which depression and diabetes affects health outcome and QOL in order to have a better treatment of diabetes. Given the demographic shift in this country, there is a need to perform more studies in minority populations such as Hispanicsand African-Americans, who are both overrepresented (Egede& Hernandez-Tejade, 2013).

Implications

The aging of the population and the increasing prevalence of chronic diseases pose challenges to the development and applications of clinical practice guidelines (Boyd et al., 2005). Clinical practice guidelines help to define standards of care and focus efforts to improve quality (Boyd et al., 2005). The review of the literature revealed a high rate of comorbidity of depression and diabetes, and requires the attention of clinicians to screen for depression among patient with diabetes. Epidemiologic studies have shown that depression in patients with diabetes is associated with poor self-care, including lack of adherence to diet, exercise, smoking cessation and disease control medications (Katon et al., 2006). This poor adherence associated with depression could lead to increased complications of diabetes and raise medical costs (Katon et al., 2006).

Implications for Practice

The results of this program suggest that providing information about medication can lower medication noncompliance. The results have clear clinical implications for diabetes educators working with patients who have comorbid depression. Many of the

participants of the program verbalized seeing improvement in their mood after being more compliant with the medications. Because of the tremendous impact of depression on diabetes outcomes and the significant burden that these conditions place on medical care, strategies need to be implemented by primary care providers. McKeller, Humphreys and Piette (2004) stated that not only is depression management meaningful from the perspective of a patients' QOL, but it also appears to have implications for patient's ability to attain diabetes self-care goals This medication education program supports successful care and meeting the needs of patients, increasing patient knowledge, encourage patient participation, and helping patient to be more in control of their healthcare. The findings of the study can make a contribution to daily practice, in any primary care setting, to treat older adults with diabetes and depression and being attentive to their QOL.

Implications for Social Change

Many reliable but brief screening tests for depression are available, and diabetes educators should consider regular screening for depressive symptoms among their patients (McKellar, Humphreys &Piette, 2004). The case for vigorous screening to identify depression in patients with diabetes is made even more compelling by the fact that effective psychotherapeutic and pharmacological treatments exist and may improve patients' glycemic control (McKellar, Humphreys &Piette, 2004). A growing number of people are searching to understand the meaning of empowerment and ways it can be used to change their lives (Lord &Hutchison, 1993). Lord and Hutchison (1993) stated that

empowerment is understood as a process for people to take power, and in order to do so they need to gain information about themselves and their environment and be willing to identify and work with others for change.

Implications for Future Research

Further studies are needed of the mechanism by which depression in diabetics affects health outcome and QOL in order to improve diabetes treatment effectiveness (Egede& Hernandez-Tejada, 2013). Another area of research may involve investigating the effects of positive emotional characteristics on patient outcomes (Egede& Hernandez-Tejada, 2013). The focus on glycemic control and complications is already a routine aspect of diabetes care, improvement in mental health care can go a long way towards increasing diabetic specific QOL in this population. Mental health issues need to be addressed as they were an important contributor to decreased diabetic QOL. In the future QOL will continue to be the center of our values, and also covers a person's individual position in relation to the culture and value system in which they live.

<center>**Project Strengths and Limitations**</center>

Strengths

The program evaluation used data collected over a 4 week period of time. The data were examined the day prior to implication of the program, and again after the implementation of the program. The strengths of the project included the use of the QOL questionnaire, which highlighted specific areas of improvement that was most affected by the implementation of the compliance program. The support of the organization's leaders

during the entire process offered great strength. The tool used for this project also provided strong support. The WHOQOL-BREF has several strengths as it is based on a cross-culturally sensitive concept and is appropriate for use in multi-national collaborative research. (Skevington, Lotfy, &O'Connell, 2004).Skevington, Lotfy, and O'Connell (2004) stated that the instrument consists of QOLitems that are concerned with the meaning of different aspect of life.

Limitations

The major limitation of this project was that the population was small sample size from a single clinic, and therefore, limits generalizability to other groups. A second limitation was the absence of a control group, which limits internal validity of the outcome. Thirdly, the cultural and language differences may have introduced unintended variables. Despite the limitations, the study provided valuable information on the role of education on various aspects in the management and care of chronic disease.

<div align="center">

Recommendations

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My recommendations would include increasing the sample size of the participants and extending the data collection and implementation time period. Evaluation of the effectiveness of programs and their impact on public health is more difficult to establish (Adams, 2010). Effective health education would be needed to consider the health literacy of individuals. Given the small sample size and the small number of participants in the 65 and older age group, further work is needed to establish this with a broader sample, and extend the collection of data over a longer period of time.

