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## Diabetes-Related Distress Screening: A Survey of Primary Care Providers' Knowledge, Attitudes, and Practices in Treating Patients with Difficulty Meeting Glycemic Goals.

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Diabetes-Related Distress Screening: A Survey of Primary Care Providers' Knowledge,  
Attitudes, and Practices in Treating Patients with Difficulty Meeting Glycemic Goals.

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December 5, 2018

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### **Dedication**

This project is dedicated to my husband, Andy and my beautiful children, Anna and Cole. They sacrificed so much and never complained once. There would have been no way through without their support.

Much gratitude to my wonderful mother, Karen and her husband, Rick. Their help with my children and their undying support were invaluable over the past three years.

My appreciation to my Aunt Lisa, where ever she is. She was my inspiration for this project, and she taught me that the ones who will not take care of themselves are the ones who need the most compassion. She is missed.

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### **Abstract**

A patient with diabetes is two to three times more likely to be depressed than the general population. Furthermore, the combination of diabetes and depression is associated with increased morbidity and mortality. However, research has shown that treatment for depression does not correlate with lower HbA1c levels or a decrease in morbidity and mortality. Recently, a body of evidence has shown that increased HbA1c levels and depression are associated with the emotional burden of managing diabetes. The emotional burden is caused by the constant behavioral and mental demands of managing the disease and the worry and fear of the impending disease process. When the emotional burden becomes overwhelming, it is called diabetes distress. The purpose of this project is to identify gaps in practice, disseminate knowledge, and investigate the feasibility of incorporating diabetes distress screening as a tool to assist primary care providers in treating patients with poor glycemic control. This is a quasi-experimental study to assess knowledge, attitudes, and practices related to current treatment for patients who have difficulty meeting their glycemic goals. In addition, it includes an education intervention to introduce diabetes distress as a condition that affects adherence to lifestyle and glycemic management. Finally, it introduces the Diabetes Distress Scale screening tool as a method to measure diabetes distress and monitor progress with treatment to primary care providers in the system. The results describe the current practices of primary care providers' for evaluating and treating patients with difficulty with diabetes self-management. Secondly, a pre and post education test evaluated a change in knowledge after the education intervention. Third, attitudes about diabetes distress and intent to use the Diabetes Distress Scale in practice are described. Last, primary care providers' feedback concerning implementation is discussed. In conclusion, the concept of diabetes distress and the use of the DDS to evaluate and monitor the condition has

not been translated from research into practice. Nevertheless, primary care providers in this study are open and willing to address diabetes distress in the primary care setting but need the organization of diabetes distress-specific resources that will fit into the daily workflow and the financial constraints of the patient to allow implementation of the evidence into practice.

Diabetes-Related Distress Screening: A Survey of Primary Care Providers' Knowledge, Attitudes, and Practices in Treating Patients with Difficulty Meeting Glycemic Goals.

**Introduction**

Despite advances in treatment and education, only 57% of Americans with diabetes can maintain glycated hemoglobin levels below the goal of 7% (Centers for Disease Control and Prevention National Center for Health Statistics [CDC], 2008). Although the rate has fallen since 1988, 20.5% of Americans with diabetes still have HbA1c levels at 9% or higher (Office of Disease Prevention and Health Promotion [ODPHP], 2015). The medical community is in search of a method and the means to reverse this trend. One priority is to better understand the psychology of patients who understand the risk for rapid progression of complications of diabetes and yet do not make the lifestyle and diet changes that would prolong their life. Because diabetes with co-morbid depression is associated with poorer clinical outcomes, depression has been a target for insight into assisting the patient with diabetes to improve self-management (Lustman, Penckofer, & Clouse, 2008). Traditionally, screening for depression has been the standard of care used by practitioners when patients struggle to manage their chronic disease adequately. Recent studies suggest that many patients, once thought to be experiencing depression, are actually experiencing diabetes-specific psychosocial distress that stems from the constant behavioral demands of managing the disease on a daily basis (Nicolucci et al., 2013; Fisher et al., 2007). Diabetes distress, as the condition is called, has been shown to be a factor in suboptimal self-management of diabetes (Nicolucci et al., 2013). The PHQ9 screening tool and other symptom-based depression screening tools currently used by primary care providers to screen for depression in patients with diabetes do not differentiate between clinical depression

and diabetes distress. Despite the similarity in symptoms, a decrease in diabetes distress levels is more closely associated with lower HbA1c levels than a decrease in clinical depression symptoms (Asuzu, Williams, Walker, & Egede, 2017). These results are concerning because failure to differentiate between diabetes distress and depression can lead to ineffective treatment choices which can cause progression of complications and poor outcomes (Polonsky et al., 2005). The lack of progress in assisting patients to meet their glycemic goals highlights the need for more effective management of the patient with diabetes.

### **Background**

The theoretical framework that guided this project is Hildegard Peplau's Theories of Psychodynamic Nursing and Interpersonal Relations. Peplau, a pioneer in the field of psychiatric nursing, was seen as a revolutionary for her research on the therapeutic, interpersonal relationship between the nurse and the client (Haber, 2000). The four developmental stages of the nurse-client relationship are the building blocks for a patient-centered milieu where the patient can feel comfortable to discuss sensitive issues. Peplau expertly describes six nursing roles necessary for a nurse-client relationship that encourages learning, healing, and progression. Peplau's theories and the four development stages of the nurse-patient relationship are paramount for the primary care provider to assist the patient with the emotional burden of diabetes (Peplau, 1997). The primary care provider must provide a therapeutic climate in order for the patient to be receptive to address sensitive issues.

In 2010, diabetes or a diabetes-related illness was listed as the cause of death on 234,051 U.S. death certificates (American Diabetes Association [ADA2], 2014). There are currently 29.1 million Americans who struggle with the disease and every year another 1.4 million people are diagnosed (ADA2, 2014). Diabetes Mellitus (type 1 and type 2) is the seventh leading cause of

death in the United States (ADA2, 2014). The cost to the health care system was estimated to be \$245 billion in 2012, and the average medical expenditure for the diabetic patient is 2.3 times higher than a patient without the disease (ADA2, 2014). Diabetes is progressive and carries with it co-morbid conditions of the cardiovascular system and damage to the eyes and kidneys (ADA2, 2014). The speed at which the disease progresses is modulated by factors such as early diagnosis, the progression of insulin resistance, the rate of  $\beta$ -cell destruction in the pancreas, and genetics. Unfortunately, the only mitigating factor to slow the progression of organ damage is the ability of the patient to control blood glucose levels through medication, diet, weight control, and exercise. Psychologically, the burden of managing this chronic and complex disease on a daily basis is exhausting, and for some, this burden negatively affects adherence to a self-care regimen and can lead to depression (ADA2, 2014).

