2010-01-01

The Effects Of Self Management, Education And Their Combination On Glucose Control Among Hispanics Visting A Community Health Clinic

Isela De Baca
University of Texas at El Paso, idebaca@csv.tachc.org

THE EFFECTS OF SELF MANAGEMENT, EDUCATION AND THEIR COMBINATION ON GLUCOSE CONTROL AMONG HISPANICS VISTING A COMMUNITY HEALTH CLINIC

ISELA DE BACA, B.S., CHES

Department of Health Promotion

APPROVED

____
Joe Tomaka, Ph.D.

____
Sharon Thompson, MPH, Ph.D., CHES

____
Jeri Sias, Pharm.D.

____
Patricia D. Witherspoon, Ph.D.
Dean of the Graduate School

THE EFFECTS OF SELF MANAGEMENT, EDUCATION AND THEIR COMBINATION ON GLUCOSE CONTROL AMONG HISPANICS VISITING A COMMUNITY HEALTH CLINIC

By

ISELA DE BACA , B.S., CHES

THESIS

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE

Department of Health Promotion

The University of Texas at El Paso

August 2010

ACKNOWLEDGEMENTS

I would like to acknowledge Centro San Vicente Health Clinic patients and staff for making this thesis possible.

I would like to thank Dr. Joe Tomaka, my thesis advisor, for his endless support, encouragement, and guidance. Thank you for encouraging me to finish and having faith in me. I would also like to thank my other committee members: Dr. Sharon Thompson and Dr. Jeri Sias for their support.

I would like to thank my parents, for all their love. I would especially like to thank my brother for his help and perseverance. I would also like to thank my friends who supported me and helped me along the way, especially Maribel & Ricardo.

Finally, I would like to thank God for giving me strength, wisdom, and courage.

You are all truly my inspiration.

ABSTRACT

The purpose of the present study was to measure the impact of diabetes self-management instruction alone, and in combination with diabetes education, on glucose control among diabetic patients at a local community clinic. The researcher of the study was particularly interested in assessing whether self-management goals and diabetes classes positively influence A1C values in this sample.

For this study, the medical charts of 131 patients at Centro San Vicente Health Clinic, a Federally Qualified Community Health Center in El Paso, Texas were reviewed. In addition to collecting A1c values at pretest (baseline) and at three and six months post intervention, the study also collected other measures such as height and weight, as well as demographic characteristics, to examine their association with A1C values. Participants self-selected into one of four intervention modalities including a brief self-management (SM) session, 8 weeks of diabetes education, the combination of SM and education, or no intervention.

After reviewing 131 patient medical charts, participants in both the SM intervention and combined intervention had a significant decline in A1c values, whereas participants in the education-only and no-intervention did not change. This retrospective study showed that SM alone or in combination with education may play a valuable role in glucose control. Results are discussed in relation to implementing effective programs for greater diabetes management.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Diabetes is a chronic disease that has no cure and is characterized by the body's inability to utilize blood glucose in the cells due to defects in insulin production by the pancreas, diminished insulin action (i.e., resistance), or both. According to the American Diabetes Association (ADA), there are four types of diabetes, type 1, type 2, gestational diabetes, and other types of diabetes. Type 1 diabetes accounts for 5% to 10 % of diagnosed cases; type 2 accounts for 90% to 95% of diagnosed cases; gestational diabetes is found during pregnancy and often disappears after birth. Other types of diabetes occur from specific genetic conditions (such as maturity-onset diabetes of youth), surgery, drugs, malnutrition, infections, and other illnesses and this accounts for only 1% to 5% of diagnosed cases (American Diabetes Association, 2008). The ADA list some risk factors for type 2 diabetes to include age, obesity, family history of diabetes, prior history of gestational diabetes, physical inactivity, race/ethnicity, and impaired glucose. This paper will concentrate on type 2 because it is the most prevalent type of diabetes.

1.1 Extent of the Problem

According to the World Health Organization (WHO), within the next twenty five years, diabetes may become a main killer and disabler. The latest WHO estimates that more than 180 million people worldwide has diabetes. The majority of them are in developing countries and this number may double by the year 2030 due to population growth, aging, unhealthy diets, and obesity (WHO, 2009).

In 2005, the WHO estimated the prevalence of diabetes in the United States to be 20.8 million children and adults or 7.0% of the population. Of these, only 14.6 million cases were diagnosed, whereas 6.2 million were undiagnosed. WHO also estimates that 54 million

Americans suffer from pre-diabetes, a condition that raises the risk of type 2 diabetes, stroke, or heart disease. Individuals with pre-diabetes have glucose levels that are higher than normal but not high enough to be classified as diabetes. Data also show the total prevalence among men and women over 20 years of age in the US, with men at 10.9 million or 10.5% and women at 9.7 million or 8.8% of the population. However, nearly one third of the population does not know they have diabetes (Centers for Disease Control and Prevention (CDC), 2008).

The Healthy People 2010 was developed by the U.S. Department of Health and Human Services (HHS) to set objectives in improvement of health status, risk reduction and other measures in regards to the improving health. These objectives are to be achieved by the year 2010. The HHS's fifth focus area is diabetes which includes the objectives to (5-1) increase the proportion of persons with diabetes who receive formal diabetes education, (5-2) prevention of diabetes, and (5-3) reduce the overall rate of diabetes that is clinically diagnosed, just name a few (Healthy People 2010, 2009). There is also the Healthy Border 2010 that was based on the framework of Healthy People 2010 which was established by the United States-Mexico Border Health Commission (USMBHC). Healthy Border 2010 is composed of 20 health objects held in 11 focus areas. According to Healthy Border 2010, diabetes type 2 is the third cause of death in Mexico. Therefore, diabetes is the third topic area for Healthy Border 2010 with the objective for Mexico to reduce deaths due to diabetes by 10% and keep hospitalization rates stable. The objectives for the United States is to reduce death due to diabetes by 10% and reduce hospitalizations by 25% (Health Border 2010, 2009).

The rate of type 2 diabetes increases with age, although type 2 diabetes has become more common in children and adolescents. The total prevalence of diagnosed diabetes among people aged 20 years or younger in the United States for the year 2005 was 0.22 % (176,500 individuals). In contrast, the total prevalence of diabetes among people 20 years or older 9.6% (20.6 million), whereas among people who were 60 years, the rate was 20.9% (10.3 million) (CDC, 2008; ADA 2008).

According to the Texas Diabetes Council, there are an estimated 1.4 million people diagnosed with diabetes who are 18 and older and about 409,839 who are undiagnosed in Texas. The prevalence of diagnosed diabetes in persons 18 years or older in Texas by sex is 678,397 for males and 681,144 for females (Texas Diabetes Council, 2008).

Diabetes is the fifth leading cause of death in the US (ADA, 2008) and the sixth leading cause of death in Texas in 2002 through 2004. In 2004, diabetes resulted in 5,426 deaths. It is believed that diabetes is underreported on death certificates as a condition and as a cause of death due to its complications that may imply the cause of death instead (Texas Diabetes Council, 2008). In El Paso alone, for the year 2001 diabetes accounted for 202 deaths of the population (Texas Department of Health, 2004; DSHS 2001), while in the year 2002 it accounted for 238 deaths. These statistics suggest that deaths attributed to diabetes are slowly rising each year. According to Paso Del Norte Health Foundation, 7.3 % of El Pasoans reported having diabetes and 9.4 % of women had a higher rate of diabetes (Paso Del Norte Health Foundation, 2009).

1.2 Cost

Increasing prevalence of diabetes also leads to the vast cost of treating a person with diabetes. Diabetes has both direct and indirect costs. Direct cost to individuals and their families include medical care, drugs, insulin, diabetic supplies, and hospital services. Indirect costs include inability to work at all or work as effectively as before the onset of diabetes. According to the ADA (2008), in the year 2007, the total annual economic cost of diabetes in the United

States was estimated to be $174 billion. Medical expenditures totaled $116 billion and were comprised of $26 billion for diabetes care and $31 billion for excess general medical costs.

