

Effectiveness of an Evidence-Based Case Management Intervention on Reducing Diabetes-
Related Emotional Distress in a Hispanic Medicare Advantage Population

Mari Nickovich-Finley MSN, RN, MBA, FACHE, ANP-BC

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Sandra Laird DNP, ACNP-BC, AOCNP

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Table of Contents

Abstract.....	4
Problem	6
Review of Literature.....	7
Project Framework.....	10
Project Objective	10
Methods.....	11
Participants and Setting.....	11
Data Collection.....	13
Procedure.....	13
Statistical Analysis	15
Results.....	16
Discussion.....	16
Limitations.....	18
Implications.....	19
Conclusion.....	20
References.....	21
Appendix A: <i>Problem Areas in Diabetes Questionnaire</i>	24
Appendix B: <i>Program Welcome Letter</i>	25
Appendix C: <i>Scripted Outreach Call</i>	26
Appendix D: <i>Figure 1. Care Enrollment Process</i>	27
Appendix E: <i>Figure 2. Case Management Intervention Protocol</i>	28
Appendix F: <i>Figure 3. Case Management Intervention Overview and Timeline</i>	30
Appendix G: <i>Figure 4. Data Collection Plan</i>	31
Appendix H: <i>Table 1. Characteristics of the Target Population</i>	32

Appendix I: *Table 3: PAID Pre and Post Intervention Statistical Analysis*.....33

Abstract

Background: Diabetes affects nearly 20 million people and is associated with an estimated \$132 billion in health care costs (Gabby et. al, 2006). Co-morbid conditions such as anxiety, emotional distress, and depression contribute to negative outcomes in minority populations (Ell et al., 2011). Case management interventions focused on reducing diabetes emotional distress have improved patient outcomes in Hispanics (Gabby et al., 2006). This study evaluated the effectiveness of an evidence-based nurse case manager intervention, including a referral to a social worker, for reducing diabetes-related emotional distress in a Hispanic Medicare Advantage population.

Methods: A one-group pre-and post-intervention design was used to measure diabetes-related emotional distress in a sample of Hispanics in a Medicare Advantage Program. Measures of diabetes-related emotional distress were completed pre-and post-intervention using the Problem Areas in Diabetes Questionnaire (PAID; DAWN 2, 2015). The intervention included diabetes self-management education (DSME) via telephone, conducted by a nurse case manager, and a referral to a social worker for assessment and support of social and emotional care needs. Bilingual case management staff and Spanish speaking interpreters were utilized for the intervention. The intervention occurred between June and September 2016.

Results: A total of 31 Hispanic patients, 53.3 % females and 46.7 % males, consented to enroll into the case management intervention. Fifteen (48.4%) of the 31 patients completed the intervention. The majority (86.7%) identified Spanish as their primary language, and 13.3 % identified English as their primary language. The mean pre-intervention PAID score for the 15 participants completing the intervention was 43.2 on the scale of 0 to 100. The mean post-intervention PAID score was 21.1. A paired sample t-test computed on the pre- and post-

intervention mean PAID scores revealed that participants completing the intervention had significantly lower diabetes-related emotional distress levels from pre- to post-intervention, $t_{(14)} = 4.459$, with $p = 0.001$. This result suggests a clinically significant reduction in diabetes emotional distress in the sample.

Conclusion: Hispanics with diabetes are at risk for adverse health outcomes and related complications. Anxiety, depression, and emotional distress contribute to such adverse outcomes. The findings from this study suggest that a telephonic nurse case management intervention inclusive of DSME with a referral to a social worker can reduce diabetes emotional distress in Hispanics.

Effectiveness of an Evidence-Based Case Management Intervention on Reducing Diabetes-Related Emotional Distress in a Hispanic Medicare Advantage Population

Background

Diabetes mellitus (DM), Type 2, is a major cause of morbidity and mortality in the United States. In 2012, cost estimates for this disease reached nearly \$245 billion (Menke, Casagrande, Geiss, & Cowie, 2015). DM is a complex disease that is largely self-managed by patients. Many factors influence overall self-management, including psychological and social/emotional factors. Hispanics experience higher prevalence rates of DM, at nearly 16.9%, as compared to non-Hispanic Whites at 10.2% (Schneiderman et al., 2014). Co-morbid conditions such as anxiety, emotional distress, and depression contribute to disease-related complications and poor outcomes in minority populations (Ell et al., 2011). Patient self-management in minorities is affected by environment, health beliefs, health literacy, psychiatric disorders, cultural traditions, and norms (Welch et al., 2011). Case management interventions have been effective in improving patient self-management behaviors and adherence to a healthy lifestyle (Gabbay et al., 2006).

Problem

There is a belief among Hispanics that negative emotions contribute to diabetes. Concha et al. (2009) noted that few interventions have addressed emotional well-being in this population. There is a correlation between diabetes-related emotional distress and glycemic control (Fonda et al., 2009). Psychosocial factors such as diabetes distress, social distress, and depression impact patient engagement and treatment adherence. These factors are not managed as part of routine medical care and are associated with poorer self-management and poorer patient outcomes (American Diabetes Association [ADA], 2016).

