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A Correlational Pilot Study of Fatalism and Self-efficacy among Appalachians with Type II Diabetes Mellitus.

Dwyn Mounger
East Tennessee State University

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EAST TENNESSEE STATE UNIVERSITY
COLLEGE OF NURSING
HONORS-IN-DISCIPLINE PROGRAM

A Correlational Pilot Study of Fatalism and Self-efficacy among
Appalachians with Type II Diabetes Mellitus

Dwyn Mounger and Robyn Frank

Honors Thesis
Submitted in partial fulfillment
of the requirements for the
University Honors-In-Discipline Program
East Tennessee State University
December 2012

Patricia Moore Ph.D.(c) MSN RN
Faculty Mentor

Audry Greenwell Ph.D. RN
Reader

Anthony Cavender Ph.D.
Reader

Acknowledgments

We would like to acknowledge our Honors-In-Discipline program director, Dr. Joy Wachs. Thank you for giving us this tremendous opportunity to engage in a challenging exercise of academic scholarship. We are both truly grateful for your instruction and support.

We would also like to acknowledge our faculty mentors, Dr. Audry Greenwell and Professor Patricia Moore. Without your guidance and encouragement, our project would have never been completed. Thank you.

Abstract

Despite the vast amount of research regarding type II diabetes, little is known about the relationship between fatalistic beliefs and self-efficacy in individual self-care among adult Appalachians with type II diabetes. As a result of multiple predisposing risk factors that include high rates of obesity and poverty, as well as a lack of access to preventative care services, the prevalence of diabetes is very high in this region and has become a major health issue. In addition, a history of exploitation and lack of diverse economic development has profoundly influenced the cultural beliefs of those living within the region, which has resulted in Appalachians being collectively described as fatalistic. The purpose of this study was to determine if a correlation between fatalistic beliefs and self-efficacy in self-care among adult Appalachians with type II diabetes exists. A survey was created that assessed three concept areas pertaining to both fatalism and self-efficacy in self-care: emotional distress, religious/spiritual coping, and perceived self-efficacy. The survey was administered to participants being treated for type II diabetes at a rural clinic in northeast Tennessee. Expected correlations were found when comparing both emotional distress and perceived self-efficacy with religious and spiritual coping. However, an unexpected positive correlation was found when comparing emotional distress with perceived self-efficacy. In conclusion, this study did not demonstrate the hypothesized negative correlation between fatalism and self-efficacy, and the results found are not attributable to a larger population due to the small sample size obtained.

Introduction

The United States is generally regarded as having some of the most advanced healthcare technology in the world. However, advanced technology has not translated into a country with the healthiest citizens in the world. This study focuses on one of many potential causes of this disparity, namely, how an individual's belief about their ability to provide self-care for a chronic and intensively managed illness impacts their attitudes about the disease in general. More specifically, this study investigates how fatalistic attitudes among Appalachians with type II diabetes can impact the self-efficacy of their own care. Few studies have been published on Appalachians and the ways that Appalachian culture influences self-care behavior in managing type II diabetes (Lobri-Posey, 2006).

Background and Review of Literature

Type II diabetes mellitus is considered a disease of lifestyle, often attributed to low activity level, poor diet, and excess body weight (U.S. National Library of Medicine, 2011). Nationally, diabetes mellitus affects 25.8 million people of all ages (8.3% of the total US population), with type II diabetes accounting for 90-95% of all diagnosed cases (CDC, 2011). According to Doykos (2011), the overall prevalence of type II diabetes in Appalachia ranges between 9.7% and 13.1%, well over the national average. This regional disparity could be attributed to multiple risk factors that affect Appalachians disproportionately to the rest of the nation. These include: higher rates of poverty, increased levels of obesity, decreased levels of physical activity, and lack of access to preventative care services (Doykos, 2011; CDC, 2011).

