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DIABETES DISTRESS: TRANSFORMING A PRACTICE

Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Nursing Practice

By

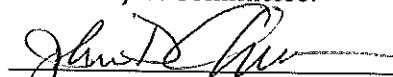
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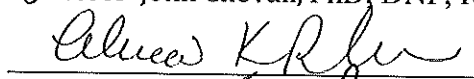
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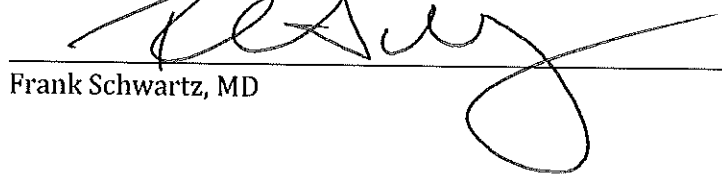
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I would like to thank my family, who have supported my endeavors to go back to school and allowed me to fulfill my lifetime goal.

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ABSTRACT

Diabetes mellitus affects millions of people in the United States, placing them at risk for other disease related complications. This makes the management of diabetes and the prevention of complications an important challenge. The psychological aspect of diabetes care may present a barrier to patients that inhibit them from achieving optimal self-care.

Diabetes distress (DD) is the psychological aspect of diabetes that is specific to the emotional distress caused from living with a chronic disease. DD has been linked to poorer self-management behaviors which makes it a significant problem that should be taken into consideration for effective management of the diabetic patient.

Many providers are unaware of the significance of DD or screening tools that are available to help them target problem areas that are creating distress for the patient. The Diabetes Distress Survey is a simple screening tool that can be used within a clinic setting to quickly identify problem areas that will help a provider to identify issues where they can help ease patient distress and thereby improve patient compliance and glycemic control.

An education program was formatted based upon the results of a knowledge assessment of diabetes distress and attitude towards diabetes and diabetes care in a small endocrine and diabetes center. Upon completion of the program, staff had an increased awareness of diabetes distress, but no changes in attitudes were identified by test results. Anecdotally, staff did make comments that showed a change in attitude toward diabetes distress and diabetes care.

INTRODUCTION

Diabetes mellitus (DM) affects more than 29.1 million people in the United States and is the seventh leading cause of death (American Diabetes Association, 2014). There are 1.7 million new diagnoses each year (American Diabetes Association, 2014). DM places individuals at higher risk for complications such as heart disease, stroke, hypertension, blindness, kidney disease, complications of the nervous system, amputations, dental disease, as well as depression (American Diabetes Association, 2014). The estimated costs associated with diabetes are approximately \$245 billion with \$176 billion being associated with direct medical costs (American Diabetes Association, 2014). Diabetes is one of the most common non-communicable diseases and has become one of the most challenging health problems in the 21st century, making the management of the illness and the prevention of complications important challenges (International Diabetes Federation, 2013).

Diabetes is a complicated disease to manage, requiring a multifaceted treatment regimen that consists of self-glucose monitoring, dietary changes, exercises, and often a complicated medication regimen (Fisher et al., 2010) (Gonzalez, Fisher, & Polonsky, 2011). Despite advances in treatment, nearly half of the adults with diabetes who live in the United States do not meet the recommended goals for diabetes care including: glycemic control, lipid levels, blood pressure targets, recommended annual eye exams, dental exams or foot exams (Ali et al., 2013).

Research about the psychological aspects of living with diabetes is increasing to understand the importance of managing the psychological barriers

patients experience once they are diagnosed with diabetes. Depression and diabetes distress are psychosocial factors that can interfere with recommended self care and are associated with poor glycemic control (Kayton et al., 2004) (Polonsky et al., 2005). Previous research, however, that focused on using depression as the framework for improving diabetes outcomes showed that there are many inconsistencies across studies in prevalence, the association between depression and self-care, and also with depression and glycemia (Anderson, Freeland, Clouse, & Lustman, 2001). These inconsistencies have caused researchers to look for other frameworks in which to evaluate patient behaviors in order to improve patient outcomes.