To improve self-management and reduce diabetes-related emotional distress, Hispanic patients need to understand factors influencing diabetes and how to take responsibility for this disease. Self-management skills and problem-focused coping behaviors improve adherence to treatment regimes (Welch et al., 2011). While non-adherence has not been associated with a certain psychological profile, anxiety and stress can disrupt glycemic control. Addressing emotional issues such as depressive symptoms, diabetic distress, and anxiety within case and disease management programs may be significant to improvement in health status for Hispanic populations (Welch et al., 2011).

The purpose of this project was to evaluate the effectiveness of an evidence-based nurse case management intervention including DM self-management education (DSME) via telephone, and referral to a social worker. The primary objective was to identify and reduce DM-related emotional distress in the Hispanic sample.

Review of literature

Psychosocial variables are important determinants of illness severity and course. Depressive symptoms and DM-related emotional distress are common (Fleer et al., 2012). Hispanic patients with DM experience various levels of psychosocial problems including mood problems, emotional distress, anxiety, and depression. These psychosocial effects may influence treatment adherence and glycemic control (Fonda et al., 2009).

A review of the literature identified DM emotional distress as significant to changes in hemoglobin A1c levels and quality of life. Gabbay et al. (2006) noted a reduction of emotional distress with a focused nurse case management intervention that included DM self-management education (DSME) and psychosocial assessment. ADA recommendations include screening for

psychosocial problems such as depression and DM-related emotional distress (ADA, 2016). DSME has been associated with improved disease knowledge, improved self-care behaviors, improved quality of life, healthy coping, and lower health care costs. Better outcomes have been associated with DSME interventions that include culturally tailored interventions. These interventions are designed to address individual needs and preferences, and incorporate both behavioral and psychosocial strategies (ADA, 2016). The ADA researchers also noted that patients who participated in DSME were more likely to follow best practice recommendations, particularly in the Medicare age population (ADA, 2016).

Gabbay et al. (2006) studied the impact of nurse case management on DM distress and glycemic control for patients. This was a randomized control trial (RCT) conducted in two primary care clinics for subjects age 18 years and over with diagnosis of DM. The subjects were randomized to the intervention with the nurse case manager or usual care with the primary care provider. The subjects were not limited to poorly controlled DM and included only a small number of Hispanics. The primary outcomes included A1c levels, lipid levels, blood pressure, and secondary outcomes of DM-related emotional distress as assessed by the PAID scale (PAID; DAWN 2, 2015). The researchers found improvement in blood pressure and DM-related emotional distress, but the HbA1c and lipid levels were unchanged following the 1-year study (Gabbay et al., 2006).

Stuckey et al. (2009) tested a study design and baseline characteristics for a model of managing DM that included a nurse case manager and motivational interviewing. The goal of this study was to improve the patient's outcomes versus usual care. Similar to the study by Gabbay et al., this study measured DM emotional distress and incorporated use of a nurse case manager versus usual care over a period of two years. This study sample was predominantly

underserved Hispanics. The researchers identified a correlation between optimal glucose control and the prevention of DM complications and improved health. There was a significant level of emotional distress noted in both the control and intervention groups. Stuckey et al. used the Chronic Care Model (Wagner et al., 1999) to evaluate a nurse case management intervention. The study provided quantitative information to support nurse case management as an intervention to improve outcomes in patients with diabetes (Stuckey et al., 2009).

Disease management is a system of coordinated health care interventions and communications for conditions in which patient self-care efforts are significant to outcomes. Standard DM disease management programs include assessment of medical and behavioral health co-morbidities and depression screening. Studies on disease management outcomes in patients with DM who are racial minorities have shown mixed results (Anderson et al., 2010). A review of research by Concha et al. (2009) noted few DM disease management interventions that actually addressed emotional well-being in minority populations.

In summary, a review of literature offered evidence supporting case management for DM related emotional distress as compared to usual care in both Hispanic and non-Hispanic populations. The case management models varied by intervention and study design. A nurse-led diabetes care management program called the Comprehensive Diabetes Management Program (CDMP) for poorly controlled Hispanic type 2 diabetes patients reduced diabetes distress in the intervention group (Welch et al., 2011). Zagarins et al. (2012) found that motivational interviewing was more effective than DM education alone. Technology integrated within a nurse case management model engaged patients beyond usual care methods in the primary care environment and demonstrated significantly improved outcomes in both DM related distress and glycemic control (Welch et al., 2015). Telephone interventions did not provide evidence of

improvement in glycemic control; however, other studies incorporating a combination of telephone interventions, face-to-face visits, and technology did find significant improvements in primary outcomes of glycemic control and reduction in DM-related distress (Fonda et al., 2009). This suggests that telephone interventions used in combination with other intervention types may reduce DM-related emotional distress and HbA1c levels.