Appalachia is defined as an area that is roughly 205,000-square miles in size and is comprised of counties from 12 states including Tennessee, North Carolina, and Virginia in the central Appalachian region (Appalachian Regional Commission (ARC), 2011). The area has a

long history of economic instability due to exploitation of its natural resources by outsiders. Beginning in the early 20th century, the economy of central Appalachia was supported by the coal mining industry. As the industry quickly diminished over the last several decades, the resulting loss of jobs led to poor economic conditions for the region as a whole. This fact has profoundly influenced the region's cultural beliefs, which have often been described and negatively stereotyped as deviant, isolated, and fatalistic (Rosswurm, et al. 1996). Despite more recent efforts to diversify local economies, "Appalachia... [has]not enjoyed the same economic vitality as the rest of the nation, [and] Central Appalachia... still battles economic distress, with concentrated areas of high poverty, unemployment, poor health, and severe educational disparities" (ARC, 2011).

Data from the National Center for Health Statistics suggests that Appalachians have shorter life expectancies and greater rates of chronic illnesses than the rest of the nation. Diseases of lifestyle, such as type II diabetes, are 33% more prevalent in residents of distressed Appalachian counties than in those residing in non-Appalachian counties (Barker, et al., 2010). Perhaps this could be partly attributed to findings from previous studies that examined Appalachian illness experiences and health behaviors. Rosswurm, et al. (1996), found that within a sample of Appalachians, a majority believed, despite increased lifestyle risks, that they could not prevent chronic illness but only cope with the consequences of the illness. The researchers go on to say that, "... [These] responses were consistent with the Appalachian cultural trait of fatalism with adaptive acceptance" (Rosswurm, et al., 1996, p. 450). This is clearly indicative of a barrier that might influence self-efficacy in self-care behavior among this population.

Nurses have a major role in educating patients about various self-care behaviors that are important to managing their particular illnesses. Lobri-Posey (2006) emphasized that for patients to be motivated to make lifestyle changes that promote greater self-care, nurses must identify and address aspects of patients' culture while encouraging change. Studying the impact that fatalism has on self-efficacy in individual self-care behaviors is not the only goal of this research investigation. By extension, the information gathered from this study may help nurses more effectively educate about the importance of adequate self-care in managing type II diabetes in patients who exhibit fatalistic traits.

Previous research has shown that geographic and cultural characteristics can inhibit health education and community-based prevention efforts and that overcoming these barriers is an important intervention to prevent and treat type II diabetes (Della, 2010; Bauer and Growick, 2003; Smith and Tessaro, 2005; Lobri-Posey, 2006). Furthermore, Eisenhauer et al. (2010) emphasized that culture, including rules, beliefs, and behaviors, are not static but always changing and adapting. Thus, being a culturally competent nurse is important in understanding the effect that fatalistic attitudes can have on patients' self-care practices.

Bandura's Social Cognitive Theory views humans as their own agents proactively engaged in their own development. They are able to initiate events by their own actions, and hold beliefs that enable them to control their thoughts, feelings, and actions (Pajares, 2002; Bandura, 1986). Under the umbrella of Bandura's Social Cognitive Theory is the self-efficacy belief model that describes an individual's motivations, well-being, and personal accomplishments (Pajares, 2002). Bandura specifically notes that an individual's actions and motivations are more likely a result of what they believe they can accomplish rather than what they are realistically capable of, and that they are usually guided by those beliefs rather than reality (Pajares, 2002).

Pajares (2002) continues to explain that individuals who are confident in their ability to accomplish a goal usually have more successful outcomes, and those who are not confident do not make the effort to accomplish goals. Individuals with type II diabetes must exhibit self-efficacy to prevent serious comorbid complications resulting from unmet health needs. To meet these needs requires clients to engage in self-care behaviors (Weinger et al., 2005).

Powe & Weinreich (1999) define fatalism as “a complex psychological cycle characterized by perceptions of hopelessness, worthlessness, meaninglessness, powerlessness, and social despair” (as cited in Egede and Ellis, 2009, p. 61). When developing the 12-Item Diabetes Fatalism Scale (DFS), Egede and Ellis (2009) hypothesized that “diabetes fatalism would correlate negatively with good diabetes self-care behavior, glycemic control, and health-related quality of life” (p. 61). The authors’ findings demonstrated that those with high scores on the DFS “were less likely to report self-care control problems, negative attitudes toward diabetes, and having social and personal factors that impaired good diabetes care” (Egede, Ellis, 2009, p. 65). Shen et al. (2010) found that education and income levels were more associated with fatalism than race, ethnicity, or geographic regions.