In the 1980s and 1990s, empirical evidence was mixed as to whether the screening and treatment of co-morbid depression in patients with diabetes were assisting individuals to lower their HbA1c levels (Lustman, Penckofer, & Clouse, 2008). Beginning around the year 2000, researchers noted the lack of progress with widespread attention to screening and treating depression and the pace of acceleration of diabetes prevalence (Lustman et al., 2008). As researchers expanded their search for modifiable risk factors, the emotional and psychological burden of managing diabetes emerged as a possible target (Lustman et al., 2008). One of the first studies to address the emotional burden of diabetes was published in 2007. In a longitudinal study of 506 patients, the researchers used the Center for Epidemiological Studies Depression Scale (CESD), the Composite International Diagnostic Interview (CIDI) and the Diabetes Distress Scale (DDS) to examine depression and levels of distress (Fisher et al., 2007). Notably, 70% of the patients with diabetes who scored above the cut point for depression were not

clinically depressed when examined with the diagnostic interview (Fisher et al., 2007). High CESD scores were significantly and independently related to higher HbA1c levels ( $P < 0.001$ ), higher caloric intake ( $P < 0.001$ ) and lower exercise levels ( $P < 0.04$ ; Fisher et al., 2007). Furthermore, no significance was found between patients who tested positive for clinical depression with the CIDI and the above variables (Fisher et al., 2007).

These results are significant because behaviors such as poor self-care and low levels of self-efficacy, which are typically attributed to clinical depression, occur in many patients who are overwhelmed with the demands of the disease (Fisher et al., 2007, ). Not all patients with diabetes who screen positive with a symptom-based depression screening are depressed. Furthermore, more extensive studies, such as the DAWN II study and the REDEEM study, have followed with comparative results (Nicolucci et al., 2013; Fisher et al., 2013). Patients who have difficulty meeting their glycemic goals need an accurate diagnosis to receive effective interventions.

Because depression is associated with poorer outcomes and is a common co-morbid condition that accompanies diabetes, it has been standard practice to treat depression with the expectation that the treatment will enable the patient to manage diabetes better (ADA2, 2014). However, studies of the effects of treating depression with antidepressants on glycemic control have been less than convincing (Van der Feltz-Cornelis et al., 2010). Scales used to diagnose depression are symptom-based and do not identify the cause of the symptoms (Fisher et al., 2007). Recent research has found that diabetes distress manifests many of the same symptoms of depression yet, is not a psychiatric condition (Fisher et al., 2007). Diabetes distress is hard to separate from other related conditions such as depression, anxiety, and stress and can be indicated by unhealthy levels of emotional burden or defeat (Fisher et al., 2013). Diabetes

distress can result from worrying about the future, frustration, concern, and burnout that may accompany dealing with a chronic disease that requires constant attention to manage (Fisher et al., 2013). Treatment for diabetes distress should be patient-centered, tailored to the cause of the distress, and include psychosocial and psychoeducational interventions (Sturt et al., 2015). The efficacy of cognitive behavioral therapy, diabetes self-management education (DSME), online self-management assistance, or belonging to a diabetes management self-help group in decreasing diabetes distress are being explored (Sturt et al., 2015). Research in this area is essential because multiple studies have shown that depression and diabetes distress should be treated differently and that alleviation of diabetes distress can mitigate the symptoms of depression (Asuzu, et al., 2017; Zagarins, Allen, Garb, & Welch, 2012). For these reasons, the ADA included the recommendation of screening for diabetes-related distress with patient-appropriate validated measures along (evidence level B) with a supplement indicating the importance of psychological care for the patient with diabetes in the Standards of Medical Care in Diabetes-2018/section 4(American Diabetes Association [ADA], 2018).

Another variable that must be considered is the barriers that care providers face. Several studies offered evidence that providers worldwide were well aware of the psychosocial issues that patients with diabetes face and that addressing them may help prevent complications, but felt that they lacked the skill, time, and sufficient resources for referral (Peyrot et al., 2005; Beverly et al., 2011; Nichols, Vallis, Boutette, Casey, & Yu, 2018). While it is entirely possible that this knowledge has disseminated into providers' current practice and is guiding interventions that both treat depression and the psycho-social hardships without formally addressing diabetes distress, it is also possible that providers have yet to embrace the importance of addressing the emotional burden that accompanies a diagnosis of diabetes.

### **Purpose**

The purpose of this project is to gain a better understanding of current practice, disseminate knowledge, and investigate the feasibility of incorporating diabetes distress screening as a tool to assist primary care providers in treating patients with poor glycemic control. This study will introduce the Diabetes Distress Scale (DDS) as a tool for differentiating between clinical depression and diabetes distress, assist providers to select appropriate and targeted patient-centered interventions, and invite feedback regarding implementation from primary care providers.

- Specific Aim 1: To describe primary care providers' current practices for evaluating and treating patients who are having difficulty with diabetes self-management and meeting glycemic goals.
- Specific Aim 2: To evaluate the change in knowledge after an educational intervention about diabetes distress.
- Specific Aim 3: To describe attitudes about diabetes distress and intent to use the diabetes distress scale.
- Specific Aim 4: To describe facilitators and barriers to implementation of the diabetes distress scale in a selected primary care setting.

This DNP project is a Knowledge, Attitudes and Practices (KAP) survey to evaluate the knowledge, attitudes, and practices of primary care providers regarding the implementation of the Diabetes Distress Scale screening in a large healthcare system in the midwest. From this information, continued research will be needed to devise a strategy for standardized screening

and interventions to implement a patient-centered treatment plan. Evidence shows that diabetes distress is a valid concern to be addressed and that it is worthy of attention. It is expected that the findings of this study will spur further research and be used to identify opportunities for practice changes at the primary care level that can contribute to an increase in patient self-efficacy and glycemic control by addressing factors of diabetes distress.

This project was presented in proposal form to the Diabetes Task Force and Primary Care Leadership Council for the participating healthcare system. It was approved, and the findings will be presented to the group at the meeting in January 2019.

## **Methods**

### **Setting**

The setting for this study was a large metropolitan healthcare system in the Midwest, an integrated delivery network of five not-for-profit hospitals totaling 1,425 staffed beds, 14 immediate care centers, and 250 physician practices. The system provides a full range of medical and surgical services to residents from more than 250 locations throughout several states. In 2017, the system had approximately 3 million patient encounters. The third largest employer in the region, this healthcare system has a 2,000 physician medical staff and 14,535 employees including 900 employed providers. The medical group, a department of the system currently includes more than 400 providers who offer primary, specialty, and urgent care services in over 250 locations. Thirty-one percent of all patients admitted to the system's adult hospitals receive their primary care at organization owned physician practices. Patients' primary care providers can access their patients' health information across the enterprise through Epic's documentation system and Electronic Medical Record (EMR), ultimately enhancing the patients' coordination of care

The survey portion of this research took place online and was completed by primary care providers employed by this large metropolitan healthcare system. Focused interviews took place at a busy primary care providers' office for qualitative data collection after the online survey closed

### **Sample**

Recruitment for this study was conducted by an email invitation sent to 456 primary care providers (MD or APRN) at area primary care offices. Focused interviews were conducted at one of the area primary care offices where primary care providers (MD or APRN) were asked to participate. Both consisted of convenience sampling. Inclusion criteria consisted of individuals that were employed in a primary care provider role and volunteered to participate. Exclusion criteria consisted of individuals who received an invitation and chose not to participate.

### **Procedure**

This project was a voluntary, non-randomized, quasi-experimental, descriptive study with a pre/post-education test that was conducted with primary care providers. The participants were asked to complete a survey, watch a 15-minute educational video and then complete a second survey (Appendix C). Completion of the voluntary survey and intervention indicated informed consent.