Sickness, absenteeism, disability, premature retirement or premature mortality, may also contribute to an individual's indirect expenses. The ADA (2008) estimates the indirect cost of diabetes to be $58 billion in 2007. They also show that diabetes accounted for 15 million work days absent, 120 million work days with reduced performance, 6 million reduced productivity days for those not in the workforce, and an additional 107 million work days lost due to unemployment disability attributed to diabetes. The ADA report also notes that not only does diabetes affect individuals financially, but there are also intangible cost such as pain, anxiety, inconvenience, and lower quality of life and that diabetes also affects their families and relationships because of the costs and negative influences of diabetes.

1.3 Diagnosis and Treatment of Diabetes

The usual screening tool for diabetes is a fasting plasma glucose test. According to the Texas Diabetes Council (2008), a confirmed fasting plasma glucose value greater than or equal to 126 milligrams per deciliter (mg/dl) of blood plasma indicates a diagnosis of diabetes. In the presence of signs and symptoms of diabetes, a confirmed, nonfasting, random plasma glucose value greater than or equal to 200 mg/dl indicates a diagnosis or diabetes. A confirmed two-hour glucose value greater than or equal to 200 mg/dl on an oral glucose tolerance test is diagnostic of diabetes (Texas Diabetes Council, 2008). These ranges are diagnostic values for blood glucose concentration that will determine if the individual is diabetic. As noted above, the Texas Diabetes Council (2008) states that diabetes often goes undiagnosed, but symptoms may include: feeling tired, frequent infections, blurred eyesight, problems with sexual function, dry, itchy skin, numbness or tingling of the hands or feet, increased hunger, increased thirst, frequent urination, and sudden weight loss.

Some complications that an individual may encounter from uncontrolled diabetes are neuropathy which is nerve damage to the sensory nerves in the hands and feet. Damage to the sensory nerves cause a loss of feeling and individuals may not feel if something is hot or cold, or if there is pain. Neuropathy may also lead to lower-limb amputations. Another complication may be diabetic retinopathy which is the leading cause of blindness and visual disability. In this disorder, the small blood vessels in the retina become damaged and results in vision loss (National Institute of Diabetes and Digestive and Kidney Diseases, 2009) Studies suggest that after 15 years of diabetes, approximately 2% of people become blind, while about 10% develop severe visual handicaps (WHO, 2005). Diabetic patients may also be more prone to kidney damage, stroke, and cardiac arrest due to the damage of blood vessels and difficulty in circulation caused by saturation of sugar in the blood stream.

Although diabetes is a lifelong disease, there are ways to prevent further complications. The Center for Disease Control states that the main non-pharmacological treatment is diet and physical activity. This treatment accounts for 15% of adults diagnosed with diabetes. Individuals must make a lifestyle change by implementing activity into their daily lives as well as eating proper foods such as incorporating more fruits and vegetables. Also, 57% of individuals with diagnosed diabetes take oral medication only, 16% take insulin injections only, while 12% take both oral medication and insulin injections (CDC, 2008).

1.4 A1c Values

The primary goal of diabetes treatment is to control blood glucose by keeping levels as close to “normal” as possible to prevent diabetes complications that may affect the body. An individual with diabetes may be required to test their blood glucose daily by using a glucometer and work to stay within the normal range of 80-120 mg/dl (National Institutes of Health (NIH) 2009). There is also a glycosylated hemoglobin A1c (A1c) test that is performed by a provider that informs the individual their average blood sugar over the last 2 to 3 months.

A1c levels are used as a standard tool to determine blood sugar control in individuals with diabetes. Hemoglobin is found inside red blood cells, which carries oxygen from the lungs to all the cells, and links up (or glycates) with glucose. This tool measures the glucose that enters the red blood cells which have a lifespan of 120 days (3 months). The provider is measuring how much glucose is linked up to the hemoglobin. The higher the glucose in the body, the higher the A1c number (ADA, 2008). In a person that does not have diabetes, 5% of all hemoglobin is glycated, therefore, the A1c test ranges should be lower than 7% to prevent diabetes complications. The ADA recommends testing A1c four times a year if diagnosed with type 1 or type 2 and use insulin; or two times a year if you have type 2 diabetes and do not use insulin (ADA, 2008).

A1c tests can confirm self monitoring blood glucose results, check if a new treatment plan is working, and show if healthy behaviors make a difference in diabetes control. A1c tests can be performed by drawing blood from the arm and placed in a tube for testing at the lab or it can be done by using a finger stick test and any number of analyzer machines (e.g., Bayer DCA 2000+ analyzer used in this study). These tests give the overall picture of how well the individual is managing his or her diabetes, and how treatment is going overall. Such measures can be used alone or in conjunction with blood glucose estimates, the latter providing a more detailed picture of day-to-day management

1.5 Interventions to Increase Diabetic Control

There are several types of behavioral/educational interventions to increase adherence in diabetes, specifically glucose control. The following will discuss interventions that are useful in glucose control such as goal setting which encompasses a Self Management (SM) approach, empowerment, and self-efficacy based approaches, educational approaches, and motivational interviewing.

The US healthcare system is designed to diagnose and treat acute health care problems and chronic diseases. But for the health care problems that are asymptomatic, people may not receive the attention that is needed to deal with the daily management, prevention or detection of long term complications. (Funnell & Anderson, 2004). Therefore, certain interventions may be an integral component for diabetes care. In recent years, many healthcare providers, nurses, dietitians and educators have used the empowerment approach for their patients based on the work of Brazilian philosopher Paulo Freire (Meetoo & Gopaul, 2005). The goal of empowering patients is to encourage autonomous self-regulation so that they can achieve their full potential for health and wellness (Meetoo & Gopaul, 2005). Therefore, diabetes SM is an important component of the empowerment approach so that patients can successfully manage their diabetes and make decisions on their care (Funnell & Anderson 2004).

The CDC (2008) states that diabetes self-management is an integral component of medical care. Self-management is described as a practice for providing knowledge and skills to individuals with diabetes so they may achieve self-care, manage crisis, and make lifestyle changes needed to successfully manage their disease (Sixta, 2006). The ADA (2008) identifies diabetes self management as the cornerstone of care for all individuals with diabetes who want to achieve successful health related outcomes. The primary aim of self-management is to increase self confidence in patients in order to facilitate change of their unhealthy behaviors. These changes include assessing the current behavior, goal setting, problem solving and goal follow-up (Sixta, 2006). Stanford University has a curriculum solely for chronic disease self-management program. The curriculum places emphasis on the importance on patients to make self-selected goal that would enable them to care for their disease (Stanford University, 1999). Because diabetes is cared for on a daily basis, the SM goal must also fit the psychological and physical world of the person with diabetes. The psychological world of the individual is that of religion, ethnicity, gender, socioeconomic status, health related priorities and experiences. The individual's physical world comprises of their community, neighborhood, home, school, or work. Therefore, it is imperative to allow the patient to self-select their goal and take ownership of it, which in turn will make them more likely to adhere to their goal (Stanford, 1999). The role of the healthcare team is guidance and to support problem solving, however, ultimately the patient should be responsible for their goals and health.

1.6 Behavioral Theories

Many elements of the SM approach incorporate concepts of behavioral theories**.** The social cognitive theory (SCT) from Bandura affirms that an individuals' outcome expectations, perceived behaviors, and self efficacy expectations are the main reasons for behavior, while reinforcement and learning are methods for change (Bartholomew, Parcel, Kok, Gottlieb, 2001). An example of the SCT is that a potential participant should be cognizant of the positive outcomes and have sufficient self-efficacy to adopt and implement a change in behavior in their diabetes care (Bartholomew, Parcel, Kok, Gottlieb, 2001). Another example of this theory is the positive outcome of the patient incorporating a self-management program. When the patient self selects a goal, the outcome expected should be controlled blood sugars, and consequently a lower A1c.