Chronic disease and the adverse effects from the disease have been shown to increase the levels of distress that an individual experiences (Keles, Ekici, Ekici, Bulcun, & Altinkaya, 2007). Distress seems to be an independent contributor to poor health outcomes in people with diabetes (Gonzalez, Fisher, & Polonsky, 2011). Depression is measured with scales that are symptom based and not tied to a particular cause (Fisher, Gonzalez, & Polonsky, 2014) In many cases, the symptoms are reflective of the distress that people are experiencing related to their diabetes and may not necessarily be clinical depression (Fisher, Gonzalez, & Polonsky, 2014). Diabetes distress is the psychological aspect of diabetes that is specific to the emotional distress that is caused from living with a chronic disease (Fisher et al., 2010) (Egede & Dismuke, 2012). Although there are similarities between diabetes distress and depression; diabetes distress is a distinct condition that should be addressed to effectively treat diabetes (Fisher, Glasgow, Mullan, Skaff, & Polonsky, 2008).

BACKGROUND/SIGNIFICANCE OF THE PROBLEM

To date, a great deal of research has been done to show the relationship between diabetes and depression. Many providers now screen for depression among their diabetic population. Most patients that have diabetes are not clinically depressed, but rather distressed about the impact of diabetes and its management of the disease. As much as 70% of those patients affected by high levels of diabetes distress do not meet criteria for clinical depression (Fisher, et al., 2013). High levels of diabetes distress are common and persistent with a prevalence rate between 18 to 35% (Fisher, Hessler, Polonsky, & Mullan, 2012). The high level of diabetes distress has been associated with much poorer self-management behaviors in patients (Hermanns, Kulzer, Krichbaum, Kubiak, & Haak, 2006). In fact, diabetes distress was more strongly and independently related to behavioral and clinical measures of diabetes than major depressive disorders and depressive affect (Fisher et al., 2008)(Fisher et al., 2010). This makes diabetes distress a significant problem that should be taken into consideration for effective management of the diabetic patient (Islam, Karim, Habib, & Yesmin, 2013).

Diabetes distress is caused from feelings of being overwhelmed by the time and planning requirements needed to implement the lifestyle modifications that are necessary to effectively manage diabetes (Fisher et al., 2009).

Diabetes distress can be subdivided into four distinct categories: Emotional burden, physician-related distress, regimen-related distress and interpersonal distress (Fisher et al., 2009). The emotional burden that is associated with diabetes distress is described as a feeling of being overwhelmed

by the demands of the living with the disease. Physician-related distress stems from feelings or perceptions that the patient may have that the provider is not addressing his/her concerns about the disease, or concerns about access to care . Regimen-related distress comes from feelings that the patient is not able to adhere to the lifestyle modifications that are required in the management of diabetes. Interpersonal distress represents the patient's feelings that other people do not appreciate the difficulties of living with diabetes (Polonsky et al., 2005).

Addressing diabetes distress has been shown to improve self-care and glycemic control (Fisher et al., 2009), however, many physicians are not aware of how diabetes distress affects glycemic control or that there are screening tools that can be used to screen for the disorder. Consequently existing diabetes distress inventories are not widely used in clinical practice. Implementation of these tools could help providers to target problem areas that are causing distress for the patient, and thus develop intervention strategies to reduce stress, leading to improved regimen adherence and better glycemic control (Polonsky et al., 2005).

Some of the existing tools are the Questionnaire on Stress in Patients with Diabetes Revised (QSD-R), the Problem Areas in Diabetes (PAID), and the Diabetes Distress Scales (DDS2 and DDS17).

Each of these scales has been found to be useful in screening for diabetes distress. The QSD-R is very specific at evaluating areas that cause distress in patients with diabetes, unfortunately the tool consists of 45 questions, making it difficult to administer in a clinic setting (Herschbach, et al., 1997). The PAID survey is the most widely used screening tool. It

has been closely linked to diabetes self-care behaviors as well as glycemic control, perceived burdens of diabetes, and emotional distress (Polonsky et al., 1995). The PAID inventory has also been used to look at diabetes health beliefs, diabetes coping, marital adjustment, and quality of life (Welch, Jacobson, & Polonsky, 1997) (Trief, Wade, Britton, & Weinstock, 2002). The PAID survey however, does not address patient's feelings about the provider and it does not use subscales to identify the specific areas of concern. Both the PAID questionnaire and QSD-R have questions that are vague and may be difficult for some patients to understand (Polonsky et al., 2005).