Case management interventions that included DM-self management education and a psychosocial intervention component yielded improvements in both clinical and psychosocial outcomes of patients including Hispanics subjects (Welch et al., 2011). This evidence supports implementation of a nurse case manager intervention and referral to social workers to address diabetic emotional distress in Hispanic populations.

Project Framework

The framework for this project was the chronic care model (Coleman et al., 2009). This model embraces an organizational approach to care of a population. The approach is evidence-based and focused on self-management support that enhances patient outcomes. The chronic care model includes functional and clinical outcomes to ensure an informed, engaged patient, and productive interactions between patient and providers. There are six components in the chronic care model. Self-management support is one component that addresses individual and group education, patient-centered goals, monitoring of self-management goals, and the Health Empowerment Lifestyle Program (Coleman et al., 2009).

Project Objective

The primary objective of this project was to identify and reduce DM-related emotional distress and improve disease self-management as evidenced by lower PAID scale scores in a Hispanic Medicare Advantage population.

Methods

Project Design

This was a quality improvement project. The project used a one group pre and post test design. The protocol included 90 days of nurse case management to address DM self-management and referral to a social worker for emotional needs. The nurse case manager's role included conducting a comprehensive assessment of the patient's level of understanding about DM and preparedness for self-management. The interventions were individualized to each patient and included addressing knowledge deficits and problems identified from the initial DM assessment. The case manager conducted telephonic outreach at least bi-weekly and reassessment every 30 days. The nurse case manager utilized DMSE to address problems such as non-adherence to plan of care, lack of knowledge of disease process, or complications related to medical, psychosocial or functional issues. The social worker's role included assessing the patient's emotional needs and developing an individualized plan of care to reduce DM-related emotional distress. The social worker conducted one or more interventions using telephonic counseling or home visits based on patient and family preferences. The social worker's interventions were individualized and included assistance with financial barriers, social support, safety, and other concerns related to psychosocial or emotional issues.

The initial PAID survey (DAWN 2, 2015) was completed by the Spanish-speaking care coordinator. The intervention was implemented in patients with identified emotional distress.

The nurse case manager DSME intervention followed ADA guidelines for assessment and individualized care planning to improve patient self-management. Long term, the ADA expectation is that the DSME intervention will reduce emotional distress and improve glycemic control (ADA, 2016).

Participants and Setting

The target population for this project included English or Spanish-speaking Hispanic Medicare Advantage members, ages 45 to 80, with a diagnosis of type 2 DM mellitus and measures of significant emotional distress. Excluded were patients with mental health impairment, patients who did not have a telephone, were residents of a nursing home, or who could not communicate in English or Spanish. The study was a convenience sample of Hispanic Medicare Advantage members. The setting was the care management department of an independent physician organization (IPA) located in Fort Worth, Texas. Three health plans delegate this IPA to perform the functions of case and disease management for the Medicare Advantage patient population.

Verbal consent was obtained during the initial outreach. Completion of the survey constituted informed consent.

Data Collection

Measures of DM-related emotional distress were obtained pre- and post-intervention using the PAID survey (See Appendix A; DAWN 2, 2015). The survey is a self-report questionnaire that is composed of 20 items that describe negative emotions related to DM such as fear, anger, and frustration (ADA 2016). There are five possible answers to each question, with values from zero to four, with four recognized as the most serious distress. The scores are

added and multiplied by 1.25, generating a total score between 0-100. PAID scores may drop as much as 10-15 points with medical or education interventions (DAWN 2, 2015).

Procedure

The case management care coordinator conducted initial telephone calls to patients who fulfilled the inclusion criteria to complete the PAID questionnaire. The care coordinator was Spanish-speaking to enhance communication with the patients. Follow-up mailings to patients consenting verbally to the intervention included a welcome letter to the program. The mailings were provided in the patient's preferred language of English or Spanish (See Appendix B).

The case management staff was trained in the intervention protocol using face to face and webinar formats. The senior vice president for health services and the senior director of care management conducted training on the intervention protocol. The Acuity® application support specialist conducted training on the workflows and documentation in the system. Two training sessions on the intervention were completed prior to the project implementation. The training content included instruction on how to administer and score the PAID scale, how to open a care enrollment in the acuity care management system, and how to conduct the diabetic disease management assessment and interventions. Social workers were trained on the social worker component of the intervention protocol and documentation requirements in Acuity®. A scripted outreach call was developed for the Spanish-speaking care coordinator to assist with recruitment of patients for this project (See Appendix C). The completed initial PAID questionnaires were reviewed and scored by the nurse case managers. Once scored, the PAID questionnaires were uploaded into the patient's care enrollment record in the Acuity® care management system. Patients identified with PAID score greater than 20 were enrolled upon verbal consent. Patients

were enrolled in the intervention for a period up to 90 days. Following completion of the case management intervention, the PAID questionnaire was administered by the nurse case manager to measure emotional distress post-intervention. The care enrollment process included nurse case manager and social worker interventions for this project (See Appendix D).