Also the focus on treating the patient as a partner or primarily responsible for his or her care incorporates elements of Motivational Interviewing (MI). Miller & Rollnick define MI as a client-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence, (VanWormer & Boucher 2004, p 404). MI is a newer approach that has been implemented in successful diabetes self-management. Motivational interviewing could be recognized as why people would want to change and what motivates them to change their behaviors. Motivational interviewing has just now been utilized as a counseling model for health promotion and disease management (VanWormer & Boucher 2004). MI could be used in a number of behavior changes that a health educator would want to integrate in an individuals' care. Self-management involves self efficacy which is a guideline to motivational interviewing. It allows individuals to achieve confidence and be able to change a specific behavior under difficult circumstances (VanWormer & Boucher, 2004). Although MI was originally used in the treatment of substance abuse disorders, it can be tailored to help change a diabetic person's behaviors. Instead of imposing a healthy behavior on a patient, a person from the health care team can guide the patient and assist them with their desire to change. MI relies on patients being able to recognize their intrinsic values and goals to motivate behavior change. Intrinsic motivation is a positive potential of individuals to want to challenge themselves to learn and incorporate positive changes and is valued because of its outcomes (Ryan & Deci, 2000). Consequently, a diabetic patient is motivated to attend class and learns, therefore, begins to exercise and ultimately improves A1c levels.

1.7 Interventions

The following three studies are examples of interventions that place emphasis on patients' self-management in their diabetes care. All three recognize that it is important that patients be empowered with information regarding their care in order for them to make informed decisions about their health. The new way of empowering patients is not by lecturing and telling patients what to do, but by allowing patients to be experts on themselves and make their own decisions on courses of action for positive behavior change, an idea consistent with intrinsic motivation theory (Ryan & Deci, 2000) and motivational interviewing (Miller & Rollnick).

The first intervention was a culturally appropriate diabetes self-management education program for urban African Americans with Type 2 diabetes. This program allowed patients to discover and use their own abilities to control their diabetes. The intervention consisted of six 2-hour weekly group educational and data collection sessions. Prearranged topics or lectures were not utilized, instead sessions were guided by participants' questions and concerns. There was also follow up by either a monthly phone call or attending a monthly support group meeting. There were 239 participants that were randomly assigned to two groups. One group immediately received intervention and the other group waited 6 weeks before attending the session. Both groups participated in the intervention and showed a small to modest positive change in A1c that was maintained during the one year follow-up. This concludes that there was a positive correlation between the number of follow-ups and participants' one year A1c values (Funnell, et al., 2005).

The second intervention assessed the effectiveness of a diabetes self-management program at a People's Community Clinic in Austin, Texas. There were 70 participants who attended 4-hour classes which were followed by individual dietitian consultations and monthly support meetings. Each participant, mostly Hispanic or African American, received education and a glucometer to aid in diabetes self-management. Self-management consisted of formulating personal goals set by the patient to control their diabetes. An example of a self-management goal was exercising three times a week for 15 minutes. This goal must be something that the patient was able to attain and incorporate as a behavior change for the rest of their lives. In this study, there was no comparison group, only data collected on participants entering the program over a calendar year. Participants' body weight, prescribed diabetes medications, A1c values, dietitian consultation, and support group attendance were recorded and analyzed every three months upon entering the program. The results of this intervention showed that diabetes self-management in a community clinic decreased patients' A1c from an average of 9.7% to 8.2% over one year, a 15% improvement. Participants also showed maintenance of or decrease use of medication, and limited average weight gain (Bannister, Jastrow, Hodges, Loop, Gillham 2004).

The third intervention was to compare two diabetes self-management interventions by providing an extended or compressed education session to Mexican Americans in Starr County, a Texas-Mexico border community. The extended group received 24 hours of education and 28 hours of support group, while the compressed group received 16 hours of education and 6 hours of support group. There were 216 participants between 35 and 70 years of age, 114 in the compressed group and 102 in the extended group that were randomly assigned. The interventions consisted of culturally competent information on diet, social emphasis, family participation and cultural beliefs. The main difference in the intervention was the total number of contact hours over the year, with the biggest difference being the number of support group sessions attended. This study reported the results of three primary clinical outcomes: A1c, fasting blood glucose (FBG) and diabetes knowledge. Participants were measured at baseline, 3 and 12 months. This study concluded that SM interventions were more effective for participants with high A1c values (higher than 12%) than those with average levels of 8-9%, this was a limitation of the intervention. Although the study showed the effectiveness of culturally competent SM education, participants, on average, did not achieve the national target A1c level of less than or equal to 7%. The initial Starr County study showed a 1.4 percentage point difference in A1c levels at 6 months between both groups, but levels still remained >10%. Data from the study reported a decrease in both interventions, but the best result in A1c level, 9.2% occurred in the extended intervention.

This study concluded that both interventions were effective in promoting diabetes control as measured by A1c levels and increasing diabetes knowledge. However the extended group showed greater diabetes improvement (Brown, Blozis, Kouzekanani, Garcia, Winchell, Hanis, 2005). The results postulate, that more diabetes SM education or contact hours, the more effective the participant is in achieving their goal of diabetes care and in turn eliminating diabetes complications.

All three interventions suggested that diabetes self-management, that includes patient empowerment, results in improved patient diabetes care. However, along with improvements there were several barriers that each intervention had in common. Some of these barriers included lack of transportation, work schedules, and family commitments. Another barrier that may have arisen arise and be unpredicted was patient adherence to these new goals.

In several studies on diabetes self-management, patient health was measured and improved (Brown, et al., 2005; Bannister, et al, 2004). This supports the concept of empowering patients to take control of their disease management and increase quality of life. There was a consensus among the journal articles (Funnell & Anderson, 2004;VanWormer & Boucher, 2004; Meetoo & Gopaul, 2005) which focused on the main idea that the role of patients is to be well informed active participants in their own care. Whereas, the role of the health professional is to assist the patient to make informed decisions in achieving their goal and overcome barriers through education, appropriate care recommendations, expert advice, and support (Funnell & Anderson, 2004).

Many of the articles stated that self-management was essential for effective diabetes care (Meetoo & Gopaul, 2005; Sixta, 2006). The ADA (2007) has printed national standards for diabetes self-management education to ensure effective programs for individuals with diabetes and their families. For effective self-management of diabetes, a patient must find their own solutions and motivation to care for their diabetes (ADA, 2008).

Some type of intervention is needed to lower diabetes complication morbidity and mortality because 21% of the US population lives in states that border Mexico and 33% of these individuals live in medically underserved border communities. These communities are characterized by living in extreme poverty, pollution, deprivation, poor health and diminished quality of life. They are predominantly Mexican Americans who have the lowest rates of insurance coverage, yet the highest rates of diabetes and related morbidity and mortality rates (Brown, et al., 2005). Some of the studies cited noted that education gave important information to patients; however, a one time educational program is not as effective to maintain adequate diabetes self-care. Therefore the purpose of the present study was to examine the effectiveness of SM on glucose control. It also examined whether SM was more effective alone or in combination with patient education.

1.8 Centro San Vicente Health Clinic (CSV)

Centro San Vicente (CSV) is a federally qualified health clinic (FQHC) that provides services to the uninsured. Founded in 1988 by the Daughters of Charity, CSV’s mission is to provide community-based primary health care with particular concern for the poor and needy.

Centro San Vicente has an active health education department with three promotoras and five health educators. Each individual in the department is in charge of a particular health concern dealing in tobacco cessation, diabetes, cardiovascular health, exercise, or prenatal care. For this study, one promotora and health educator were utilized for the Paso a Paso (Step by Step) classes and the self-management portion of the study.