The brief Diabetes Distress Screening instrument (DDS2) is a time-efficient tool that can be used in the clinical setting to quickly identify patients that are at risk of diabetes distress (Fisher, Glasgow, Mullan, Skaff, & Polonsky, 2008). The DDS2 is a 2- item questionnaire that asks patients to rate on a 6-point scale the degree to which the following items cause distress: 1. Feeling overwhelmed by the demands of living with diabetes, and 2. Feeling that I am often failing with my diabetes regimen (Fisher, Glasgow, Mullan, Skaff, & Polonsky, 2008). For patients that answer both questions affirmatively on the DDS2, the full diabetes distress screening (DDS17) inventory is used to help define the content of the diabetes distress and subsequently direct the intervention (Fisher et al., 2009).

The DDS17 is a conceptually -derived 17-item questionnaire which focuses on four pre-established domains of diabetes related distress: emotional burden, physician-related distress, regimen-related distress, and diabetes-related interpersonal distress (Polonsky et al., 2005). Each of the questions is rated on 6 point Likert-type scale (1 indicating no problem and 6 being a serious problem). The scores from each of the distress-related categories on the DDS17 can be interpreted based on the mean score: little or no distress, <2.0; moderate distress 2.0-2.9; and high distress ≥ 3 (Fisher, Hessler, Polonsky, & Mullan,

2012). A mean score in any of the categories that is equal to or greater than 3 should be addressed. The brevity of the questionnaires as well as the four subsets, are useful to the provider identifying areas of concern and makes the DDS tools more desirable for clinical practice.

PROBLEM STATEMENT

Providers at Camden Clark Physicians Corporation, often have patients that are unable to achieve optimal glycemic control. After suggested interventions for their care are ignored, they are often labeled as noncompliant and providers are less inclined to make changes in treatment regimens which perpetuate the suboptimal HbA1C levels. In contrast, other patients may achieve excellent glucose control, but the stress associated with this task is overwhelming and leaves them feeling burned out or distressed. This may lead them to suboptimal HbA1C levels. The problem addressed in this project is the lack of awareness of the staff of Camden Clark Physicians Corporation about diabetes distress and its significance to patient outcomes. Lack of knowledge and appreciation of diabetes distress in turn results in a failure to routinely assess for it. It is often an unknown and unappreciated but treatable barrier contributing to diabetic patients failing to achieve and maintain optimal glycemic control.

PURPOSE

The goal of the project was to:

1. Increase the knowledge and awareness of the staff about the condition of diabetes distress;
2. Introduce screening tools to help identify patients with diabetes distress and to teach staff how to correctly administer and interpret results; and

3. Change staff's attitudes toward diabetes and diabetes care including screening for diabetes distress

PROJECT IMPLEMENTATION

In order to design an educational intervention to increase both the medical and support staff's awareness about diabetes distress and then to implement standardized tools to help aid in screening for diabetes distress, it was important to establish a framework for the project.

The framework identified is adult learning theory. Malcolm Knowles, a pioneer in the field of adult learning, suggested that the educator be aware of the educational needs and involve adults in the planning and evaluation of their instruction because each adult can bring a different experience and consequently a different learning style or assimilation of knowledge to the project. (Smith, 2002). Key principles that help in designing adult educational programs are to remember that adults need to understand why they need to learn something new, they need to be involved in hands on learning and problem solving, and they need to understand the immediate value of the education (Smith, 2002), they must also feel that the education is practical and they want to be respected when learning something new (QOTFC, 2012).

In using the concepts outlined by the adult learning theory, the education program created to teach participants about diabetes distress took into consideration that participants in the study had different educational backgrounds as well as different levels of involvement in the care of the patient. It was important for all members to understand how they can contribute to the process of screening and implementing a new procedure that could help to ultimately reduce diabetes distress and lead to better patient outcomes. For this reason, initial screening testing was completed in order to identify the level of

understanding that each staff member had regarding the condition of diabetes distress to establish a program that was clear in meaning and purpose to everyone involved.

The study was a pretest- posttest design that looked at both quantitative and qualitative data. Quantitative data involved testing scores that assessed knowledge before and after the intervention. The qualitative data was derived from thoughts, feelings and attitudes of participants regarding diabetes distress and the effectiveness of the program.

Two questionnaires were presented to the staff to assess their knowledge of diabetes distress and their attitudes towards diabetes and diabetes related care. There were no current instruments available to assess for the level of knowledge regarding diabetes distress, so a questionnaire was designed for this purpose: 15 item multiple- choice questionnaire specific to the topic of diabetes distress. To assess the staff's attitudes toward diabetes and diabetes care, an attitudes assessment was used from the Diabetes Initiative Program (2009).