Voluntary focused interviews were conducted with providers to collect the statements of the providers' thoughts on feasibility and implementation of the Diabetes Distress Scale. Volunteers for the focused interviews signed informed consent. The focused interviews provided information on diabetes distress and the diabetes distress scale tool, and then five questions (Appendix B) were asked of the participant in a one on one situation. Participants of

the focused interviews were encouraged to give their thoughts on implementing the Diabetes Distress Scale tool. Responses were transcribed by the principal investigator and recorded on a separate piece of paper that was only coded by whether the individual is an APRN or MD. Data from the survey questionnaires were transferred from Qualtrics into an SPSS data sheet for analysis by the principal investigator and the statistician. The data will be kept on a computer drive that is password protected and only accessible to the study evaluator. The encrypted drive, as well as the completed focused interview forms, will be locked in an office at the downtown campus of the healthcare system when not in use (exact location to be determined).

### **Data Collection**

Approvals from the University of Kentucky Institutional Review Board (IRB) and the Office of Research and Administration for the healthcare system were obtained prior to the collection of data. The survey used convenience sampling by invitation and was sent by email via the email system to primary care providers that could be responsible for primary care. The survey remained open for two weeks, and a reminder was sent at the one week mark. Upon conclusion, 20 primary care providers completed the survey and education. Focused interviews were conducted with five primary care providers at a selected primary care office. During the focused interviews, questions about diabetes distress screening as well as the Diabetes Distress Scale tool and scoring (Appendix B) were answered verbally by the providers. After a short informational speech was given before the providers were asked the questions.

The questions on the survey and for the focused interviews were composed to meet the specific aims of this project. There were 26 online questions and five focused interview questions (Appendix B and C). Please refer to Appendix A for a comprehensive list of measures.

## **Data analysis**

For this study, descriptive analysis with frequencies expressed in percentages or means with standard deviations were used to describe nominal and ordinal or interval demographic information as needed. Means and standard deviations were used to report the Likert scale questions that describe the providers' attitudes about diabetes distress and the Diabetes Distress Scale. For the pre and post-intervention data, each knowledge item was coded as correct or incorrect and then the data was tested for a difference in paired binary data with McNemar's test. Computations, graphs, were prepared in collaboration between the principal investigator and the Statistician.

## **Results**

### **Sample Characteristics**

Of the 456 survey invitation emails sent to primary care providers in the system, 26 emails came back as undeliverable. Out of the 430 delivered invitation emails, 20 were completed which is approximately 4.66% return. It was hoped that at least 100 providers would agree to participate in the survey.

The gender distribution (N=20) of the participants is 20% male, 80% female and their mean age falls between 41 and 50 years (3.25, SD1.30). The education levels of the participants were: 50% MD, 30% APRN, 20% DNP, and the mean years of practice falls between 11 and 20 years (2.6, SD 1.32). Lastly, the mean number of patients with diabetes that are seen by the participants each week is 11 to 20 (2.20, SD 0.98).

The only demographic characteristic of the sample participants who volunteered for the focused interviews that was collected was their role. Of the five participants, two were M.D.s, and three were APRN's.

## Online Survey

The pre and post education intervention was evaluated in the next portion. Unfortunately, 11 participants dropped out after the first part of the survey. The attrition affected the ability to measure the knowledge level change and decreased internal validity.

To evaluate primary care providers' attitudes regarding the Diabetes Distress Scale and diabetes distress screening in the primary care setting, providers were asked to indicate the extent to which they agree or disagree with seven statements using a 10 point Likert Scale. The first question inquires as to whether diabetes distress can be effectively managed in the primary care setting. The primary care providers agreed that it could be effectively managed (n=13) with a mean score of 7.54 and 69% choosing an 8 or a 9 on the 10 point scale. Providers also felt that the Diabetes Distress Scale was a suitable tool to use (n=13, mean 8.08) and that diabetes distress screening is important (n=13, mean 8.54). Additionally, Practicality and comfort using the Diabetes Distress Scale were also positive (n= 13) with means of 8.08 and 7.85 respectively. Lastly, providers expressed confidence that treating diabetes distress could decrease barriers to adherence (n=13, mean 7.54) and say that they would use they will use the Diabetes Distress Scale in their practice (n=13, mean 7.46).

The intervention that the participants employed most often was discussing the importance of diet, exercise, and medical management *only* (30%, n=56). Interventions that followed include: referral to endocrinology (14%, n=53), referral to a dietician (14%, n=53), referral for diabetes self-management education (DSME) (16%, n=53), and screen with PHQ9 and treat pharmacologically with positive scores (9%, n=53). The question also asked providers to rank which interventions were done rarely. At the top of the list of interventions rarely used was: referral to mental health (28%, n=66), deliver brief cognitive behavioral therapy (21%,

n=66), conduct motivational interviewing (13%, n=66), and referral for a refresher DSME (11%, n=66).

### **Focused Interviews**

Qualitative data gathered in the focused interviews was subjected to thematic analysis, and quasi-statistics (descriptive statistics from qualitative data) were used to establish a numerical representation of how many times a theme was mentioned cumulatively in the five interviews. The first question asked, “What are your thoughts about screening for diabetes distress?” After categorizing the answers, the majority or 75% (N=5) relayed support for the process. One particularly thoughtful comment stood out; “There aren’t enough resources to manage the results.”

The next two questions asked the providers to discuss barriers and facilitators to implementation of diabetes distress screening in the primary care setting. Time constraints and cost were the main themes of the answers to barriers with those being 45% and 36% (N=5) respectively of the answers given. One participant relayed concern by stating "We cannot add anything that is likely to increase visit time." For facilitators, 100% of the answers indicated that the screening would have to be initiated by the medical assistant and 50% (N=5) of the comments mentioned that Nurse Navigators should handle the screening. One participant added, “It is particularly helpful when the Nurse Navigators are trained and willing to do abbreviated Diabetes Self-Management Education in the office.”

The fourth question, “How to implement screening without interrupting workflow” failed to draw a distinction from the previous facilitator question because the participants repeated the same responses as the question before. Although one participant did add, “It would be good if we

had interventions that we knew would be available to the patient without having to check with insurance.”

One of the subcategories of distress that the DDS assists the provider to screen for is physician or primary care provider distress. Included in the 17 question screening tool, are four questions that address the patient’s thoughts and feelings regarding the patient-provider relationship. Because these questions give the patient an opportunity to be critical of the care they feel they are receiving, the researcher was concerned that primary care providers would consider the questions non-therapeutic. The last question in the focused interviews asked providers whether they felt the questions in the DDS, particularly the four patient/provider relationship questions, were fair questions. All participants’ (100%) comments included “yes” that the questions are fair, however, 60% included that they thought patients would not feel comfortable answering the questions honestly.

### **Discussion**

According to a report released by the Department of Health and Human Services in 2017, between 2011 and 2015, the breakdown of race for APRNs was 84%, 5.7% and 4.1% for whites, blacks, and Asians respectively (U.S. Department of Health and Human Services [HRSA], 2017). For physicians, the breakdown was 67%, 4.8% and 19.6% for whites, blacks, and Asians (HRSA, 2017). Despite the small sample size, the ethnicity demographics of the Diabetes Distress Screening Study participants have surprisingly similar proportions to the proportions reported by the HRSA. For this study, 67%, 4.2%, and 12.5% were white, black and Asian. There were no Hispanic respondents represented in this study, nor did any participants choose the "other" category to define race. Though the small sample size limits the internal and external

validity of this study, the data is worthy of discussion and can be useful in directing further research.