With a coordinated and holistic approach in caring for body, mind, and spirit, CSV offers affordable healthcare, social services and health education. Working through core values of service to the poor and encouraging individuals to become responsible for their health and well-being, CSV is an advocate for social justice and a voice for the cause of improving the health of the medically underserved (S. Kumar, personal communication, March, 20, 2008).

There are 16,373 patients currently registered at CSV with 3,438 diagnosed with diabetes. Ninety three percent (93%) of these patients live below the 200% poverty level and 99% are Hispanic, 64% are female and 36% are male (S. Kumar, personal communication, March, 20, 2008).

At CSV, diabetes self-management consists of a one-on-one session that seeks to empower patients to control their chronic disease by setting self-management goals. The separate, patient education component is titled Paso a Paso, which consists of 8 weekly sessions to manage patients' illness by informing them of diabetes complications, high blood pressure, cholesterol, and exercise. .

This study was a retrospective chart review study that examined diabetic control using A1c values among four subgroups of patients including those who participate only in the SM, who participate only in patient education, who participate in both and who participated in neither.

CHAPTER II

METHOD

2.1 Research Design

This study was retrospective where secondary data were collected from 131 medical charts from patients at the Centro San Vicente Health Clinic in El Paso, Texas. The primary method of research was reviewing patient records, to evaluate changes in patients' health outcomes by paying particular attention to the hemoglobin A1c levels. The study did not involve active participation and therefore did not need a consent by clients, but rather was a retrospective evaluation of four groups of patients: a) patients receiving only a self-management session, b) patients receiving a self-management session and education, c) patients receiving education only and d) patients receiving no treatment. Although subject records were randomly selected for review from the client population, subjects were not randomly assigned to treatment condition. Instead, most subjects "self-selected" into treatment condition based on referrals from health care providers and their own personal preferences and barriers. Self-selected participants meant that patients selected the treatment which they found more suitable for them. For example, patients that felt they need to get their A1c levels lower, opted to attend the classes. Patients that did not see A1c levels as a priority did not attend classes. However, patients that were sent for an A1c had to have their session during their regular office visit. Charts were randomly selected from Paso A Paso sign-in sheets and from a self management spreadsheet. Every third name was selected from the sign-in sheets and the spreadsheet. For this study I obtained IRB approval from UTEP as well as approval from the pharmacy and therapeutics committee at CSV. Both approvals can be found in appendices C and D.

In total, 131 medical records were reviewed to collect A1c levels at three points in time, and height and weight of patients (for calculation of BMI at baseline). The three time points included, (a) pre-treatment baseline, (b) approximately 3 months later and (c) approximately 6 months following baseline. Patients' records from the years 2005-2006 were reviewed.

2.3 Participants

Patients who participated in any of the three forms of intervention were considered part of their specific experimental group; those who did not participate in any intervention activity comprised the comparison group. Even if they chose not to participate, all clients were referred to either SM or Diabetes education classes (or both) by their provider. These referrals were logged and processed in the health education department. Each referred patient was called and sent a letter to attend class or a SM session or both.

2.2 Instrumentation

About 170 medical records were pulled from the CSV medical records department, however, only 131 records were utilized due to inconsistency in documentation. This inconsistency included patients not returning to appointments, A1c levels not being measured, and a couple of patients were deceased. Both programs adhered to the standards mentioned in the introduction. Patients that attended either intervention seemed to accomplish goal setting. Appendix A shows the form used to make SM goals. Demographic information was reviewed using clinic software, HealthPro X an electronic patient record system. As mentioned before, A1c levels were measured using the DCA 2000+ machine. Confidentiality was maintained in all record access procedures and all resulting study data were completely anonymous (i.e., lacking identifying information).

2.3 Procedures

Self-management session

As discussed before, a SM session was conducted with a patient to discuss diabetes and achieve a self-selected goal that would enable a patient to change their behavior and eventually have glucose control to avoid diabetes complications. At CSV a SM session was conducted by a certified health educator for patients with A1c's ranging from 5.5 to 14 or higher. The health educator had attended several conferences on diabetes and was trained in the Stanford Chronic Care Model that was written by the Stanford Patient Education Research Center. The average time spent in a session was 30 minutes but could take an hour if the patient required extra care. After the session, the patient received a follow up call to ensure that their goal is still being accomplished. If it is not, the health educator enabled the patient to set a more realistic goal that could be better achieved. The goal of the educator was for the patient to achieve self-efficacy regarding their treatment and that they may understand the severity of diabetes to be able to select goals that would help them in their daily lives. One of the principles used in self management was motivational interviewing. It was used to elicit patients into making a self selected goal. From the perspective of the participants, it proved effective in those patients that were ready to make a behavioral change in their diabetes care. Forms that were used to conduct a self management are found in appendix A and B. Self management support is different from patient education. Self management encourages patients to take an active role in their care along with their health care team. Patient education is more of a one-way communication process where there is a lecture on what the educator thinks the patients should know about diabetes.

Education Program

The Paso A Paso diabetes education program was conducted by a promotora, which is usually a member of the community, layperson, or a certified community health worker with limited training and background in health education. For this study, the promotora was educated extensively in diabetes due to several trainings she had attended on diabetes and other related topics and also for the many number of years of experience. Patients attended 8 weekly, two-hour sessions. The first class discussed the physiology of diabetes and as the classes progressed more topics were discussed such as: hyperglycemia, hypoglycemia, different diabetes complications, nutrition, and exercise. At the end of each class, participants made an action plan which is similar to a SM goal. For example, patients may have committed to walking 15 minutes, 3 times a week during the evening, at the park. These SM goals were very specific. Every week, participants of the program reported their progress and developed a new goal. For this study, attendance was verified by sign-in sheets and defined as attending at least one out of the 8 sessions of Paso A Paso. Both the self management session and Paso A Paso classes are free of charge. To date, no other publications have been published but a dissertation has been done by Dr. Lujan and has been referenced in this thesis.

2.5 Analysis Plan

The analysis plan used for this study was to first examine the demographic characteristics of the sample. Then I reported correlations between demographics and A1C values. I then examined A1C values across the three time periods both overall and as a function of different treatment methods

CHAPTER III

RESULTS

3.1 Descriptive Analyses of Demographic Characteristics

As noted, the sample was comprised of 131 participants. Of the 131 records, 56 participated in the self-management alone, 21 in the education, 31 experienced both SM and education and 22 experienced no intervention. Table 1 shows the demographics of the sample in this study. The sample ranged in age from 30 to 88 with a mean age of 61.40 years (SD 12.15). The majority of participants were female (75.6%). While half of the participants were married (53.4%), the other half were single or not specified. The majority of participants were Catholic (65.6%) with the others reporting being Other Christian (14.6%), not specified/undeclared (16.8%) and Jehovah's Witness (3.1%). Most participants were Hispanic/Latino (96.6%), with the remainder being Caucasian (0.8%) and unknown/not specified (2.3%). The primary language of participants was Spanish (74.8%), most were unemployed (51.1%), and the majority had an education level of "less than high school" (78.6%). Most lived in one person households (46.6%) or a two person households (37.4%). The mean monthly income of participants was $984.42 (SD 767.52). The Body Mass Index (BMI) ranged from 19.39 to 58.63. The mean BMI of participants was 33.74 (SD 7.04). Hemoglobin A1c (A1c) levels were measured over a six month interval. Participants as a whole, at baseline, had A1c levels ranging within 5.7 to 14.0 with a mean A1c of 8.71 (SD 1.99). At three months, the A1c had a range of 5.6 to 13.3, the mean was 8.09 (SD 1.82). Finally, at six months the A1c levels had a range of 5.3 to 13.8, the mean was 8.11 (SD 1.88).