The Diabetes Initiative program focused on improving self-management support of adults with diabetes (Robert Wood Johnson Foundation, 2009). The questionnaire consisted of 33 questions in which patient used a Likert scale to rate responses to the questions ranging from strongly agree to strongly disagree. The topics addressed in the attitudes assessment survey include questions about the care provided by the health care professional, complications of diabetes, and patient responsibility in the care plan (Robert Wood Johnson Foundation, 2009). Examining how the staff perceive these concepts can help to identify potential pitfalls in care. Staff need to understand the disease process and what the expectations are of patients in diabetes management. For instance, if staff believe that type 2 diabetes is not as serious as type 1 diabetes; patients may not be as diligent at

managing the disease. If staff feel that the patient needs to be more involved in the management of their own disease process, they will be engage them in the planning process.

Both of the questionnaires were used to collect data to inform the educational intervention and to assess for its impact.

The population selected for this study was the staff of Endocrine and Diabetes Center. The staff at the center consists of four clerks, 2 registered nurses, 2 licensed practical nurses, 1 medical assistant, a nurse practitioner, a physician, and a dietitian. All staff members were invited to participate.

Participants were asked to complete the pre-test questionnaires during work hours. After they had completed the initial forms, responses from both the knowledge assessment and attitudes assessment were reviewed by the researcher and the education session was designed to include: (a) a brief overview to explain the differences in type 1 and type 2 diabetes, (b) the management regimen that patients were asked to follow, (c) an explanation about the difference between depression and diabetes distress, and (d) information about various screening tools for diabetes distress. At the conclusion of the presentation, participants were introduced to the survey tools, the DDS2 and the DDS17 that would be used in the office. They were shown how the tools would be used within the office and how to interpret the results.

Immediately after the presentation, participants were asked to complete the same two questionnaires that they had originally answered to evaluate the effectiveness of the educational program. A total of 12 members completed the first questionnaires. 11 members of the staff attended the three education sessions and completed the questionnaires following the educational intervention.

The initial pre-test questionnaires were provided approximately 8 weeks prior to the initial educational session. The combined subsequent education sessions were spread out over the course of 4 weeks to allow all staff to participate. This was necessary due to changes in scheduling related to vacation, illness and scheduled time off.

OUTCOMES AND ANALYSIS

Results of the knowledge assessment tests were used to determine if the educational PowerPoint presentation improved the knowledge of the staff on the topic of diabetes distress. Of the 11 individuals that completed the education program, seven showed improvement in testing scores. Four of the participants showed no improvement in their score; however 1 of those individuals had a perfect score prior to the PowerPoint presentation and maintained that score after the presentation. This would suggest that overall, the education intervention did increase the awareness of the condition of diabetes distress.

When assessing the attitudes assessment, there was very little change in the median scores between pre and post testing. In review of individual responses, there were questions in which the respondents changed their position on a statement, moving to the opposing side of the Likert scale. Among the same respondents, answers to other questions addressing the same topic, did not show the same change in position. This may have been misinterpretation of the question. One participant did mention as she moved through the questions, she had forgotten the direction of the Likert-scale and may have marked her questionnaire wrong, but she did not go back to change responses. These isolated changes seem to have no significance as overall median scores did not change. This implies that the overall attitudes of the staff towards diabetes and diabetes related care did not change as a result of the educational intervention.

The comments received from staff do indicate a change in awareness and attitudes regarding diabetes distress however. Initially nursing clerks were very appreciative of being included in the education. They were very thankful for the education to explain the differences in the types of diabetes and the treatment regimens. One of the clerks felt that the information gave them insight about how her family member felt trying to manage her diabetes. All clerks noted that the education would help them to explain the reasons that forms were being completed and that helped to add to their credibility with patients.

The nursing staff were very receptive to the introduction of the new screening tool. There was concern that the screening tool would add too much time to the intake process, but all were willing to trial the new tool. One of the nurses commented that she recognized the symptoms in several patients she had recently roomed. One nurse commented that she thought this was a needed screening tool because she felt that this would address patient's needs more specifically and was more beneficial than just writing a prescription. The physician involved in the study commented that the physician distress section provided feedback to him that would help him to recognize when he needed to spend more time addressing patient's concerns. The physician recognized that diabetes distress could be an explanation for why patients did not meet criteria for depression, but appeared clinically depressed in the office.