Analysis of Self

As Scholar

The process of developing the DNP project has helped me to feel confident in my skills as a researcher and a scholar. Throughout the process of this scholarly journey, I have grown as a writer, a researcher, and as an educator. According to the American Association of Colleges of Nursing (AACN; 2006), individuals who acquire the DNP will seek to fill roles as educator and will use their considerable practice expertise to educate the next generation of nurses. A significant change in my development as a nurse leader that has occurred, which correlates with Walden's practice-focused goals, is my ability to translate theory and research into evidence-based practice (EBP). In spite of the lack of clarity regarding the skills nursing leadership needs to implement and sustain EBP, nurse leaders at every level have an obligation to advance change in nursing practice by supporting EBP. Successful change leadership involves investing time in finding common ground across stakeholders and in building credibility and trust (Chreim, Williams, Janz, &Dastmalchian, 2010). As a DNP graduate, I am prepared to develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences, as well as organizational, political, and economic sciences (AACN, 2006).

As Practitioner

As a DNP graduate I will generate evidence through practice to guide improvements in practice and outcome of care (AACN, 2006). I will have autonomy on

the assessment and treatment of patients. I have grown through the process of Clinical

Scholarship and Analytical Methods for Evidence-Based Practice (AACN, 2006). The

DNP project has provided me with the opportunity to promote continued professional

development, specifically in developing writing skills in order for dissemination of

research results in a selected nursing publication. According to the AACN (2006), as a

doctoral graduate , I will be efficient in the work place in demonstrating advanced level

of clinical judgment, system thinking, and accountability in designing, delivering, and

evaluating evidence-base care to improve patient outcomes (AACN, 2006).

As Project Developer

My role as a nursing leader is to develop and sustain therapeutic relationship and

partnership with patients and other professionals to facilitate optimal care and patient

outcome (AACN, 2006). The DNP project will serve as a foundation that may open doors

for future collaboration with other professionals within the healthcare industry. This DNP

program has prepared me for further development and evaluation in care delivery

approaches that meet current and future needs of patient populations based on scientific

findings in nursing and other clinical sciences, as well as organizational, political, and

economic sciences (AACN, 2006). The DNP project has caused significant growth in

knowledge during the overall process.

Summary and Conclusion

Diabetes and depression are serious chronic diseases that negatively affect QOL.

Policies and programs are increasingly focused on identifying ways to improve QOL and

health status rather than just extending life. Whatever the mechanism involved, the data indicate that the addition of depression to diabetes has a severe impact on quality of life. A large number of patients with diabetes experience depressive symptoms. Screening for depression is important for patients with diabetes because even low levels of depression are associated with poor self-care and medication compliance. The goal of this education program was to enable patients to assume a primary role in managing their conditions: monitoring symptoms, adjusting medications, and making decisions as to when additional medical care is necessary. Treatment of depression may lead to improvement in diabetes self-care and compliance and may improve patient outcome. The potential benefits of an educational program must be considered in improving QOL in older adults. Psychiatric nurse practitioners play an important part in the care and management of these dual diagnoses patients and can take the lead in developing educational programs and practice protocols for primary care providers focusing on treatment of patients with depression and diabetes.

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Appendix A

Demographic Questionnaire

Before we begin I would like to ask you to answer a few general questions about yourself.

1   What is your gender?   Male   Female

2   What is your date of birth?   ____/ _____/ _____

                                                     Day   Month   Year

3   What is the highest education?   None at all   Elementary School

                                                     High School   College

4   What is your marital status?   Single   Married   Separated

Divorced

                                                     Widowed   Other_____

5   Ethnic origin:

               White   Black   Asian/Pacific   Hispanic

               Filipino   American Indian   Other_____

6   What is your common language?   English   Spanish

        Other_____

7   Please indicate which type of diabetes you have:

        Diabetes type 1   Diabetes type 2

Appendix B

Quality of Life Questionnaire ID#_____

1	Are you feeling well?	Yes		No
2	If no, what is the problem?		_____	

Please read each question, assess your feelings, and circle the number that gives the best

answer for you.

Very poor	**Poor**	**Neutral**	**Good**	**Very good**
1	2	3	4	5

3	How would you rate your quality of life?	1 2 3 4 5	
4	How well are you able to get around?	1 2 3 4 5	
5	How satisfied are you with your health?	1 2 3 4 5	
6	How satisfied are your with your sleep?	1 2 3 4 5	
7	How satisfied are you with your ability to perform your daily living activities?	1 2 3 4 5	
8	How satisfied are you with your abilities?	1 2 3 4 5	
9	How satisfied are you with your personal relationships?	1 2 3 4 5	
10	How satisfied are you with your sex life?	1 2 3 4 5	
11	How satisfied are you with the support	1 2 3 4 5	

you get from friends?