Table 1. Descriptive statistics for main study variables (n = 131)

Variable	Mean/Percent (%)
Age	61.40
Gender	
Male	24.4
Female	75.6
Marital Status	
Single	29.0
Married	53.4
Not Specified/Unknown	17.6
Religious Affiliation	
Catholic	65.6
Other Christian	14.6
Not Specified/Undeclared	16.8
Jehovah’s Witness	3.1
Race/Ethnicity	
Hispanic/Latino	96.9
Caucasian	0.8
Unknown/Not specified	2.3
Primary Language	
Spanish	74.8
English	24.4
Not Specified	0.8
Employment Status	
Unemployed	51.1
Part-time	9.2
Full-time	17.6
Retired	20.6
Not Specified	1.5
Education Level	
Less than high school	78.6
High school diploma	15.3
More than high school	3.1
Not Specified	3.1

Household Size (persons per family)	
1	46.6
2	37.4
3	9.2
4	4.6
5	1.5
6	0.8
Monthly Income	$984.42
BMI	33.74
A1c Baseline	8.71
A1c 3 Months	8.09
A1c 6 Months	8.11

3.2 Correlations between Demographics and A1C values

Table 2 contains the correlations between selected demographic variables and participant characteristics and A1C values. The table omits ethnicity and religious affiliation because of low variation on these variables.

As shown, age was significantly negatively correlated with household size, monthly income, BMI, and all three A1C values. These correlations indicate that older participants had smaller households and lower incomes, perhaps because they were more likely to live alone. Presuming that they live alone because they may be widowed, or their spouse does not live in the same home. They also had lower BMI's and healthier A1C values. Gender was negatively correlated with monthly income and positively correlated with A1c values at 3 months. These indicated that *female* participants had lower incomes and higher A1c values at three months than did male participants. Marital status was correlated with household size, monthly income and

A1c values at three months. This indicates that married participants had larger household sizes and higher monthly incomes. Married participants also had lower A1c values at the three month interval. Education level was positively correlated only with monthly income, implying educational attainment was related to higher monthly income. Household size was also only correlated with monthly income which indicated that the larger the household size the more income in that household. A1c values at baseline were correlated with A1c values at the three month and six month interval. In addition, A1c values at the three month interval were correlated to the A1c values at six months. BMI was not correlated with any of the selected demographic values nor was it correlated with A1c. This latter finding was unexpected and may reflect range restriction among BMI values, A1c values, or both.

Table 2. Correlations between selected demographic variables

	2	3	4	5	6	7	8	9	10
1. Age	.06	.04	-.15	-.38**	-.21*	-.38**	-.28**	-.26**	-,24**
2. Gender 1=M,2=F		-.14	-.07	-.14	-.22*	.04	-.01	.10*	.03
3. Marital Status 0=S,1=M			.03	.55**	.45**	-.17	-.04	-.22*	-.15
4. Education				.14	.25*	.00	.03	-.05	-.05
5. Household size					.49**	.04	.08	-.14	-.05
6. Monthly Income						-.10	.03	-.06	.04
7. BMI							-.03	.04	.06
8. A1c Baseline								.65**	.56**
9. A1C 3 Months									.82**
10. A1C 6 months									

n = 107 to 131
** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

3.3 Overall Changes in A1C levels across time period.

Overall changes in A1C values across the three time periods were assessed using a one-way analysis of variance (ANOVA) with one within-subjects factor—Time Period (baseline, 3 months, and 6 months)—and A1C values as the dependent measure. Results of this analysis showed a significant Time Period effect, $F(2, 260) = 13.90$, $p < 001$. The overall pattern of results indicated that A1C values were higher at baseline (M = 8.71) compared with the 3 months (M = 8.09) and 6 months (M = 8.11) follow up levels, which did not differ from each other.

For illustrative purposes, Figure 1 shows the overall changes in A1c values as function level of diabetic control. Based on ADA (2008) guidelines, an A1c of 6% corresponds to an average glucose of 135 mg/dL, while an A1c of 9% corresponds to an average glucose of 240 mg/dL. Therefore a person with diabetes needs to keep their A1c as low as possible to avoid complications. The normal level for A1c is less than 7%, levels above 9% show poor control, and levels above 12% show very poor control.[5] As shown, the proportion of individuals with poor and moderate control declined over the six-month course of their interaction with the program, whereas the proportion of individuals with good control increased. This indicates that the number of participants with good control increased from baseline to 3 months, and that this change was maintained at 6 months. These numbers showed the number of moderate- and poorly-controlled participants to decline, suggesting that the sample was healthier at 6 months follow-up, at least in terms of diabetic control.

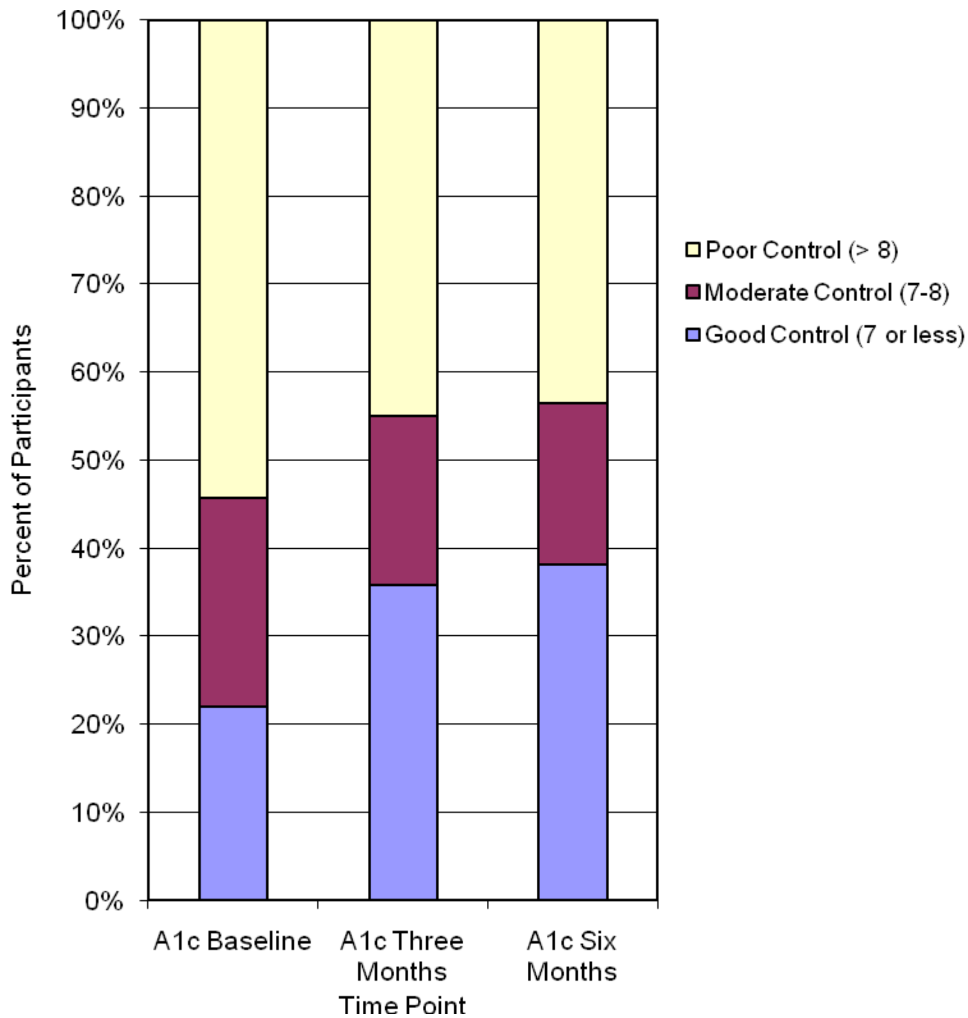

Figure 1. Overall changes in A1c values among participants

3.4 Assessing the impact of the Diabetes Self-Management and Diabetes Education

Changes in A1C values as a function of treatment condition were assessed by using a 4 x 3 ANOVA with one between-subjects factor (treatment condition) and one within subjects factor (time period). The four levels of treatment condition included a self management session only n=56, a combination of a self management session and education n=31, education only n=21, or no intervention n=22.