CONCLUSION AND RECOMMENDATIONS

The project was limited to an endocrine office that consists of a very small population. The sample size is therefore too small to use inferential statistics because this small subset of people may not be representative of other practices. The study design was a pre-test/post-test design. The results indicate that there was an improvement in the awareness of the condition of diabetes distress among a majority of the participants as a

result of the PowerPoint presentation, which was the intent of the project. Unfortunately the study design was small in numbers and randomization was not used, making it impossible to control for threats to the validity of the testing scores. Testing scores may reflect bias due to familiarity with the questions from the pre-test questionnaires.

The attitudes assessment failed to show any significant changes in attitude regarding diabetes or diabetes related care among participants. These results may be different in offices that do not primarily target a diabetic population, where staff may not be as familiar with concerns regarding diabetes care. Although statistical significance is indeterminate based upon the study size and design, the information should be considered clinically relevant.

Diabetes distress is a topic that many providers or office personnel are not familiar with. Education is necessary to implement new procedures. Understanding that each person comes from a different educational background, and incorporating staff into the education process can enhance their learning experience. This process can be completed in an office setting within a reasonable amount of time. Primary care offices may also benefit from introduction of the concept of diabetes distress into their office setting as well because they are often the first to identify diabetes and initiate treatment. Since the population was varied in education and experience, similar education programs may be just as effective for primary care.

This is a specialty clinic that has a larger percentage of diabetes patients than the average primary care clinic. Many of the staff members have worked with this disease for many years and although not familiar with the concept of diabetes distress, some were familiar with the symptoms and recognized a need to address these areas but often there is not enough time during an appointment to identify the specific cause. The DDS tools will

provide them a way to more effectively identify this problem area. This will allow them to address patient concerns in order to improve patient outcomes. Other endocrinology or diabetes treatment centers may experience similar situations.

Further evaluation is necessary to determine if the implementation of the DDS tools is consistent and if they provided meaningful data to the staff to generate better clinical outcomes. Review of documentation is necessary to determine if the providers are addressing the areas of concern during the time of the patient's visit. Additional patient follow up would be necessary to determine if the patient's felt the physician intervention was helpful in reducing distress and if the tool was helpful in improving patient outcomes.

EPILOGUE

There was difficulty in determining an appropriate location to place the forms in the current electronic medical record (EMR). This created a delay in implementing the education intervention because a component of the program was to inform the staff on how to access the tools in the EMR and how to use them.

At the completion of the educational program, staff was encouraged to provide their feedback on the ease of usage and placement of assessment tools in the EMR. Their recommendations were used to improve the process design prior to the implementing the new screening tools in the office. This included creating a summary page to help nurses to calculate the screening tools more quickly. There were errors in transcription caught after implementation of the forms which resulted in a short discontinuation of the forms, and subsequent revision.

Three weeks after implementation of the new screening tool, some resistance was met. The nursing clerks felt that they were providing too many forms to the patient, which seemed to cause the patients increased frustration when checking in. It also increased the

amount of time at check in due to explanation. The forms were again revised with explanation placed on the top of the form to help patients understand why they were being asked questions and to cut down on time the clerks spent providing instruction.

Since the implementation of the screening process, providers have been able to use the tool to identify areas of concern that patients may not have been able to explain to the provider. The process of asking the screening questions has added very little time to the patient's intake process and is being completed while nurses wait for completion of hemoglobin A1C values.

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Appendix A: Attitudes Assessment Questionnaire

Below are some statements about diabetes. Each numbered statement finishes the sentence "In general, I believe that..." You may believe that a statement is true for one person but not for another person or may be true one time but not be true another time. Mark the answer that you believe is true most of the time or is true for most people. Place a check mark in the box below the word or phrase that is closest to your opinion about each statement. It is important that you answer every statement.

Note: The term "health care professionals" in this survey refers to doctors, nurses, and dietitians.

In General I believe that:	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. ...health care professionals who treat people with diabetes should be trained to communicate well with their patients.					
2. ...people who do not need to take insulin to treat their diabetes have a pretty mild disease.					
3. ...there is not much use in trying to have good blood sugar control because the complications of diabetes will happen anyway.					
4. ...diabetes affects almost every part of a diabetic person's life.					
5. ...the important decisions regarding daily diabetes care should be made by the person with diabetes.					
6. ...health care professionals should be taught how daily diabetes care affects patients' lives.					