12	How satisfied are you with the conditions of your living place?	1	2	3	4	5
13	How satisfied are you with your access to health services?	1	2	3	4	5
14	How satisfied are you with your mode of transportation?	1 2	3	4	5	

Not at all	**A little**	**Moderate amount**	**Very much**	**An extreme amount**
1	2	3	4	5

15	To what extent do you feel that physical pain prevents you from doing things?	1	2	3	4	5
16	How much do you enjoy life?	12	3	4	5	
17	How safe do feel in your daily life?	12	3	4	5	
18	To what extent do you feel your life to meaningful?	1 2	3	4	5 be	

meaningful?

19	How well are you able to concentrate?	1	2	3	4	5
20	How healthy is your physical environment?	1	2	3	4	5
21	Do you have enough energy for everyday life?	1	2	3	4	5
22	Are you able to accept your bodily appearance?	1	2	3	4	5
23	Have you enough money to meet your needs?	1	2	3	4	5

24   To what extent do you have the opportunity   1   2   3   4   5

for leisure activities?

25   **Symptoms**

How much time during the past month…

	Never	Rarely	Sometime	Often	Always

Were you discouraged by

your health problems?...............   1   2   3   4   5

Were you fearful of your

future health?...........................   1   2   3   4   5

Was your health a worry

in your life?...............................   1   2   3   4   5

26   **Daily activities**

Has your health interfered with

Normal social activities?.............   1   2   3   4   5

Has your health interfered with

Household chores/shopping?......   1   2   3   4   5

Has your health interfered with

your hobbies?...............................   1   2   3   4   5

Appendix C

Compliance Questionnaire

In the past week, did you have any of the following symptoms….

1	Increased thirst?	No	Yes
2	Decreased appetite?	No	Yes
3	Nausea or vomiting?	No	Yes
4	Times when you feel faint /passed out?	No	Yes
5	Lightheaded?	No	Yes

6	Frequent urination at nights?	No	Yes
7	Severely high blood sugar?	No	Yes
8	Night sweats? Sleep disturbance?	No	Yes
9	Depressed Mood?	No	Yes
10	Suicidal thoughts?	No	Yes

What do you do if these symptoms are present? ………………………

11 **Your diet**

	Did youskip breakfast today?	No	Yes
	Do you have 3 meals daily?	No	Yes
	Are they balanced meals?	No	Yes

12 **Physical activities**

During the past week, did you spend any time on the following?

		No	Yes

Stretching/exercising	**None**	**15- 30 min**	**30-60min**	**1-2hrs**	**>3hrs**
Walking exercise	**None**	**15-30 min**	**30-60 min**	**1-2hrs**	**>3hrs**
Swimming	**None**	**15-30 min**	**30-60 min**	**1-2hrs**	**>3hrs**
Aerobic exercise	**None**	**15-30 min**	**30-60 min**	**1-2hrs**	**>3hrs**

13 Are you taking pills for diabetes?   No   Yes

  Do you take insulin injections?   No   Yes

  Do you take pills for cholesterol? No   Yes

  Are you taking pills for depression?   No   Yes

14 **Medical Care**

  In the past 6 months, have you visit a physician?   N/Y

  In the past 6 months, have been hospitalized?   N/Y

  In the past 6 months have you been to the ER?   N.Y

  Have had you had recent eye examined?   N/Y

  Have had your feet examined by a doctor/nurse?   N/Y

  Do you check your blood glucose daily?   N/Y

  Did you have your Hemoglobin done for the past 3-6 months? N/Y

Scale: No. 1-10 = 1 point each. No. 11 = 1-3 pointsNo. 12 = 1-4 points. No 13= 1-4

points. No. 14= 1-7 points

Appendix D

Education Program Guidelines (Weeks 1 to 4)

Topic: Diabetes and Depression, Treatment/Compliance and Quality-of-life

Objective: To determine whether education on medication compliance and treatment can improve quality-of-life in older adults diagnosed with diabetes and depression

Table of Content:

Physiology of diabetes and depression

Types of diabetes: Type 1, Type II

Treatment - pills or insulin –monitoringof daily blood sugars, and quarterly Hemoglobin A1c check

Taking care of your diabetes – hypoglycemia, medication, nutrition, exercise, medical appointments and medical follow-ups, foot care

Depression:

Depressive symptoms – for example; depressive feelings, sadness, worry, hopelessness, suicidal thoughts

Treatment - psychotherapy and/or antidepressant

Common link between diabetes and depression

Quality of life – physical, functional, social and emotional well-being

Effects of diabetes and depression on quality-of-life

Complications - include cardiovascular, hypertension, neuropathy, vascular, kidney

Group interaction - feedback

Conclusion

Appendix E

WHOQOL-BREF

Domains and Questions	Raw Domain Score	Raw Item Scores
Overall Quality of Life and General Health How would you rate your quality of life? How satisfied are you with your health?	(2-10)	 (1-5) (1-5)
Domain 1 Physical Health To what extent do you feel that physical pain prevent you from doing what you need to do? How much do you need any medical treatment to function in your daily life? Do you have enough energy for everyday life? How well are you able to get around? How satisfied are you with your sleep? How satisfied are you with your ability to perform your daily living activities? How satisfied are you with your capacity to work?	(7-35)	 (1-5) (1-5) (1-5) (1-5) (1-5) (1-5) (1-5)
Domain 2 Psychological Health How much do you enjoy life? To what extent do you feel your life to be meaningful? How well are you able to concentrate? Are you able to accept your bodily appearance? How satisfied are you with yourself? How often do you have negative feelings such as blue mood, despair, anxiety, depression?	(6-30)	 (1-5) (1-5) (1-5) (1-5) (1-5) (1-5)
Domain 3 Social relationships How satisfied are you with personal relationships? How satisfied are you with your sex life? How satisfied are with the support you get from your friends?	(3-15)	 (1-5) (1-5) (1-5)
Domain 4 Environment How safe do you feel in your daily life? How healthy is your physical environment? Have you enough money to meet your needs? How available to you is the information that you need in your daily-to-day life? To what extent do have the opportunity for leisure activities? How satisfied are you with the condition of your living	• (8-40)	• • (1-5) • (1-5) • (1-5) • (1-5) • (1-5) • (1-5)

place		• (1-5)
How satisfied are you with your health services?		• (1-5)
How satisfied are you with your transport?		

Appendix F

Data

ID #	Age	Language	Race	Sex	Education	Diabetes Ty. 1 or 2	Marital Status
001Q	64	Spanish	Hispanic	Female	HS	2	Single
002Q	57	English	Caucasian	Male	HS	2	Widow
003Q	55	English	Hispanic	Female	HS	2	Married
004Q	84	English	Caucasian	Female	College	2	Widow
005Q	75	Spanish	Hispanic	Female	HS	2	Single
006Q	62	English	Hispanic	Female	College	2	Divorce
007Q	62	English	Other	Female	College	1	Single
008Q	65	English	Black	Female	None	2	Divorce
009Q	82	Spanish	Hispanic	Female	None	2	Widow
010Q	74	English	Black	Female	College	2	Single
011Q	67	English	Hispanic	Female	HS	2	Married
012Q	60	English	Black	Male	None	1	Married
013Q	64	English	Other	Female	HS	2	Single
014Q	56	English	Caucasian	Female	HS	2	Married
015Q	63	Spanish	Hispanic	Male	HS	1	Married
016Q	76	English	Caucasian	Male	None	2	Married
017Q	74	English	Black	Female	HS	2	Single
018Q	53	English	Black	Female	College	2	Single
019Q	58	English	Black	Female	College	1	Single
020Q	55	English	Other	Female	College	1	Widow
021Q	68	English	Caucasian	Female	College	2	Single
022Q	72	English	Black	Female	None	2	Married
023Q	68	English	Other	Female	HS	2	Married
024Q	66	Spanish	Hispanic	Male	None	2	Married
025Q	54	English	Black	Female	College	2	Divorce
026Q	78	Spanish	Hispanic	Male	HS	2	Widow
027Q	69	English	Hispanic	Female	None	2	Married
028Q	52	English	Caucasian	Female	HS	2	Married

Appendix G

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or "WHOQOL-BREF") in User's study outlined below. The term of this User
Agreement shall be for a period of 1 year, commencing on
(date) *9/4/14* .

The approved study for this User Agreement is:

Study Title	*Improving quality of life through medication education*
Principal Investigator	*V Hinds*
Sample characteristics	
Sample size	*100 pages*
Treatment Intervention	*this brief instrument will be used as a*
Total number of assessments	*pre and post questionnaire*
Assessment time points	*to assess quality of*
"WHOQOL-100" or WHOQOL-BREF version – *Please specify language version(s) you would like to receive.*	*life before and after the education.*
Other measures	*None*

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