The case management intervention followed evidence-based guidelines from the ADA for a DM disease management program. The intervention included telephone outreach by the nurse case manager at least bi-weekly to enrolled subjects for DM self-management education. The education included assessment of knowledge deficits related to diet, exercise, medication management, glucose monitoring, healthy coping and reducing risks of complications. Individualized self-management education and counseling by the nurse case manager ensured that patients developed the competency in basic skills related to glucose monitoring, insulin administration, oral medication management, nutrition, exercise, medication adherence and behavior change. The goal of DSME was to improve self-care and quality outcomes related to glycemic control and goals of diabetic care.

Referral to a social worker for DM-related emotional distress was a key component of the intervention protocol. The social worker intervention included assessing social support, working with the patient to identify healthy ways to reduce stress, and conducting depression screening with referrals to physician or psychologist as appropriate. The number of telephonic or outreach visits by the social worker varied between one and three during the intervention period. The number of outreach visits was based on patient's individualized needs. Bilingual staff, and/or Spanish-speaking interpreters were utilized for this project. The case management intervention protocol, overview, and timeline are explained in Appendices E and F.

The data collected included enrolled member's demographic data, consent for care enrollments, PAID questionnaire pre- and post-intervention scores, initial and follow-up diabetic assessment information, individualized care planning notes, and detailed case management interventions performed by the nurse case managers and social workers. All data was documented and housed in the Acuity ® electronic care management system for each patient enrolled in the project (See Appendix G).

Statistical Analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS) Windows version 24.0 (IBM SPSS Inc., 2016). The data analysis included describing the baseline demographic characteristics of the study sample. Categorical variables were utilized to describe gender, age, and preferred language. The paired t-test was utilized to analyze the pre- and post-intervention measures of diabetes-related emotional distress. Assumptions of the paired t-test are that the data are continuous and the data follow the normal probability distribution (McDonald, 2008). The dependent variable was the change in DM-related emotional distress for those enrolled at the end of the intervention period.

Results

A total of 31 Hispanic Medicare Advantage members consented to enroll into the program. Fifteen of the 31 patients completed the case management intervention. The average age of participants was 67.5 years; 53.3 % were females and 46.7 % males. The majority (86.7%) identified Spanish as their primary language, and 13.3 % identified English as their primary language (See Appendix H). The mean pre-intervention PAID score for the 15 participants completing the intervention was 43.2. The mean post-intervention PAID score was

21.1. Higher PAID scores represent higher levels of DM emotional distress. The paired sample t-test computed on the PAID scores revealed that patients completing the intervention protocol noted significantly lower DM-related emotional distress levels from baseline to post intervention, $t_{(14)} = 4.459$ with $p=0.001$ (See Appendix K). There was a clinically significant difference between pre-intervention and post-intervention DM-related emotional distress based on the intervention conducted.

Discussion

This quality improvement project revealed that an evidence-based nurse case management intervention, inclusive of DSME and referral to a social worker, reduced DM-related emotional distress in Hispanics. The results of this project are supported by previous studies that suggest a relationship between DM-related emotional distress and DM self-management education. Welch et al. (2011) evaluated a nurse-led DM care management program called the Comprehensive Diabetes Management Program (CDMP) for poorly controlled Hispanic type 2 DM patients in an urban community health center. The CDMP is an interactive web-based DM management tool that focused on clinical management, psychosocial health, and support from care managers using clinical and behavioral alerts from assessments to guide self-management education and behavior change in the intervention group. This intervention was similar to the intervention in this quality improvement project as it combined the use of a structured program and diabetic education by a Spanish-speaking DM nurse case manager (Welch et al., 2011). This project facilitated patient engagement toward improved self-management of DM.

Fonda et al. (2009) examined changes in DM distress related to receiving case management delivered through an Internet-based care management program (IBCM). Subjects attended an education session on self-management and instruction in the diabetic core content areas as recommended by the ADA. This is similar to our project that included an evidence-based diabetic disease management intervention that meets the requirements of the ADA. This study measured hemoglobin A1c levels and DM-related emotional distress at baseline and at 12 months. Fonda et al. (2009) reported statistically significant evidence of reduction in DM-related distress and HbA1c levels in the intervention group.

In a similar study, Zagarins et al. (2012) utilized an experimental design with a control and intervention group to examine the effects of change in depressive symptoms and change in DM-related distress to glycemic control using a diabetic self-management education (DSME) intervention plus motivational interviewing (MI). Participants were adults with poorly controlled blood glucose levels, able to read and write in English. All participants received four sessions of DSME within the intervention period of 6 months. This study concluded that patients receiving the DSME intervention plus MI over a period of 12 months improved with respect to DM-specific emotional distress and HbA1c outcomes.