7. ...older people with Type 2* diabetes do not usually get complications					
8. ...keeping the blood sugar close to normal can help to prevent the complications of diabetes					
9. ...health care professionals should help patients make informed choices about their care plans					
10. ...it is important for the nurses and dieticians who teach people with diabetes to learn counseling skills.					
11. ...people whose diabetes is treated by just a diet do not have to worry about getting many long-term complications.					
12. ...almost everyone with diabetes should do whatever it takes to keep their blood sugar close to normal.					
13. ...the emotional effects of diabetes are pretty small.					
14. ...people with diabetes should have the final say in setting their blood glucose goals.					
15. ...blood sugar testing is not needed for people with Type 2* diabetes.					
16. ...low blood sugar reactions make tight control too risky for most people.					
17. ...health care professionals should learn how to set goals with patients, not just tell them what to do.					
18. ...diabetes is hard because you never get a break from it.					
19. ...the person with diabetes is the most important member of the diabetes care team.					
20. ...to do a good job, diabetes educators should learn a lot					

about being teachers.					
21. ...Type 2* diabetes is a very serious disease					
22. ...having diabetes changes a person's outlook on life.					
23. ...people who have Type 2* diabetes will probably not get much payoff from tight control of their blood sugars.					
24. ...people with diabetes should learn a lot about the disease so that they can be in charge of their own diabetes care.					
25. ...Type 2* is as serious as Type 1 diabetes.					
26. ...tight control is too much work.					
27. ...what the patient does has more effect on the outcome of diabetes care than anything a health professional does.					
28. ...tight control of blood sugar makes sense only for people with type 1 diabetes.					
29. ...it is frustrating for people with diabetes to take care of their disease.					
30. ...people with diabetes have a right to decide how hard they will work to control their blood sugar.					
31. ...people who take diabetes pills should be as concerned about their blood sugar as people who take insulin.					
32. ...people with diabetes have the right not to take good care of their diabetes.					
33. ...support from family and friends is important in dealing with diabetes.					