Results of this analysis revealed a significant time period main effect, $F(2, 252) = 9.43$, $p < .001$, and a significant treatment condition by time period interaction, $F(6, 252) = 2.36$, $p < .05$. Although the time period main effect is redundant to the aforementioned analysis (see Figure 1), Figure 2 shows the means for the significant treatment group by time period interaction. The interaction was probed by conducting separate one-way analyses (i.e., simple effects tests) for each of the treatment conditions. These analyses showed significant time period effects for the Self-Management, $F(2,110) = 6.10$, $p<.02$ and the Combined condition, $F(2,60) = 8.86$, $p < 01$, but were not significant for the education only condition and no intervention condition (both $F < 1$).

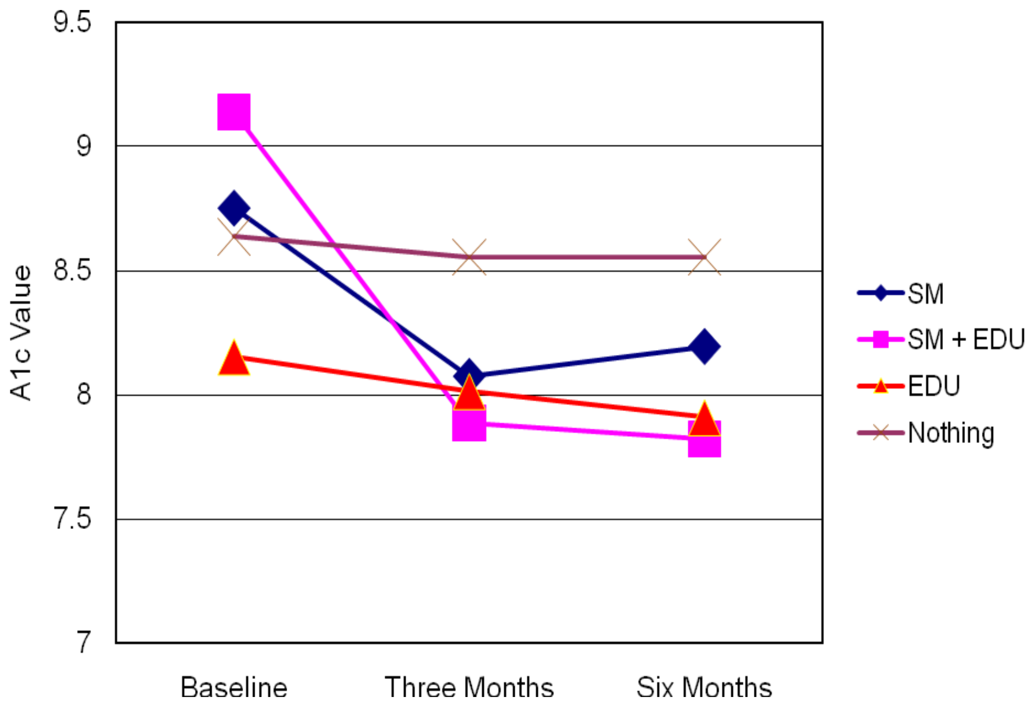

Figure 2. A1c levels of participants as a function of treatment condition (SM *n*=56, SM + EDU *n*=31, EDU *n*=21, Nothing *n*=22)

As shown in Figure 2, the self-management participants started out relatively high, but declined at three months, with a slight elevation from 3 to 6 months. Combined intervention participants started out with the highest A1c values, but had the lowest A1c values at 3 months and at 6 months. The education alone condition started with lower A1c values, and did not significantly change across the time periods. Finally, the no-intervention participants started out relatively high, similar to the self-management and combined groups, but they did not change over time, maintaining their baseline values and becoming the group with the highest A1c's at three and six months. Despite the significant group by time interaction, none of the pair-wise comparisons within the self management and combined conditions were significant. However, trend analyses show the SM and combined group to have significant linear and quadratic trends ($p < .05$), whereas the education only and the no treatment group show no linear trends.

Because the lack of difference may be due in part to low statistical power and because a one-point decline in A1c is considered clinically significant, the percentage of individuals who showed clinically significant changes in A1c values was examined. According to both the ADA and CDC, studies in the United States and abroad have found that improved glycemic control benefits people with either type 1 or type 2 diabetes (ADA, 2008; CDC, 2008). In general, every percentage point drop in A1c blood test results (e.g., from 8.0% to 7.0%) reduces the risk of microvascular complications (eye, kidney, and nerve damage diseases) by 40%. Figure 3 shows the proportions of subjects within each condition whose A1c either changed (+/- 1.00%-1.99%), changed significantly (+/-2% or more), or remained the same (+/- < .99%). The figure shows that 36% of the self-management group and 42% of the combined group showed a significant decline in A1c values ("Better" and "Much Better") groups. This compares with only 19% in the education-only group. Thirty six percent of the no intervention group also showed a decline, however many more of these participants became much worse (i.e., 14%) compared to the other conditions. In fact, no participants got "much worse" in either of the SM or Combined groups. Indeed, 92% of the SM participants remained the same or got better.

This figure highlights the fact that one advantage of these interventions is that not only do they help some people get better, they also prevent many people from getting worse. Thus, while a substantial number in the no-intervention group got better, a substantial number also got much worse. One of the advantages of this graph is that it shows that many individuals changed in the no intervention group, but these changes tended to cancel each other out in the graph of the mean values. Overall, this graph helps address the issue of changes that are clinically significant vs. non-clinically significant. This figure also shows the benefit of receiving at least one intervention may improve A1c values by 2 points (lowering A1c levels) as opposed to not receiving an intervention and A1c getting worse by 2 points (raising A1c levels),