To meet Aim 1 of this study, three questions were asked about current knowledge and treatment practices in evaluating and treating patients who are experiencing difficulty with diabetes self-management and meeting glycemic goals. The first question reveals that none of the participants are screening for diabetes distress in their practice and 45% (n=20) said that they were not familiar with the condition. It typically takes 17 years for evidence-based knowledge to be utilized in practice (Kanter, Schottinger, & Whittaker, 2017). The American Diabetes Association just added diabetes distress screening and integration of behavioral health into the primary care to the Standards of Care in Diabetes in 2017(American Diabetes Association [ADA], 2017). The dichotomy that exists for primary care providers is that a traditional behavioral health intervention plus medical care cannot be completed sufficiently in a typical 15 minute visit and keep their visit times down. The American College of Physicians has issued a position statement in favor of the integration of behavioral health into the primary care setting (American College of Physicians, 2015). However, they listed barriers to implementation as “long-standing conflicting treatment cultures and stigma” that could explain the lack of familiarity. In addition, many providers also experience burnout from the frustration of spending valuable time and energy on managing the care of a patient that is seemingly without any coping skills to managing their health (Panagioti et al., 2018)

To determine if providers are already directing care towards interventions that may serve to decrease diabetes distress without actually screening for it or using other screening tools, we asked what screening tools they were using and which interventions they use for patients who were having difficulty managing their diabetes. The choices were two diabetes-specific screening

tools, discussion, and the PHQ9. Participants were asked to choose all that apply.

Overwhelmingly, the participants chose discussion about the importance of adherence to medical advice (63%, n=27) and the PHQ9 screening tool (26%, n=27) as a method of evaluation and screening patients that are having difficulty meeting the goals of their diabetic regimen.

Interestingly, the providers did not use a *diabetes-specific* screening tool, such as Problem Areas In Diabetes (PAID) or the DDS as a regular screening option.

It was primarily the mental health interventions that were prevalent in the "rarely" category, which are essential in treating diabetes distress. The relative lack of attention to mental health could be from lack of expertise or training, lack of resources to execute the referral, lack of faith in the therapeutic value, or absence of patient interest or resources (Beverly et al., 2011). Although not statistically significant, the results of the two questions are congruent and lends insight to the issues that are at hand.

For Aim 1, the current practices of these participants for evaluating and treating patients who are experiencing difficulty with diabetes self-management and meeting glycemic goals relies heavily on provider teaching and discussion of the importance of diabetes self-management. Providers rarely employed diabetes-specific screening tools to evaluate the patients who are having difficulty meeting glycemic goals nor did they attempt to introduce any form of mental health intervention into their treatment to address deficits in self-management. Again, this is consistent with the history of treatment cultures, comfort levels, or time constraints.

Due to study design flaws, the ability to meet the objective of Aim 2 was hindered. There is no way to discern who was able to see the education or if the 15-minute video caused high attrition rates (35%). Therefore, pre and post education test scores are not a fair assessment of the effectiveness of the intervention. Notwithstanding the flaws, there was one particular question

that indicated an increase in knowledge. The correct answers increased from 7.69% to 30.77% for the question “What is diabetes Distress?”

The objective of Aim 3 was to describe attitudes about diabetes distress and intent to use the Diabetes Distress Scale. Referring to the results from above, providers were more likely to say that diabetes distress can be managed in the primary care setting, that it is important to screen and treat diabetes distress, and that the DDS is an appropriate tool. Considering that 45% of the participants had never heard of the condition and the means in the attitude questions were all above 7.5, perhaps that the education was well-received and that providers would be open to using diabetes-specific screening tools and interventions that address the emotional burden of managing the disease.

The objective of Aim 4 was to describe facilitators and barriers to implementing the use of the Diabetes Distress Scale in the primary care setting. From the focused interviews, it was evident that the providers would welcome assistance in assisting their patients to gain self-efficacy and control of their diabetes. However, they stressed that the screening should be done by ancillary staff and that the interventions cannot increase their visit times. The mention that the Nurse Navigator could be involved in diabetes teaching was an attempt to emphasize that the screening and treatment of diabetes distress should be a team effort.

### **Limitations**

This study was hindered in several ways. First, the email addresses that were supplied by Human Resources were not limited to primary care providers. The researcher had to go through approximately 3000 provider names and attempt to choose the primary care providers from the list without a clear delineation of provider roles. It is possible that some primary care providers were missed. Second, of the 456 email addresses pulled from the list, 26 were no longer

employed, were on sabbatical, or their mailboxes were full. Third, of the 430 emails that were delivered, only 20 responded to the survey. While it may be possible that providers had time constraints or preferred not to do online surveys, the researcher was informed by several primary care providers that the only email that they read from those accounts are emails from their superiors or from people they know. Thus, many may not have opened or read the email.

Another limitation that affected the study is a technology glitch. The computer program platform will not allow normal video playback depending on which area of the organization the video was accessed. The researcher had 3 participants respond that they were not able to hear the education video and two that could not see the video at all. The difficulty in accessing the video could explain the attrition rate and the lack of significance on the pre and posttest statistics.

### **Strengths**

Despite the small sample size and technology issues, this study does have several strengths. First, the original assumptions that prompted this study are supported. Primary care providers, in general, are not aware of diabetes distress and are not screening for or treating diabetes distress according to the data. Second, the qualitative data cross verifies the survey data. In both, adequate time to address the issue was a concern. Third, this study addressed an issue that is important and is the future of primary care. The push to integrate mental and behavioral health and primary care to address the lack of psychological and psychiatric resources is beginning to disseminate into practice. This study worked to educate and inform participating primary care providers.

### **Implications for Practice**

This study, though small, reflects two implications for practice. First, behavioral health interventions are not regularly considered as an alternative to repeatedly giving medical advice.

Integrating mental and behavioral health care into a primary care setting cannot be accomplished by the primary care provider alone. The initiative to expand the primary care role must start as an organizational level of change to adequately provide the tools needed for a successful practice change. In other words, it is fruitless to screen if there are no interventions in place for individuals that score above the cutoff. In some areas of the country, this relative lack of resources is beginning to change. Multiple initiatives have developed models for the integration of mental and behavioral health into the primary care setting. (University of Wisconsin Population Health Institute [U of W PHI], 2018). The Substance Abuse and Mental Health Services Administration has a dedicated division to promote integration called the Center for Integrated Health Solutions that provides training and technical assistance to primary care groups seeking to integrate (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018). The Wisconsin Initiative to Promote Healthy Lifestyles is currently promoting integration by providing brief interventions for depression to patients who screen in the moderate category and refer patients who screen in the high category of selected screening tools (U of W PHI, 2018). Incidentally, the Institute for Health Improvement has an initiative to integrate behavioral health into primary care setting to assist patients to better manage chronic diseases, including diabetes (Institute for Health Improvement [IHI], 2018). Many of these models currently target depression and substance abuse and have proven to be practical and cost-effective regarding quality-adjusted life years (QALY) saved (U of W PHI, 2018). The SAMHSA-CIHS includes access to research on cost-effectiveness and feasibility.