Appendix B: Attitudes Assessment Questionnaire Results

Attitudes Assessment Pre test																																			
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33		
1	1	4	5	2	2	2	2	5	2	2	1	4	2	4	4	5	4	2	2	2	2	1	2	4	3	2	4	1	4	3	4	2	4	1	
2	1	5	5	1	2	1	5	1	1	2	5	1	5	2	5	5	1	1	1	1	1	3	5	1	1	5	2	5	1	1	1	1	1		
3	1	4	5	1	3	2	5	2	2	4	4	4	2	4	3	2	2	2	2	2	2	4	4	2	3	4	2	4	3	3	2	4	2		
4	2	4	5	1	3	2	5	1	2	2	4	2	5	5	5	2	2	1	3	2	1	2	4	2	2	3	1	5	2	1	2	1	2		
5	1	4	1	1	2	1	5	1	1	1	5	1	5	2	5	4	1	2	1	3	1	2	4	1	1	4	2	5	1	2	2	2	1		
6	2	4	4	2	3	2	4	2	2	2	4	2	4	3	4	3	2	3	2	2	3	4	4	2	2	3	4	4	3	4	2	4	2		
7	1	4	5	1	2	1	4	5	1	1	4	2	4	3	5	4	2	2	2	2	1	1	5	1	2	5	2	4	2	2	2	2	2		
8	1	2	4	3	3	2	4	2	2	2	4	3	5	3	5	4	3	3	2	4	2	2	4	3	2	4	4	3	4	3	1	3	2		
9	1	4	4	4	3	2	4	2	3	2	4	2	4	3	4	4	2	4	3	3	2	2	4	4	2	4	2	4	3	3	1	3	2		
10	1	3	5	1	1	2	4	2	1	1	5	1	5	4	3	3	2	2	2	3	1	3	3	2	3	4	1	3	3	1	1	1	1		
11	1	4	5	1	3	3	5	1	1	1	5	1	5	3	5	4	1	1	1	2	1	1	3	5	2	3	5	1	1	1	1	1	3	1	
12	1	5	5	1	3	3	5	1	1	1	5	2	5	3	5	4	1	2	1	2	1	1	5	2	3	5	2	5	1	3	1	2	1	1	
MEDIAN	1.0	4.0	5.0	1.0	3.0	2.0	5.0	2.0	1.5	1.5	4.0	2.0	5.0	3.0	5.0	4.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	4.0	2.0	2.0	4.0	2.0	4.0	2.0	2.0	2.0	2.0	1.0	
Attitudes Assessment Post test																																			
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33		
1	1	4	5	1	2	1	5	2	1	1	5	2	4	4	5	4	2	1	1	2	1	2	4	2	2	4	2	4	2	3	2	3	1		
2	1	5	5	1	2	1	5	1	1	2	1	2	5	2	5	2	1	1	1	2	1	2	5	2	1	4	2	5	1	2	1	2	1		
3	2	4	4	2	3	2	4	2	2	2	4	2	4	3	4	4	2	2	2	2	2	3	4	2	2	4	3	4	2	2	2	2	2		
4	2	4	5	1	3	2	5	1	2	2	4	1	5	5	5	1	2	1	3	2	1	2	4	2	2	3	1	5	2	1	1	1	2		
5	1	4	5	1	1	1	4	1	1	1	4	2	4	4	5	4	1	2	1	4	2	3	4	1	2	4	2	5	2	2	2	2	1		
6	2	4	4	2	4	3	4	2	2	2	4	3	4	3	4	4	3	3	2	3	3	4	2	2	4	2	4	4	4	3	2	4	2		
7	2	4	4	2	2	1	4	2	3	2	4	2	2	2	4	4	2	2	2	2	2	2	4	2	2	4	2	4	2	4	2	2	2	2	
8	1	5	4	2	2	1	3	2	1	2	5	3	4	4	4	4	3	1	2	2	3	1	1	2	3	1	4	2	2	2	3	2	4	2	
9	1	4	4	2	3	2	4	2	2	2	4	2	4	3	4	4	2	3	3	4	2	2	4	4	2	3	4	4	3	2	2	2	2	2	
10	1	2	5	1	1	1	4	2	1	1	4	1	5	1	5	4	2	1	1	1	1	1	4	3	3	5	1	4	3	2	1	5	1		
11																																			
12	1	4	4	2	2	2	5	1	1	2	4	2	5	2	5	4	1	1	1	2	1	1	5	2	1	5	2	5	1	2	2	2	2	1	
MEDIAN	1.0	4.0	5.0	2.0	2.0	1.0	4.0	2.0	1.0	2.0	4.0	2.0	4.0	3.0	5.0	4.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	4.0	2.0	2.0	4.0	2.0	4.0	2.0	2.0	2.0	2.0	2.0	

Strongly agree	1
Agree	2
Neutral	3
Disagree	4
Strongly disagree	5

Appendix C: Knowledge Assessment Questionnaire

Diabetes Distress

ID number: _____ Date: _____

Results: _____

Instructions

Please review questions carefully and write response in the blank.

- 1) _____ **Patients only experience diabetes distress when they are initially diagnosed with diabetes.**
 - a. True
 - b. False

- 2) _____ **Diabetes distress is another term used to describe depression that is associated with the diagnosis of diabetes.**
 - a. True
 - b. False

- 3) _____ **Diabetes distress can also be triggered by significant changes in the patient's Condition such as starting insulin therapy or finding out he/she has signs of diabetes complications**
 - a. True
 - b. False

- 4) _____ **Diabetes distress is can lead to poor self-management.**
 - a. True
 - b. False

- Diabetes distress is related to the patient's own perception of the disease and these feelings cannot be changed by a provider.**
- 5) _____
- a. True
 - b. False
- 6) _____ **Diabetes distress is related to _____**
- a. emotional burden
 - b. Physician related distress
 - c. Regimen related distress
 - d. Interpersonal distress
 - e. All of the above
- 7) _____ **Strategies to help patients deal with diabetes distress include:**
- a. Teach patients to avoid discussions with family members who are overly concerned about diabetes
 - b. Encourage patients to Join support groups
 - c. Tell patients not to worry about diabetes
- 8) _____ **Currently diabetes distress can be screened for by asking patient questions**
- a. True
 - b. False
- 9) _____ **Indicate which questionnaire is not used for screening for diabetes**
- a. PAID
 - b. DDS17
 - c. PHQ-9
- 10) _____ **When a provider fails to recognize a patient is concerned about some portion of their diabetes treatment, this creates what type of diabetes distress**
- a. Emotional burden
 - b. Physician related distress