These studies highlight the need for greater awareness and understanding of the significance of DM-related emotional distress in DM care, particularly with vulnerable populations such as Hispanics. This quality improvement project provided evidence of the benefits of a comprehensive approach to case management inclusive of DSME and referral to a social worker for addressing DM emotional distress in Hispanics. DSME-based interventions alone may be less effective than this type of collaborative case management approach. This approach combines a nurse case manager intervention with a referral to social worker for

psychosocial assessment and care planning that addresses and reduces the fears, anxiety, and emotional distress associated with the complex nature of managing DM.

The tailored case management approach for Hispanics with diabetes-related emotional distress fulfilled an unmet need in our Medicare Advantage Hispanic population. This project enhanced the quality and effectiveness of the current DM disease management program in the organization and provided a rich learning experience for the case management team.

Limitations

This project had several limitations. The sample was small and non-randomized. There were some inaccurate phone numbers, changes in member eligibility based on plan disenrollment, and changes in patient health status. A diverse staff that included both nurse case managers and social workers conducted specific parts of the intervention limiting control of the intervention and reliability of data collection. Language barriers and the ability of Spanish-speaking staff or interpreters to fully translate the benefits of the nurse case manager intervention limited member enrollment and sustained engagement through the intervention period. The case management intervention followed the DM disease management program outreach protocol in an organization that limits outreach attempts to three prior to closing the case and identifying it as “unable to reach”. This could have contributed to low enrollment rates for the study. The withdrawal rate of patients initially consenting to the project was 52%, affecting the validity of the study based on low sample size. The intervention period was relatively short (90 days) when considering the comprehensive nature of the case management protocol, and other similar research studies with intervention periods up to 12 months. The Spanish-speaking care coordinator conducted the pre-intervention PAID survey. The English speaking nurse case

manager completed the post-intervention PAID survey using interpreters. This may have affected the validity of the survey scores. Finally, there is no way to determine if it was the nurse case manager's or the social worker's interventions that most improved emotional distress. The results of this project are not generalized to other racial or ethnic groups.

Implications

This evidence-based nurse case management intervention reduced emotional distress in the Hispanic sample with type 2 diabetes. The nurse case management intervention followed ADA guidelines for DM disease management programs. The intervention protocol included referral and assessment of psychological and social concerns by the social worker to identify and address fears, anxiety or emotional factors that affected the individual's ability to self-manage the disease. Assessment of the level of emotional distress was accomplished using the PAID questionnaire. The nurse case manager conducted a reassessment of self-management every thirty days during the intervention period. This was an important component to assessing progress and milestones toward individualized participant goals. The ADA (2016) recommendations include assessment of emotional distress during regular scheduled visits with physicians, during hospitalizations, with new onset of complications, or when there are identified problems with glycemic control. DM-related emotional distress is unique from other depressive disorders. Case managers and nursing leaders need to understand that Hispanics with DM may benefit from screening for both depression and emotional distress.

The changing landscape of health care presents new opportunities for nursing and case management professionals to influence and develop enhanced practice models as described in this project. Accountable care and managed care organizations are dependent on models that can

be tailored to the unique needs of the population and fully implemented into the health care system. These models emphasize collaboration between health care teams for improvement in outcomes. Inter-professional collaboration is a key competency of the Doctorate of Nursing Practice (DNP) prepared nurse. The DNP is educated to translate evidence into practice and ensure patient-centered care. DNP prepared nurses offer advanced competencies for navigating the complexities of clinical care and improving case management practice as described in this project (Chism, 2010). Hispanics with diabetes and emotional distress can benefit from this type of evidence-based case management intervention that emphasizes inter-professional collaboration and patient-centered care.

Conclusion

In conclusion, the intervention described in this project reduced the level of emotional distress in the target Hispanic population. This type of intervention has applicability to DM disease and case management programs particularly in vulnerable populations such as Hispanics who experience higher rates of emotional distress and related complications. The medical and psychosocial aspects of managing DM are significant. Case managers trained in DSME can impact health outcomes in a positive way through a structured intervention as described in this project. A referral to social workers for patients with significant emotional distress can address and reduce the fears, anxiety, and emotional aspects of managing the complexities of this disease. Further research is recommended to understand the many variables related to emotional distress, depressive disorders, and factors such as culture, language, or individual attitudes about this disease. This research can be utilized to advance the current evidence and translate case management beyond current practice to ensure a customized approach to DM case management that addresses the unique needs of Hispanics.

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Appendix A: Problem Areas in Diabetes (PAID) Questionnaire

Problem Areas in Diabetes Questionnaire (PAID)



INSTRUCTIONS: Which of the following diabetes issues are currently a problem for you? Circle the number that gives the best answer for you. Please provide an answer for each question. Please bring the completed form with you to your next consultation where it will form the basis for a dialogue about how you are coping with your diabetes.