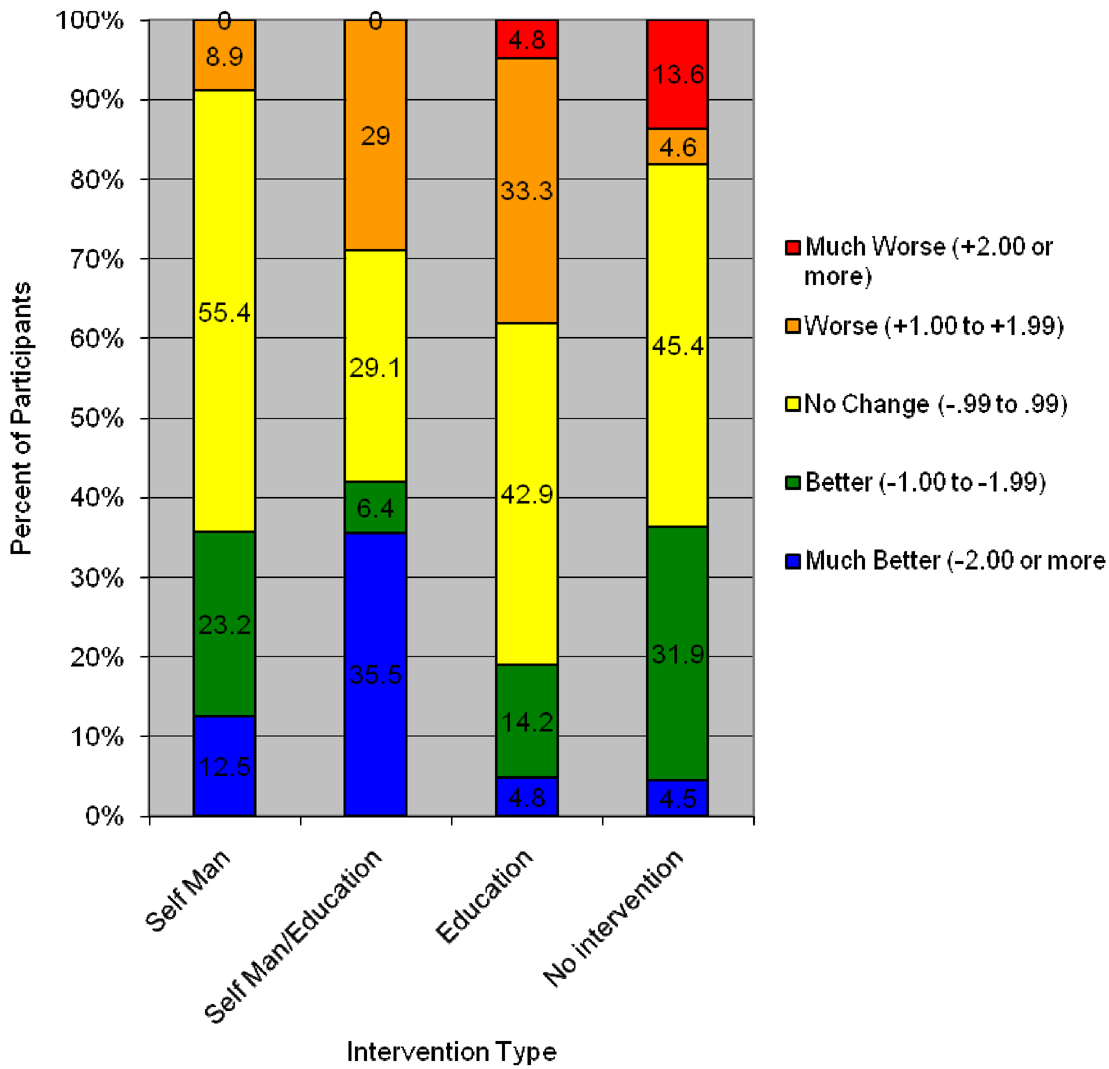

Figure 3. Frequency of individuals that showed a clinically significant declines or increases in A1c values (SM *n*=56, SM + EDU *n*=31, EDU *n*=21, Nothing *n*=22

CHAPTER IV

DISCUSSION

Overall, the results showed that SM and the combination of SM and education both resulted in improved A1c levels indicating greater glucose control compared with education alone and no intervention groups who showed no change. The self-management participants started out with relatively high A1c levels, but declined at three and 6 months. The combined intervention participants started out with the highest A1c values, but had the lowest A1c values at 3 months and at 6 months. Although the combined condition had the greatest change, the pattern did not differ statistically from the SM condition. The education alone condition started with lower A1c values, and did not significantly change across the time periods. Finally, the no-intervention participants started out relatively high, similar to the self-management and combined groups, but they did not change over time, maintaining their baseline values and becoming the group with the highest A1c's at three and six months. Therefore, patients in two of the experimental groups received a benefit in the intervention by lowering their A1c levels. These results suggest the treatments examined in this study may improve the management of diabetes and possibly reduce its complications, for at least 6 months following initial diagnosis and treatment. By lowering A1c levels, they may also reduce the cost associated with unnecessary hospitalization, amputations, and loss of work. Of course, research is needed to examine if these trends last for longer than 6 months.

Although the education only group did not change, they also started out lower at baseline than the other groups. As such, there may have been less room to change as a group. Thus it is difficult to say whether this group would have benefited from the addition of SM to their treatment regimen.

The education group differs from the no intervention group who started out with the highest A1c at baseline. There did not seem to be a significant change among this group at the 3 month or 6 month interval. Both of these situations reflect the lack of random assignment, since participants self-selected their intervention. The groups also lacked a large number of participants, particularly for some conditions, to be statistically significant.

This study is consistent with other research (Banister, et al., 2004, Brown, et al., 2005 and Brown, et al., 2002). in that some form of diabetes education, SM or a combination may increase blood glucose control. There was also a study conducted at Centro San Vicente that was similar to the present study. The study also focused on the Paso a Paso *(Step by Step)* curriculum but had different measurements. The study was conducted by Lujan (2006) and measured A1c levels, diabetes knowledge, and diabetes-related beliefs. Lujan's findings supported the current study because the intervention group significantly improved their mean A1c level and diabetes knowledge at the six month interval. However, there were no significant changes at the three-month assessment. (Lujan, 2006).

There were also some of the barriers consistent with other research, may have indicated that since interventions were self selected, many participants chose not to attend classes or did not select a goal because they did not think it was important in their care. Selection bias, whether through self-selection of other factors (e.g., provider biases and influence, scheduling, class availability) may be a problem for research and establishing cause and effect, however it was beneficial because it allowed patients to self select into the intervention that they perceived was better suited for them. Therefore, patients were more successful in fully completing the classes and achieving their self management goal. This may have accounted for a slight improved A1c level.

4.1 Strengths and Limitations of the present research

Strengths of this study include the positive outcome of participants' health in relation to utilizing some form of intervention. Although there was low statistical power, there was a change in the frequency of individuals who showed a significant decline in A1c. We postulate a decline in A1c outcomes due to an intervention, whether it was SM, education or a combination of both. A limitation of the research may be failure to control for prescribed medications. The participants A1c may be lowered by complying to take their medications which could also be adherence to their SM goal of taking meds at appropriate times as prescribed by the provider.

However, although, self-selection may have helped some participants lower their A1c levels, it was also the greatest limitation. By selecting the intervention, the participants may have affected the results. This result may be because participants had differences in health, motivation and conscientiousness that may have existed at baseline. Participants that were more concerned or aware of the importance of diabetes care may have been more motivated to improve their health and may have "selected" the intervention group. Therefore, they may have improved their A1c levels because they were more motivated, not because of the treatment. This problem could have been prevented by random assignment to a condition, which was not possible in this retrospective study. Also, those who did not participate in these activities may have chosen not to attend classes because of the time-commitment, lack of transportation, schedule conflicts, or lack of interest. The lack of random assignment to the various conditions may affect the interpretation of the results.

4.2 Suggestions for future research

As discussed, future research should consider random assignment to control selection bias as a possibility as to why participants would differ. With random assignment, participants would not differ due to assigned conditions which would create groups based on probability. Also a larger number of participants per group may also make the study more statistically significant. There would also be a strict time limit for participants to acquire their A1c test at the appropriate monthly interval. Hence, if each patient received the A1c test on or around the same time, then they should also adhere to the same track/rotation of classes.

4.3 Summary and Conclusions

This study examined the impact of diabetes intervention on A1c levels. It showed that while some patients started out with relatively high A1c levels, the self management group and combination group, after intervention, slightly lowered their A1c levels. Whereas those that started out with high A1c levels but opted out of any intervention, showed that their A1c levels continued to remain high. Also patients that did not show change in their A1c levels were in the education group. These participants started with low A1c values and remained low through the six months. Results showed that interventions may help in blood sugar control; therefore, all diabetes patients could try to go through at least one SM session while in the exam room. The patient could then elect to go through classes because the combination has an increased positive effect.

REFERENCES

American Diabetes Association. The dangerous toll of diabetes. Retrieved May 20, 2008. http://www.diabetes.org

Banister, N. A., Jastrow, S. T., Hodges, V., Loop, R., Gillham, B.M., (2004). Diabetes self-management training program a community clinic improves patient outcomes at modest cost. Journal of the American Dietetic association, 104(5), 807-809.

Bartholomew, L, K., Parcel, G. S., Kok, G., & Gottlieb, N. H. (2001). Intervention mapping designing theory and evidence-based health promotion programs. Mountain View, California: Mayfield Publishing Company.

Brown, S. A., Blozis, S. A., Kouzekanani, K., Garcia, A. A., Winchell, M., Hanis, C. L. (2005). Dosage effects of diabetes self-management education for Mexican Americans: the Starr County border health initiative. Diabetes Care, 28, 527-533.

Brown, S. A., Garcia, A. A., Kouzekanani, K., Hanis, C. L. (2002). Culturally competent diabetes self-management education for Mexican Americans. Diabetes Care, 25(2), 259-268.