- c. Regimen related distress
- 11) _____ **When the patient is changed to insulin therapy from oral medications, this causes what type of distress**
- a. Emotional burden
 - b. Interpersonal distress
 - c. Regimen related distress
- 12) _____ **A patient states that he is upset because his wife keeps bugging him about what to eat and when to check his blood sugars, but states that she has never had diabetes and doesn't understand. This is an example of what type of distress**
- a. Emotional burden
 - b. Regimen related distress
 - c. Interpersonal distress
- 13) _____ **A patient states that she does not understand why her blood sugars keep going up. She is eating right, checking blood sugars and nothing is working. She feels like giving up. This is an example of what type of distress**
- a. Emotional burden
 - b. Regimen related distress
 - c. Interpersonal distress
- 14) _____ **Diabetes distress is a common problem that effects as much as 70% of patients with type 2 diabetes**
- a. True
 - b. False
- 15) _____ **Which of the following may attribute to diabetes distress**
- a. HbA1C of 5.4%
 - b. Initiation of insulin therapy
 - c. Being able to remove medications d/t reduction in HbA1C.

Appendix D: Knowledge Assessment Questionnaire Results

Id Number	Pre Knowledge assessment	pre test KA score	Post Knowledge Assessment	post test KA score	Difference in test scores for KA	Compared
1	13	87%	13	87%	0	no improvement
2	13	87%	14	93%	1	improved
3	10	67%	14	93%	4	improved
4	14	93%	15	100%	1	improved
5	12	80%	13	87%	1	improved
6	7	47%	10	67%	3	improved
7	10	67%	12	80%	2	improved
8	12	80%	12	80%	0	no improvement
9	11	73%	13	87%	2	improved
10	11	73%	11	73%	0	no improvement
11	14	93%				
12	15	100%	15	100%	0	no improvement

Appendix E: Institutional Review Board-Approval

INSTITUTIONAL REVIEW BOARD
RESEARCH INVOLVING HUMAN SUBJECTS
OTTERBEIN UNIVERSITY

Original Review
 Continuing Review
 Five-Year Review
 Amendment

ACTION OF THE INSTITUTIONAL REVIEW BOARD

With regard to the employment of human subjects in the proposed research:

HS # 14/15-13

Chovan, Ribai & Morris-Gofft Diabetes Distress: Transforming a Practice


THE INSTITUTIONAL REVIEW BOARD HAS TAKEN THE FOLLOWING ACTION:

- Approved
- Approved with Stipulations*
- Deferred
- Disapproved
- Waiver of Written Consent Granted

*Stipulations stated by the IRB have been met by the investigator and, therefore, the protocol is APPROVED

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the college, signed consent forms are to be transferred to the Institutional Review Board for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the IRB, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: 11 September 2014

Signed: 
Chairperson:

Appendix F: Patient Consent Form

OTTERBEIN UNIVERSITY

PROTOCOL NO. _____

INFORMED CONSENT

I, _____, hereby authorize or direct Dr. John D Chovan & Ms. Jeannie Morris-Goff or associates or assistants of their choosing, to perform the following upon myself.

The research portion is completion of a questionnaires before and after an educational session on diabetes.

This is done as part of an investigation entitled Diabetes Distress.

- 1. The purpose of the research is to transform the clinical practice at the Center for Diabetes and Endocrine Diseases to use diabetes distress screening for our patients.
- 2. Possible appropriate alternative is to not participate in the project.
- 3. Discomforts and risks reasonably to be expected: None.
- 4. Possible benefits for society: Educational information to improve our clinic's identification of diabetes distress in our patients.
- 5. Anticipated duration of subject's participation: Two 20-minute sessions for questionnaires and one hour-long educational session.

I hereby acknowledge that Ms. Morris-Goff has provided information about the procedure described above, about my rights as a subject, and she answered all questions to my satisfaction. I understand that I may contact the Principle Investigator, Dr. John D Chovan at 614-823-1526 should I have additional questions. Ms. Morris-Goff has explained the risks described above and I understand them; she also offered to explain all possible risks. I understand that my participation will remain confidential. I understand that I am free to withdraw my consent and participation in this project at any time after notifying Dr. Chovan without any recourse. No guarantee has been given to me concerning this research project and I am not benefiting monetarily from my participation.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: _____ Time _____ AM PM

Signed: _____

(Signature of Subject, Required)

I certify that I have personally completed all blanks in this form and explained them to the subject or his/her representative requesting the subject or his/her representative to sign it.

Signed: _____

(Signature of Project Director or his/her Authorized Representative)