Patient name: _____ Completion date: _____ Interview date: _____

	Not a problem	Minor problem	Moderate problem	Somewhat serious problem	Serious problem
1. Not having clear and concrete goals for your diabetes care?	0	1	2	3	4
2. Feeling discouraged with your diabetes treatment plan?	0	1	2	3	4
3. Feeling scared when you think about living with diabetes?	0	1	2	3	4
4. Uncomfortable social situations related to your diabetes care (e.g., people telling you what to eat)?	0	1	2	3	4
5. Feelings of deprivation regarding food and meals?	0	1	2	3	4
6. Feeling depressed when you think about living with diabetes?	0	1	2	3	4
7. Not knowing if your mood or feelings are related to your diabetes?	0	1	2	3	4
8. Feeling overwhelmed by your diabetes?	0	1	2	3	4
9. Worrying about low blood sugar reactions?	0	1	2	3	4
10. Feeling angry when you think about living with diabetes?	0	1	2	3	4
11. Feeling constantly concerned about food and eating?	0	1	2	3	4
12. Worrying about the future and the possibility of serious complications?	0	1	2	3	4
13. Feelings of guilt or anxiety when you get off track with your diabetes management?	0	1	2	3	4
14. Not "accepting" your diabetes?	0	1	2	3	4
15. Feeling unsatisfied with your diabetes physician?	0	1	2	3	4
16. Feeling that diabetes is taking up too much of your mental and physical energy every day?	0	1	2	3	4
17. Feeling alone with your diabetes?	0	1	2	3	4
18. Feeling that your friends and family are not supportive of your diabetes management efforts?	0	1	2	3	4
19. Coping with complications of diabetes?	0	1	2	3	4
20. Feeling "burned out" by the constant effort needed to manage diabetes?	0	1	2	3	4

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Appendix B: *Program Welcome Letter*



North Texas Specialty Physicians

Fax: 1-888-965-1964
Phone: 1-855-359-9999

8/8/2016

Tester Test

Dear Tester Test,

Humana welcomes you to the Diabetes Mellitus Disease Management Program. This program will help you coordinate health care benefits for your medical conditions or chronic care needs and help you understand your condition. Diabetes Mellitus Disease Management services are provided at no additional cost to you and will provide you with assistance from health professionals to manage your health.

The Diabetes Mellitus Disease Management Program includes a team of physicians, nurses, social workers, pharmacists and other health care professionals. This team will work with you and keep your doctor informed of your condition and services we are providing. Program members may receive:

- . A comprehensive assessment by a registered nurse to help determine the appropriate level of support and assistance you may need.
- . Educational materials that can help you understand and manage your condition.
- . Tools to assist you in tracking your health status.
- . Phone calls to check on your progress and answer questions concerning your condition.

While you are in the Diabetes Mellitus Disease Management your team of physicians, nurses, social workers, pharmacists and other health care professionals will access medical information about you. They will access this information from your medical record. They will also collect information from you to add to your medical record. This information may be shared with health plan staff and others who are involved in providing the care you need. The actual record belongs to the health plan. The information in the medical record is yours.

Appendix C: *Scripted Outreach Message*

Scripted outreach call conducted in member's preferred language.

Hello this is _____ from Silverback Care Management

We are conducting a quality improvement project to help our members manage their diabetes. It incorporates the latest recommendations from the American Diabetic Association. We would like your participation in a short survey related to your diabetes. The survey helps us better understand the issues that are challenging for you or causing anxiety or distress. Our goal is to offer assistance and education that will support you in managing this disease. We would appreciate your participation.