Centers for Disease Control and Prevention. National Diabetes Fact Sheet. Retrieved May 20, 2008. http://www.cdc.gov/diabetes

Centro San Vicente. Retrieved September 28, 2009.

www.sanvicente.org

Funnell, M. M., Nwankwo, R., Gillard, M. L., Anderson, R. M., Tang, T.S., (2005). Implementing an empowerment-based diabetes self-management education program. The Diabetes Educator, 31, 53-61.

Funnell, M. M., & Anderson, R. M. (2004). Empowerment and self-management Of diabetes. Clinical Diabetes, 22, 123-128.

Healthy Border 201. Retrieved May 19, 2008. http:// www.borderhealth.org

Healthy People 2010. Retrieved May 19, 2008. http://www.healthypeople.gov/Data/data2010

Kumar, Sona. Personal Communication. March 20, 2008.

Lorig, K., Gonzalez, V., & Laurent, D., (1999). The chronic disease self-management program. Palo Alto, CA: The Board of Trustees, Leland Stanford Junior University.

Lujan, J. (2006). The effectiveness of a promotora-led intervention for Mexican American with type 2 diabetes. Unpublished doctoral dissertation, The University of Texas Health Science Center at Houston.

Medline Plus. Retrieved May 20, 2008. http://nlm.nih.gov/medlineplus

Meetoo, D., & Gopaul, H. (2005). Empowerment: giving power to people with Diabetes. Diabetes and Primary Care, 6, 164-169.

Miller, W.R., & Rollnick, S. Motivational interviewing. Preparing people for change. New York: The Guilford Press.

National Institute of Diabetes and Digestive and Kidney Disease. Retrieved September 29, 2009. http://diabetes.niddk.nih.gov.

National Institutes of Health. Retrieved February 16, 2008.
http://www.ndep.nih.gov.

Paso Del Norte Health Foundation. Retrieved February 23, 2009.
http://www.pdnhf.org.

Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55, 68-78.

Sixta, C., (2006). A diabetes self-management manual for providers and staff [Manual]. West Central Cluster.

Stanford Patient Education Research Center. (1999). Tomando control de su salud.

Texas Diabetes Council. (2008). (A) Diabetes in Texas: A risk factor report 1999-2002 survey data. Retrieved May 20, 2008.
http://www.dshs.state.tx.us

Texas Diabetes Council. (2008). (B) Diabetes and Disparity: A plan to prevent And control diabetes in Texas, 2008-2009. Retrieved May 19, 2008. http://www.dshs.state.tx.us

Texas Department of State Health Services. Retrieved February 16, 2008. http://www.dshs.state.tx.us/chs/

The U.S. Department of Health and Human Services' National Diabetes Education Program.

VanWormer, J. J., & Bouchner, J. L. (2004). Motivational interviewing and diet Modification: A review of the evidence. The Diabetes Educator, 30(3)

404-418.

World Health Organization. Retrieved February 16, 2008.

http://www.who.int/mediacentre/factsheets

APPENDIX A
SELF-MANAGEMENT SHEET

Plan de Accion /Action Plan

EJEMPLO:

Qué/What?	Voy a caminar 30 minutos.	*I am going to walk 30minutes.*
Cuándo/When?	Por las tardes después del trabajo.	*In the afternoon after work.*
Dónde/Where?	En el parque cerca de mi casa.	*In the park near my home.*
Frecuencia/ Frequency?	3 veces por semana.	*3 times a week.*

Fecha/Date ______________

Qué?/ What	**Cuándo?/** When
Dónde?/ Where	**Con Qué Frecuencia?/** Frequency

Fecha/Date ______________

Qué?/ What	**Cuándo?/** When
Dónde?/ Where	**Con Qué Frecuencia?/** Frequency

Fecha/Date ______________

Qué?/ What	**Cuándo?/** When
Dónde?/ Where	**Con Qué Frecuencia?/** Frequency

APPENDIX B
SELF-MANAGEMENT GUIDE

West Central Cluster Self-management Manual

Diabetes Self Management

Diabetes is a very serious disease which may cause damage to the blood vessels and nerves leading to the brain, eyes, heart, kidneys, toes and feet.

You, the patient, are the most important person to manage your diabetes. We will guide you and offer support as you manage your diabetes. The following goals will help you gain and maintain diabetic control to reduce damage to your blood vessels and nerves.

Please choose goals you are willing to work on to better manage your diabetes		Yes	No
	Goal 1: I will work hard to keep my HbA1c below 7.		
	Goal 2: I will exercise (walk) 30 minutes _____ days per week. If I notice chest pain, shortness of breath or chest tightness, I will seek medical attention.		
	Goal 3: I will check my feet daily. If I notice a sore or irritation I will seek medical attention. I will visit the Podiatrist yearly, or as instructed.		
	Goal 4: I will follow my diabetic and low fat diet to reduce my blood sugar and cholesterol.		
	Goal 5: I will try to obtain my ideal body weight. I will lose _____ pounds by my next office visit.		
	Goal 6: I will take a baby aspirin or enteric coated aspirin every day.		
	Goal 7: I will stop smoking.		
	Goal 8: I will have an eye exam every year or as indicated.		
	Goal 9: I will check my blood sugar as instructed and will call if the results are consistently below 70 or above 180.		
	Goal 10: I will talk about how I feel about having diabetes to family, friends, & or chaplain. I will attend the Diabetes Support Group.		

Selfmgtform - YCH

APPENDIX C
PHARMACY AND THERAPEUTICS COMMITTEE APPROVAL LETTER

Isela DeBaca

From: Sias, Jeri J. [jjsias@utep.edu]
Sent: Tuesday, August 09, 2005 6:08 PM
To: Isela DeBaca
Cc: Jesus Alonzo, MD; ampharmacy@elp.rr.com; Sias, Jeri J.
Subject: CSV Protocol - Diabetes self management

Isela -

The Centro San Vicente P&T committee has approved protocol #05-05 "Diabetes Self Managemen/tEducation and its impact on patient health". It is approved through August 9, 2006 at which time it may be continued if needed upon your notifying us.

The chart review is a tremendous task. We would like to be informed of the results particularly as it reflects on the work of the clinic. We recognize that while education is very important to the care of Centro San Vicente pateints, many other factors are involved including the clinical care and medication use of the patients.

We look forward to an annual report and an opportunity to review any final written articles/documents prior to publication.

Thank you,

Jeri J. Sias, PharmD
Centro San Vicente P&T member

CC: Dr. Jesus Alonzo, CMO & Antonio Martinez, P&T chair

APPENDIX D
IRB APPROVAL

THE UNIVERSITY OF TEXAS AT EL PASO

Office of Research and
Sponsored Projects

MEMORANDUM

TO: Isela DeBaca, Graduate Student
Health Promotion

FROM: Karen Hoover, BS, BA, CIP
Institutional Coordinator for Research Review

DATE: June 30, 2005

SUBJ: Research Protocol #2159 – "Anonymous, Retrospective Study of Medical Records of Diabetic Patients at Centro SanVicente Clinic to Measure the Impact of Diabtes Self-Management Instruction in Combination with Diabetes Education on Patient Health"
Protocol Period: Exempt from review, Category 4

This research protocol has been reviewed and judged exempt from review by The University of Texas at El Paso Institutional Review Board for Human Subjects and is in accord with University policy. Category 4 exemption relates to "research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects." If your research significantly changes or you involve human subjects in activities not described in the protocol, you should submit an amended research protocol to this office.

El Paso, Texas
79968-0587
(915) 747-5680/5689
FAX: (915) 747-6474

CURRICULUM VITAE

Isela De Baca was born on April 24, 1973 in El Paso, Texas. She graduated from Del Valle High School, in the Spring of 1991. She completed a Bachelor's of Science with a minor in Community Health. She currently works as a certified health educator at Centro San Vicente Health Clinic.