The second implication for practice is an issue of training. Primary care providers are not typically trained in psychology or psychiatry beyond a short overview in college. Historically, it was thought that the *body and mind* were separate fields of study. As research in fields like

psychoneuroimmunology advance, evidence that the mind can affect the body's health is gaining steam. Almost half of the primary care providers in this research had not heard of diabetes distress, and a large portion of them named a referral to mental health the intervention they prescribed least often. Several studies of physician's challenges in treating patients with emotional difficulties revealed that they feel they do not have the background training or experience to know how to treat issues involved in behavioral and mental health (Beverly et al., 2011; Nicolucci et al., 2013). As mental health services continue to be unavailable to many, medical schools and advanced practice nursing programs must start providing more comprehensive education and training in the fields of psychology and psychiatry that will equip all care providers to understand and treat the whole patient, instead of just the disease.

### **Practice Recommendations**

Practice recommendations for the primary care office include more education about diabetes distress for the office personnel to provide more exposure to the newer concept. In the focused interviews, providers were receptive to the screening process and voiced a need for it. On the other hand, providers voiced concern about time constraints and for interruptions in workflow. The providers overwhelmingly suggested that the Medical Assistants and Nurse Navigators should administer and the screening. In order to evaluate how the Diabetes Distress tool could fit into the workflow, the MAs and Nurse Navigators should be consulted. Several providers also commented that it would be helpful if the Nurse Navigator could do diabetes teaching at the office for patients that need assistance when a diabetes educator is not available.

## **Conclusion**

Rising healthcare costs and lack of access to mental health services compound the difficulty that healthcare systems face in developing person-centered models of care that accommodate the psycho-social aspects of self-management of diabetes. The American Diabetes Association's standards of care recommends "monitoring for diabetes distress routinely and specifically when the patient is experiencing difficulties in meeting target goals or at the onset of complications" (ADA, 2018, p. S45). Additionally, "it is recommended that diabetes practitioners identify and coordinate with qualified behavioral/mental health providers who are ideally embedded in the diabetes care setting and knowledgeable about diabetes treatment and psychosocial aspects of diabetes" (ADA, 2018, p. S45). According to results of the DAWN2 study (n=8596), 45% of the sample reported significant diabetes distress, but only 24% reported that their practitioner inquired about the effect of the burden of diabetes in their lives (Nicolucci et al., 2013). Effective treatment for diabetes distress has been found in the areas of psycho-educational interventions to improve self-management, counseling to improve perceived control of diabetes, and building the practitioner-patient relationship (Fisher et al., 2013). In order for primary care providers to be competent practitioners of care for patients with diabetes, attention to the emotional burden of diabetes will need to be integrated into the plan of care for patients with difficulties in self-care management and meeting glycemic goals (Gonzalez, Kane, Binko, Shapira, & Hoogendoorn, 2016). This research, on a smaller scale, illuminates the need for primary care providers to consider diabetes distress screening and to direct interventions that address the causes of the distress. On a larger scale, the pressure for the medical community to integrate behavioral health into the primary care setting is getting more intense. Primary care providers are still questioning if it can be done. Future research should be directed at

interventions to assist the primary care provider to integrate health behavior psychology into the care provided to patients with diabetes with the least amount of interruption to workflow as possible.

**Table 1. Demographic Characteristics of study participants (N=20)**

Demographics	Frequency Percentage
<b>Ethnicity</b>	
Caucasian	80%
African American	5%
Asian	15%
Hispanic	0%
other	0%
<b>Gender</b>	
Male	20%
Female	80%
<b>Age</b>	
21-30	5%
31-40	30%
41-50	30%
51-60	5%
60+	30%
<b>Education</b>	
MD/DO	50%
APRN	30%
DNP	20%
<b>Years in Practice</b>	
0-4	25%
5-10	25%
11-20	30%
21-30	5%
30+	15%
<b>How many patients with diabetes do you treat a week?</b>	
0-10	25%
11-20	25%
21-30	45%
40+	15%

**Table 2. General Knowledge Question Frequencies (n=20)**

Question	Frequency Percentage
Are you familiar with Diabetes distress?	
Not familiar	45%
Familiar, not particulars	40%
Familiar, don't address in practice	15%
Familiar, screen regularly	0%

**Table 3. Pre and Post Intervention Test Scores and Statistics (n=13)**

Question	Pre test	Post test	Statistic (S)	DF	PR > S	missing
2 and 16	61.5%	63%	1.8000	1	0.1797	11
3 and 17	15.38%	50%	2.0000	1	0.1573	11
4 and 18	15.38%	00.00%	0.6667	1	0.4142	11
5 and 19	53.85%	60%	1.8000	1	1.2857	11
6 and 20	23.08%	16.67	1.2857	1	0.2568	11

**Table 4. Attitudes about Diabetes Distress Screening (N=13)**

Question	Percent	Mean	Standard Deviation
21. Can effectively manage DD?		7.54	1.613
4	7.7		
5	7.7		
6	7.7		
7	7.7		
8	38.5		
9	3.08		
22. Is DDS suitable?		8.08	1.553
5	7.7		
6	15.4		
8	30.8		
9	30.8		
10	15.4		

Running head: DIABETES-RELATED DISTRESS SCREENING

23. Important to screen? 7 8 9 10	30.8 15.4 23.1 30.8	8.54	1.266
24. Practical to screen? 6 7 8 9 10	23.1 7.7 23.1 30.8 15.4	8.08	1.441
25. Comfortable with DDS? 5 6 7 8 9	7.7 7.7 23.1 15.4 46.2	7.85	1.345
26. Confident decrease barriers? 4 6 7 8 9 10	15.4 15.4 7.7 23.1 23.1 15.4	7.54	2.025
27. Will use DDS. 5 6 7 8 9	7.7 15.4 30.8 15.4 30.8	7.46	1.330

**Table 5. Current Practices for Screening (N=20)**

Question	Percentage
Current method for Evaluation and screening? (choose all that apply)	
Discussion	70.8
DDS	0
PAID	4.2
PHQ9	29.2
Other	4.2

**Table 6. Interventions Employed by PCPs for Patients with Diabetes (grouped and ranked by most often, occasionally, and rarely) (N=13)**

#	Group	Discuss the importance of diet, exercise and medical management, only.	Referral to Mental Health	Referral to Endocrinology	Referral to Dietician	Referral for Diabetes Self-Management Education	Conduct Motivational Interviewing	Deliver brief cognitive behavioral therapy	Initiate pharmacologic management for depressive symptoms and positive PHQ-9 screen.	Referral to repeat DSM E (diabetes self-management education)	Other	Total
1	Occasionally	5.66%	0.00%	20.75%	16.98%	11.32%	11.32%	7.55%	9.43%	15.09%	1.89%	53
2	Rarely	0.00%	28.30%	0.00%	5.66%	5.66%	13.21%	20.75%	13.21%	11.32%	1.89%	53
0	Most often	30.36%	0.00%	14.29%	14.29%	16.07%	8.93%	1.79%	8.93%	5.36%	0.00%	56

**Appendix A**

Data Analysis Planning Table

**Data Analysis Planning Table-Diabetes-Related Distress**

Measure/Vari-able	Defined	Level of Data	Source of Data	Collection Method	Frequen-cy of Data Collecti-on	Planned Analysis	How to Display (run charts etc?)
Familiar with the term diabetes-related distress	1) Not familiar with the condition. 2) Familiar with the condition but not familiar with the particulars. 3) Familiar with the condition, but don't address it in practice. 4)Familiar with the condition and screen for it regularly.	Nomi-nal	PCP	Questionn-naire	Once	Frequenci-es	Histogr-am
What is Diabetes-Related Distress?	a) a form of depression b) a psychiatric condition that occurs with stress from diabetes	Nomi-nal	PCP	Questionn-naire	Pre and post educati-on	Frequenci-es,	Bar chart