Appendix D: Figure 1 Care Enrollment Process

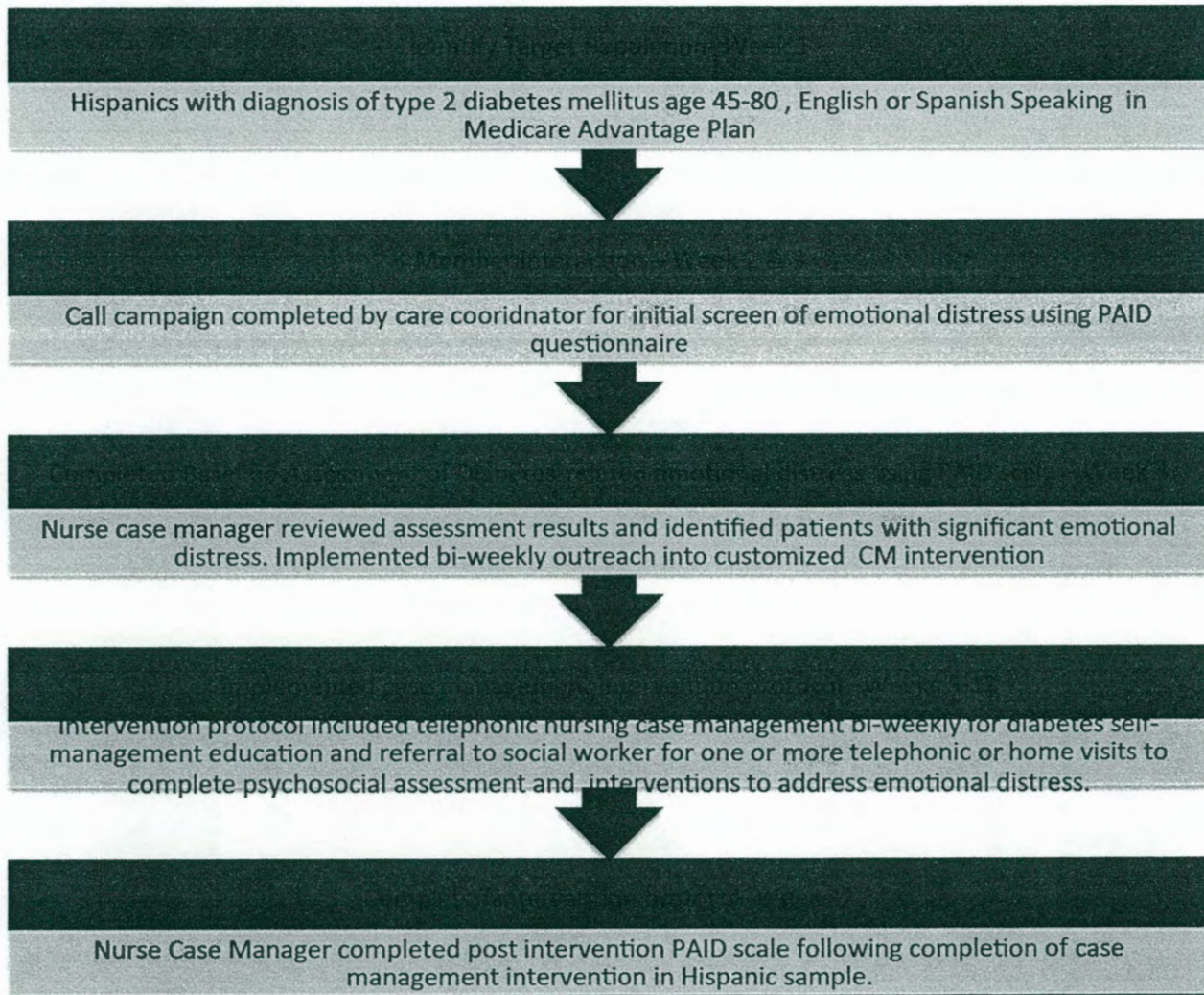


Figure 1. The project design was a one group pre and post test design. A pretest measurement of diabetes emotional distress was taken in the target population, the intervention was implemented in Hispanics with PAID scores indicating emotional distress and a post test measurement was taken when the intervention is completed or following 90 days of enrollment into the intervention program.

Appendix E: Figure 2. Case Management Intervention-Overview

Medium Risk Diabetic Patient with Diabetes Related Emotional Distress based on pre-intervention PAID score	Interventions	Expected Outcomes
A1C \leq 8.0-8.9%		
One EMS / ER / hospitalizations for hyperglycemia or hypoglycemia	<ul style="list-style-type: none"> • Initial CM contact for enrollment into program. • PAID screening pre-intervention. • Bi-Weekly telephone contact by Nurse case manager for 90 days for DSME interventions. 	<ul style="list-style-type: none"> • Stable disease state as evidenced by glucose levels trending down over time. • HbA1c < 8.0% • Taking a Statin medication unless allergy or intolerance noted
<p><u>Comorbid Conditions</u></p> <ul style="list-style-type: none"> • One of the following complications present: <ul style="list-style-type: none"> ○ Retinopathy ○ Nephropathy ○ Neuropathy • No evidence of coronary heart disease, cerebrovascular disease or peripheral arterial disease • No evidence of cardiovascular disease (macrovascular complications) 	<ul style="list-style-type: none"> • Completed initial DM disease assessment (s). • Referral made to Social Worker for psychosocial assessment and individualized care planning based on PAID score and target areas for focused psychosocial intervention. • Set individualized goals and care planning with patient using ADA guidelines based on identified problems. • Conducted Diabetes Self-Management Education (DSME) and mailings using ADA guidelines. • Interventions included diabetic education related to glucose monitoring, insulin administration, nutrition, exercise, medication management and adherence and psychosocial problems. • Completed DM reassessment every 30 days for 90 days. • Assessment of glycemic control including A1c, blood pressure and weight. • Scheduled annual PCP visit for assessment of glycemic control including lipids, urine albumin excretion, foot 	<ul style="list-style-type: none"> • B/P < 140/90 mmHg • Weight stable • Received evidence-based education mailings and reassessment of disease state monthly. • Foot exam, dilated eye exam and urine albumin excretion performed annually • Received Diabetes Self-management education by nurse case manager during program enrollment. • PAID screening pre and post intervention. • Depression screening performed annually. • Completed referral to social worker • Post PAID scores < Pre intervention PAID scores upon completion of CM and social worker interventions (up to 90 days).