	<p>c) A physiologic disorder that occurs with hypoglycemia</p> <p>d) Emotional distress from the burdens of constant worry and burnout from managing the disease.</p>						
<p>What are the symptoms of Diabetes-Related Distress?</p>	<p>a) clinical depression</p> <p>b) inability to meet glycemic goals</p> <p>c) feelings of impending doom</p> <p>d) vomiting and diarrhea</p> <p>e) not sure</p>	Nominal	PCP	Questionnaire	Pre and post education	Frequencies	Bar chart
<p>When should diabetic patients be screened for Diabetes-Related Distress?</p>	<p>a) before official diagnosis</p> <p>b) at the onset of complications and yearly</p> <p>c) at every diabetes-related follow-up visit</p> <p>d) yearly and when having trouble meeting</p>	Nominal	PCP	Questionnaire	Pre and post education	Frequencies,	Bar chart

	glycemic goals						
What impact does Diabetes Distress have on the patient with diabetes?	<ul style="list-style-type: none"> <li>a) feelings of defeat that cause depression-like symptoms</li> <li>b) low self-efficacy in lifestyle management</li> <li>c) causes the patient to experience electrolyte imbalances</li> <li>d) Leads to higher A1c levels</li> <li>e) not sure</li> </ul>	Nominal	PCP	Questionnaire	Pre and post education	Frequencies, Chi-square	Bar chart
What is the treatment for Diabetes-Related Distress?	<ul style="list-style-type: none"> <li>a) prescribe rehydration and rest</li> <li>b) repeat diabetes self-management education (or refer for the first time)</li> <li>c) develop a patient-oriented plan</li> <li>d) have a discussion with the patient about the emotional impact of diabetes may interfere with the ability to</li> </ul>	Nominal	PCP	Questionnaire	Pre and post education	Frequencies, Chi-square	Bar chart

	<p>manage the disease</p> <p>e) prescribe an SSRI/SNRI</p> <p>f) not sure</p>						
<p>Current method for evaluation of patients with difficulty managing their diabetes needs</p>	<p>a) Discussion about importance of adherence of medical advice</p> <p>b) Diabetes Distress Scale</p> <p>c) Problem Areas In Diabetes (PAID) screening tool</p> <p>d) PHQ 2 and 9</p> <p>e) other</p>	Nominal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart
<p>Current interventions used for poor glycemic control (choose all that apply and put in descending order from most to least)</p>	<p>a) discuss the importance of diet, exercise only</p> <p>b) Referral to mental health</p> <p>c) Referral to endocrinology</p> <p>d) Consult dietician</p> <p>e) Send for diabetes self-management education</p>	Nominal	PCP	Questionnaire	Once	Frequencies,	Bar chart

	f)Conduct Motivational interviewing g)Deliver a Brief cognitive behavioral therapy h) pharmacological management of depression i) Other						
Ethnicity	1. Caucasian 2. African American 3. Asian 4. Hispanic 5. Other	Nominal	PCP	Questionnaire	Once	Frequencies,	Pie chart
gender	M or F	nomin al	PCP	Questionnaire	Once	Frequencies,	Pie chart
Age	a) 21-30 b) 31-40 c) 41-50 d) 51-60 e) 61+	ordina l	PCP	Questionnaire	Once	Frequencies,	histogra m
Years in practice	0-10 11-20 21-30 31-40 50 or more	Ordin al	PCP	Questionnaire	Once	Frequencies, Chi-square	Pie chart
Please estimate how many patients you treat for diabetes each week	a. 0-10 b. 11-20 c. 21-30 d. 40+	ordina l	PCP	Questionnaire	once	Frequencies	histogra m
Primary care providers can effectively manage Diabetes	Likert scale 1-10 Strongly disagree=1	Ordin al	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart

Distress in the primary care setting?	Strongly agree=2						
The DDS tool suitable for screening your patients.	Likert scale 1-10 Strongly disagree=1 Strongly agree =10	Ordinal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart
It is important to screen for Diabetes-Related Distress.	Likert scale 1-10 Strongly disagree=1 Strongly agree =10	Ordinal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart
It is practical to screen patients with the DDS.	Likert scale 1-10 Strongly disagree=1 Strongly agree =10	Ordinal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart
I feel comfortable with the DDS tool.	Likert scale 1-10 Strongly disagree=1 Strongly agree =10	Ordinal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart
I have confidence that interventions to address diabetes distress will affect adherence with treatment regimen?	Likert Scale 1-10 Strongly disagree=1 Strongly agree =10	Ordinal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart
I will use the DDS tool to evaluate Diabetes Distress	Likert Scale 1-10 Strongly disagree=1 Strongly agree =10	Ordinal	PCP	Questionnaire	Once	Frequencies, Chi-square	Bar chart

Running head: DIABETES-RELATED DISTRESS SCREENING

levels in my practice.							
General thoughts on screening for Diabetes-Related Distress	Qualitative		PCP-Focused interview				
Perceived barriers of implementation	Qualitative		PCP-Focused interview				
Perceived facilitators of implementation	Qualitative		PCP-Focused interview				
How could the DDS be implemented with the least interruption of workflow?	Qualitative		PCP-Focused interview				
Are the questions on the DDS tool fair questions?	Qualitative		PCP-Focused interview				

**Appendix B**  
Focused Interview Questions

1. Generally, how do you feel about screening for diabetes distress?
2. What are your perceived barriers of implementation?
3. What are your perceived facilitators of implementation?
4. How could the DDS be implemented without interrupting workflow?
5. Are the questions included on the DDS tool fair questions?

## Appendix C Survey Questions

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### Start of Block: Default Question Block

Q30 To: Primary Care Providers.

This survey is strictly voluntary. The purpose of this survey is to collect information on the current practices of primary care providers, provide education about diabetes-related distress, and to get feedback on the use and implementation of the Diabetes Distress Scale screening tool. Through this information, we hope to find a cost-effective and non-obtrusive avenue to introduce diabetes-related distress screening and care into the management of the diabetic patient.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about primary care providers' knowledge, attitudes and practices concerning diabetes-related distress. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future. The survey consists of pre and post-education surveys that are multiple choice and will take approximately 2 to 4 minutes each to complete. The education is a short PowerPoint video that will take no longer than 15 minutes. Following the surveys, a lunchtime focus group session at two NMG offices (locations to be announced).

There are no known risks to participating in this study. Your response to the survey will be kept confidential to the extent allowed by law. When we write about the study you will not be identified. All identifiable information, such as your name and email address will be removed from the information collected in the study. After removal, the information may be used for future research or shared with other researchers without your informed consent.

We hope to receive completed questionnaires from about 100 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the survey, but if you do participate, you are free to skip any questions or discontinue at any time. Please be aware, while we make every effort to safeguard your data once received on our servers via Qualtrics; given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still en route to us. If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428. Thank you in advance for your assistance with this important project. To ensure your responses will be included, please submit your completed survey/questionnaire by September 28th.

Sincerely,

Michele Paxton- Principal Investigator  
College of Nursing, University of Kentucky  
PHONE: 502-939-3034 E-MAIL: michele.paxton@uky.edu

Faculty Advisor: Elizabeth G. Tovar, Ph.D., APRN  
Associate Professor  
Co-Coordinator Primary Care NP Track  
University of Kentucky  
Phone: 859-323-6611  
Email: egres2@uky.edu

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Q1 Are you familiar with the condition Diabetes Distress? (choose one)

- Not familiar with the condition (1)
  - Familiar with the condition, but not the particulars (2)
  - Familiar with the condition and the particulars, but don't address it in practice (3)
  - Familiar with the condition and screen for it regularly (4)
-

Q2 What is Diabetes Distress? (choose one)

- A form of depression (1)
  - A psychiatric condition that occurs with stress from having diabetes (2)
  - A physiologic disorder that occurs with hypoglycemia (3)
  - Emotional distress from the burden of constant worry and burnout from managing diabetes (4)
  - Not sure (5)
- 

Q3 What are the symptoms of Diabetes Distress? (choose all that apply)

- Clinical depression (1)
  - Inability to meet glycemic goals (2)
  - Feelings of impending doom (3)
  - Vomiting and diarrhea (4)
  - Not sure (5)
-

Q4 When should patients with diabetes be screened for Diabetes Distress? (choose one)

- Before the official diagnosis of diabetes (1)
  - At the onset of complications and then yearly (2)
  - At every diabetes-related follow-up visit (3)
  - Yearly and when having difficulty meeting glycemic goals (4)
  - Not sure (5)
- 

Q5 What impact does Diabetes Distress have on the patient with diabetes? (choose all that apply)

- Causes feelings of defeat and burnout that are manifested as depression-like symptoms (1)
  - Causes low self-efficacy in lifestyle management (2)
  - Causes the patient to experience electrolyte imbalances (3)
  - Leads to higher A1c levels (4)
  - Not sure (5)
-

Q6 What treatments may be effective in treating Diabetes Distress? (choose all that apply)

- Prescribe rehydration and rest (1)
  - Referral to DSME (diabetes self-management education) or have them attend a repeat session (2)
  - Develop a patient-oriented plan that may include a brief cognitive/behavioral intervention, group therapy, motivational interviewing, goal setting, consult to psychology, or a combination of these (3)
  - Have a discussion with the patient about how the emotional impact of having diabetes may interfere with the ability to manage the disease effectively (4)
  - Prescribe an SSRI/SNRI (5)
  - not sure (6)
- 

Q7 What is your current method for evaluating and screening patients that are having difficulty meeting the needs/goals of their diabetic regimen? (choose all that apply, if other, please explain)

- Discussion about the importance of adherence to medical advice (1)
  - Administering the Diabetes Distress Scale tool (2)
  - Administering the Problem Areas In Diabetes (PAID) tool (3)
  - PHQ-9 (4)
  - Other (5) \_\_\_\_\_
-

Running head: DIABETES-RELATED DISTRESS SCREENING

Q8 In general, what intervention do you employ for treating patients having difficulty meeting their glycemic goals? (please drag and drop to the appropriate box and then rank in order of most often to least)

Most often	Occasionally	Rarely
_____ Discuss the importance of diet, exercise and medical management, only. (1)	_____ Discuss the importance of diet, exercise and medical management, only. (1)	_____ Discuss the importance of diet, exercise and medical management, only. (1)
_____ Referral to Mental Health (2)	_____ Referral to Mental Health (2)	_____ Referral to Mental Health (2)
_____ Referral to Endocrinology (3)	_____ Referral to Endocrinology (3)	_____ Referral to Endocrinology (3)
_____ Referral to Dietician (4)	_____ Referral to Dietician (4)	_____ Referral to Dietician (4)
_____ Referral for Diabetes Self-Management Education (5)	_____ Referral for Diabetes Self-Management Education (5)	_____ Referral for Diabetes Self-Management Education (5)
_____ Conduct Motivational Interviewing (6)	_____ Conduct Motivational Interviewing (6)	_____ Conduct Motivational Interviewing (6)
_____ Deliver brief cognitive behavioral therapy (7)	_____ Deliver brief cognitive behavioral therapy (7)	_____ Deliver brief cognitive behavioral therapy (7)
_____ Initiate pharmacological management for depressive symptoms and positive PHQ-9 screen. (8)	_____ Initiate pharmacological management for depressive symptoms and positive PHQ-9 screen. (8)	_____ Initiate pharmacological management for depressive symptoms and positive PHQ-9 screen. (8)
_____ Referral to repeat DSME (diabetes self management education) (9)	_____ Referral to repeat DSME (diabetes self management education) (9)	_____ Referral to repeat DSME (diabetes self management education) (9)
_____ Other (10)	_____ Other (10)	_____ Other (10)

Q9 Ethnicity

- Caucasian (1)
  - African American (2)
  - Asian (3)
  - Hispanic (4)
  - other (5)
- 

Q10 Gender

- Male (1)
  - Female (2)
-

Q11 Age

- 21-30 (1)
  - 31-40 (2)
  - 41-50 (3)
  - 51-60 (4)
  - 60+ (5)
- 

Q12 Education

- MD/DO (1)
  - APRN (2)
  - DNP (3)
- 

Q13 Years in Practice

- 0-4 (1)
- 5-10 (2)
- 11-20 (3)
- 21-30 (4)
- greater than 30 (5)

Q14 Please estimate how many patients you treat for diabetes each week.

- 0-10 (1)
  - 11-20 (2)
  - 21-30 (3)
  - 40+ (4)
- 

Q31 This is the end of part one. Please continue to the next page to watch a 15-minute video on Diabetes Distress. After the video is done, part two will begin after pushing the next button.

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Q15

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Page Break

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End of Block: Default Question Block

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Start of Block: Default Question Block

Q16 What is Diabetes Distress? (choose one)

- A form of depression (1)
  - A psychiatric condition that occurs with stress from having diabetes (2)
  - A physiologic disorder that occurs with hypoglycemia (3)
  - Emotional distress from the burden of constant worry and burnout from managing diabetes (4)
  - Not sure (5)
- 

Q17 What are the symptoms of Diabetes Distress? (choose all that apply)

- Clinical depression (1)
  - Inability to meet glycemic goals (2)
  - Feelings of impending doom (3)
  - Vomiting and diarrhea (4)
  - Not sure (5)
-

Q18 When should patients with diabetes be screened for Diabetes Distress? (choose one)

- Before the official diagnosis of diabetes (1)
  - At the onset of complications and then yearly (2)
  - At every diabetes-related follow-up visit (3)
  - Yearly and when having difficulty meeting glycemic goals (4)
  - Not sure (5)
- 

Q19 What impact does Diabetes Distress have on the patient with diabetes? (choose all that apply)

- Causes feelings of defeat and burnout that are manifested as depression-like symptoms (1)
  - Causes low self-efficacy in lifestyle management (2)
  - Causes the patient to experience electrolyte imbalances (3)
  - Leads to higher A1c levels (4)
  - Not sure (5)
-

Q20 What treatments may be effective for Diabetes Distress? (chosed all that apply)

- Prescribe rehydration and rest (1)
  - Referral to DSME (diabetes self-management education) or have them attend a repeat session (2)
  - Develop a patient-oriented plan that may include a brief cognitive behavioral intervention, group therapy, motivational interviewing, goal setting, referral to psychology or a combination of these (3)
  - Have a discussion with the patient about how the emotional impact of having and managing diabetes may interfere with the ability to manage the disease effectively (4)
  - Prescribe an SSRI/SNRI (5)
  - Not Sure (6)
- 

Q33 For the questions below, please indicate the extent to which you agree or disagree with the statement.