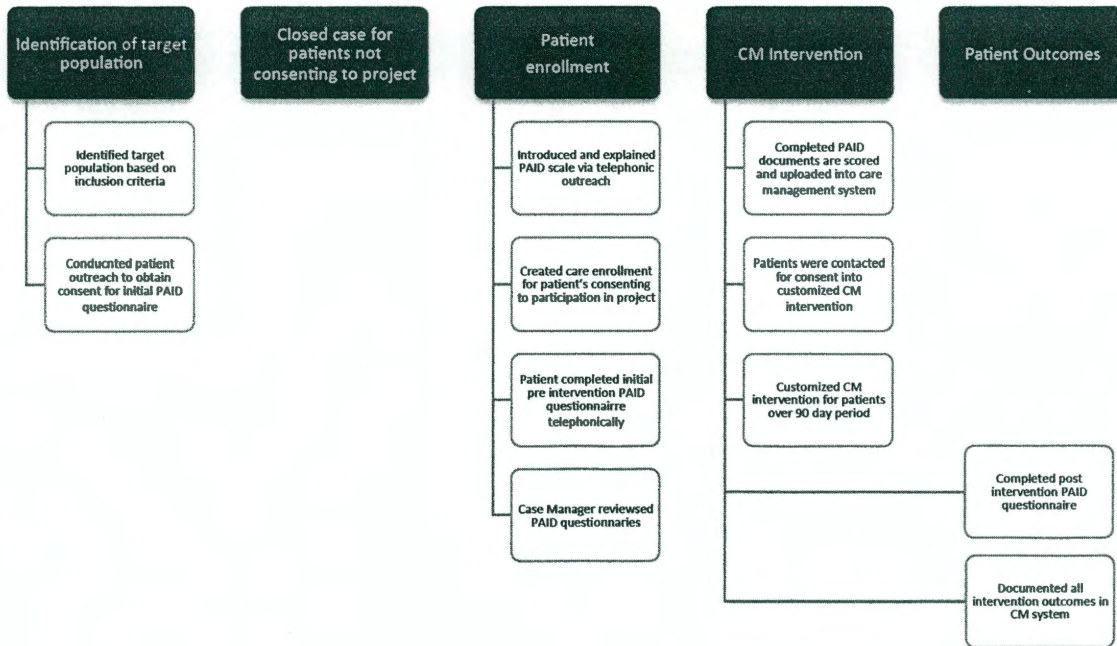
	<p>exam, dilated eye exam and depression screening.</p> <ul style="list-style-type: none">• Conducted Post intervention PAID questionnaire• All documentation followed Acuity Care Enrollment workflows. Documentation entered into Acuity system.	
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Figure 2. The intervention followed the NCQA diabetes disease management program requirements for health plans. The intervention protocol for this project included a referral to social worker to address diabetes emotional distress. The PAID scale was integrated into the protocol pre and post intervention.

Appendix F: Figure 3. Case Management Intervention Overview and Timeline

Week 1	Data mining to identify Hispanic patients with type 2 diabetes mellitus
Week 2 & 3	Telephone outreach by CM coordinator to patients meeting inclusion criteria introducing project and pre intervention screening questionnaire (PAID survey).
	Eligible patients completed PAID survey
Week 4	Nurse case manager reviewed survey and scores. PAID scale and score uploaded into Acuity care management system.
	Patients with diabetes-related emotional distress identified and risk stratified for enrollment in customized CM intervention.
Week 4 & 5	Nurse case manager conducted telephone outreach to eligible patients and obtained consent for program enrollment.
Week 5-12	Nurse case manager (CM) conducted initial diabetes disease management assessment and completed referral to social worker.
	Nurse CM followed interventions as designed for the diabetic disease management program for patients enrolled in the project and identified with diabetes emotional distress.
	Nurse CM conducted DSME and care planning based on identification of individual patient problems and expected outcomes.
	Social Worker conducted psychosocial assessment and care planning, interventions based on identified areas of psychosocial or emotional distress.
Week 12	Nurse case manager completed PAID assessment post intervention. Post intervention PAID scores calculated and documented in the care management system.

Appendix G: Figure 3. Data Collection Process



Appendix H

Table 1

Participant Demographics

	<i>Mean</i>	<i>Std. Deviation</i>
Age	67.53 (n=15)	7.9

<i>Gender</i>	<i>Frequency</i>	<i>Percent</i>
Male	8	53.3
Female	7	46.7

<i>Preferred Language</i>	<i>Frequency</i>	<i>Percent</i>
Spanish Speaking	13	86.7
English Speaking	2	13.3

Appendix I

Table 3

PAID Pre and Post Intervention Statistical Analysis

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PAID1	43.267	15	18.1874	4.6960
	PAID2	21.100	15	11.2977	2.9171

The pre intervention PAID score was 43.267. The post-intervention PAID score was 21.1

Paired Samples Test

Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	Sig. (2-df tailed)
				Lower	Upper		
Pair 1 PAID1 - PAID2	22.1667	19.2541	4.9714	11.5041	32.8292	4.4591	0.001

The critical value of t for 14 degrees of freedom = 4.459.p=0.001