---

Q21 Primary care providers can effectively manage Diabetes Distress in the primary care setting.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
-

Q22 The Diabetes Distress scale is suitable for screening the patients with diabetes in your practice.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
-

Q23 It is important to screen for Diabetes Distress.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
-

Q24 It is practical to screen for Diabetes Distress in the primary care setting.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
-

Q25 I feel comfortable administering the Diabetes Distress Scale screening tool in my practice.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
-

Q26 I am confident that interventions to address Diabetes Distress can decrease barriers to adherence with treatment regimen.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
-

Q27 I will use the Diabetes Distress Scale to screen for diabetes distress levels in my practice.

- 0 (0)
  - 1 (1)
  - 2 (2)
  - 3 (3)
  - 4 (4)
  - 5 (5)
  - 6 (6)
  - 7 (7)
  - 8 (8)
  - 9 (9)
  - 10 (10)
- 

Q34 Thank you for your participation in this survey. Results of this research will be distributed before December 31st, 2018.

**End of Block: Default Question Block**

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## Appendix D Diabetes Distress Screening Tool

Listed below are potential problem areas that people with diabetes may experience. Consider the degree to which each of the items may have distressed or bothered you during the past month and circle the appropriate number.

	Not a Problem	Slight Problem	Moderate Problem	Somewhat Serious Problem	Serious Problem	Very Serious Problem
1. Feeling that diabetes is taking up too much of my mental and physical energy every day.	1	2	3	4	5	6
2. Feeling that my doctor doesn't know enough about diabetes and diabetes care.	1	2	3	4	5	6
3. Feeling angry, scared, and/or depressed when I think about living with diabetes.	1	2	3	4	5	6
4. Feeling that my doctor doesn't give me clear enough directions on how to manage my diabetes.	1	2	3	4	5	6
5. Feeling that I am not testing my blood sugars frequently enough.	1	2	3	4	5	6
6. Feeling that I am often failing with my diabetes routine.	1	2	3	4	5	6
7. Feeling that friends or family are not supportive enough of self-care efforts (eg, planning activities that conflict with my schedule, encouraging me to eat the "wrong" foods).	1	2	3	4	5	6
8. Feeling that diabetes controls my life.	1	2	3	4	5	6
9. Feeling that my doctor doesn't take my concerns seriously enough.	1	2	3	4	5	6
10. Not feeling confident in my day-to-day ability to manage diabetes.	1	2	3	4	5	6
11. Feeling that I will end up with serious long-term complications, no matter what I do.	1	2	3	4	5	6
12. Feeling that I am not sticking closely enough to a good meal plan.	1	2	3	4	5	6
13. Feeling that friends or family don't appreciate how difficult living with diabetes can be.	1	2	3	4	5	6
14. Feeling overwhelmed by the demands of living with diabetes.	1	2	3	4	5	6
15. Feeling that I don't have a doctor who I can see regularly enough about my diabetes.	1	2	3	4	5	6
16. Not feeling motivated to keep up my diabetes self-management.	1	2	3	4	5	6
17. Feeling that friends or family don't give me the emotional support that I would like.	1	2	3	4	5	6

**Figure 1. DDS17 Scoring Sheet**

**Instructions for Scoring:**

The DDS17 yields a total DD scale score plus 4 subscale scores, each addressing a different kind of distress. To score, simply sum the patient's responses to the appropriate items and divide by the number of items in that scale. The letter in the far right margin corresponds to that item's subscale as listed below. We consider a mean item score of  $\geq 3$  (moderate distress) as a level of distress worthy of clinical attention. Place a check on the line to the far right if the mean item score is  $\geq 3$  to highlight an above-range value.

We also suggest reviewing the patient's responses across all items, regardless of mean item scores. It may be helpful to inquire further or to begin a conversation about any single item scored  $\geq 3$ .

Total DDS Score:

a. Sum of 17 item scores. \_\_\_\_\_  
 b. Divide by: 17  
 c. Mean item score: \_\_\_\_\_  $\geq 3$

A. Emotional Burden:

a. Sum of 5 items (1, 3, 8, 11, 14) \_\_\_\_\_  
 b. Divide by: 5  
 c. Mean item score: \_\_\_\_\_  $\geq 3$

B. Physician-related Distress:

a. Sum of 4 items (2, 4, 9, 15) \_\_\_\_\_  
 b. Divide by: 4  
 c. Mean item score: \_\_\_\_\_  $\geq 3$

C. Regimen-related Distress:

a. Sum of 5 items (5, 6, 10, 12, 16) \_\_\_\_\_  
 b. Divide by: 5  
 c. Mean item score: \_\_\_\_\_  $\geq 3$

D. Interpersonal Distress:

a. Sum of 3 items (7, 13, 17) \_\_\_\_\_  
 b. Divide by: 3  
 c. Mean item score: \_\_\_\_\_  $\geq 3$

**Table 1. Diabetes Distress Screening Test**

Listed below are 2 potential problem areas that people with diabetes may experience. Consider the degree to which each of the 2 items may have distressed or bothered you during the past month and circle the appropriate number. If the scores are 3 or greater for either question, complete the 17-question Diabetes Distress Scale (Table 2).

	Not a Problem	Slight Problem	Moderate Problem	Somewhat Serious Problem	Serious Problem	Very Serious Problem
1. Feeling overwhelmed by the demands of living with diabetes.	1	2	3	4	5	6
2. Feeling that I am often failing with my diabetes routine.	1	2	3	4	5	6

**Appendix E**  
Focused Interviews

Themes

**Question 1 (Thoughts on screening for diabetes distress)**

Positive theme

There is definitely a need for it.

Definitely would be a good thing

It would be a good thing

We can screen for diabetes distress if it helps the patient

We don't have the resources to treat

I feel like questions 1,5,11,15 would make patients uncomfortable and will not answer honestly

**Question 2 (What would you consider a barrier to implementation)**

Time and Cost themes

The time it takes to interpret and find treatment

Time

Time

Time

Likely to increase visit time

cost

Cost

Insurance

Some patients will not understand the questions

Honest answers

**Question 3 (What would facilitate implementation)**

Providing education on the subject

Having interventions ready to choose from that will be approved by insurance

Team approach theme

Have nurse navigators do the screening

Nurse navigator or MA screen the patients

MA screen the patients

A nurse navigator that does diabetes teaching should screen the patient and order referrals

More nurse navigator involvement  
Should be handled by the nurse navigator

**Question 4 (How could DDS be implemented without interrupting workflow)**

Same as above  
Utilize the MAs  
More nurse navigator involvement  
MAs should handle the screening tool  
MAs could manage the screening  
MAs could have the patient filling out the screening while they wait.

**Questions 5 (are the questions on the DDS fair questions)**

Positive- fair questions theme

Yes  
Fair  
Yes they are fair  
Yes they are fair

Worried they will not feel comfortable answering  
I think the patients would not answer them honestly

I would want to know if the patient feels that I am not helping  
I definitely want to know their feelings toward their provider.

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