According to Drew and Schoenberg (2011), fatalism exists in Appalachian culture; however, they emphasize the importance of understanding why individuals may exhibit fatalistic attitudes rather than merely blaming poor healthcare behavior on that fatalistic belief. Income level and immediate access to care are major determinants of good healthcare behaviors among all patients, but this is even true when discussing fatalism among Appalachian patients. Powe et al. (2005) describe situations in which healthcare providers do not recommend cancer screenings based on the preconceived assumption that particular patients with fatalistic mindsets would not want the procedure.

Though these examples do not specifically address type II diabetes, they illustrate that healthcare providers in general, and nurses more specifically, are not immune from biases when providing care. These examples demonstrate a need for continued cultural competency training with particular attention given to a greater understanding of the foundational causes of fatalism among patients of certain cultural populations or groups.

Study Design and Method

The purpose of this study was to use a quantitative research method to investigate the relationship between fatalistic beliefs and self-efficacy of self-care in adult Appalachians with type II diabetes. The ETSU Institutional Review Board approved this study (see Appendix A).

Setting

Two undergraduate nursing students from East Tennessee State University's College of Nursing conducted the study. After receiving permission from the Associate Dean of Practice & Community Partnerships (see Appendix B), survey packets for the project were provided to a university affiliated nurse managed clinic in rural northeast Tennessee. The nursing staff provided each patient meeting the inclusion criteria with a copy of the survey as well as a cover letter (see Appendix C) containing information about the study. Participants placed their completed surveys in a locked deposit box located by the receptionist's "check-out" area.

Population/Sample

A convenience sample of adults age 18 years or older were given the opportunity to participate in the pilot study. To be eligible for inclusion, participants had to be fluent in English and have a diagnosis of type II diabetes. The study was also limited to adults, defined as persons 18 years of age or older. Although the researchers would have preferred a sample size of at least 20, only 6 adult participants completed the survey in its entirety.

Instrumentation

The research instrument (see Appendix D) was a hybrid combination of two scales that were further modified by the researchers to exclude redundancies and questions that were of no importance to the study. Items were taken from the following sources: the 12-Item Diabetes Fatalism Scale (DFS) and the Diabetes Management Self-Efficacy Scale (DMSES) for patients with Type II Diabetes Mellitus. Questions from the DMSES were incorporated into the entirety of the DFS to form the hybrid instrument. Participants answered each item with respect to the generalized question, “How accurately do the following statements describe your feelings about your diabetes?” Items were graded on a 6-point Likert Scale ranging from: 6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree).

The research tool addressed three concept areas pertaining to diabetes fatalism and self-efficacy of self-care: emotional distress, religious and spiritual coping, and perceived self-efficacy. Demographic questions were also presented to evaluate multiple subsets within the sample.

Data Collection

The Associate Dean of Practice & Community Partnerships at East Tennessee State University’s College of Nursing was contacted for permission to conduct the survey at a university affiliated nurse managed clinic in rural northeast Tennessee. After approval from the Associate Dean and the university’s Institutional Review Board, a meeting was conducted with the site coordinator of the clinic to discuss logistics and implementation of the data collection process. Survey packets were brought to the clinic and the nursing staffs’ responsibilities were explained. A locked collection box was present at the site to secure completed patient surveys. A 22-item survey (see Appendix D) was used to measure fatalistic beliefs and self-efficacy

behaviors. The first 10 items consisted of general demographics questions, and were answered using both nominal and numerical forms. The last 12 questions were compiled from the 12-Item Diabetes Fatalism Scale (DFS) and the Diabetes Management Self-Efficacy Scale (DMSES) for patients with Type II Diabetes Mellitus, and were used to assess two primary variables: fatalistic beliefs and self-efficacy of self-care behaviors. The questions that measured fatalistic beliefs were further subdivided into two areas of focus: emotional distress and religious and spiritual coping. These 12 items were answered using a 6-point Likert scale. All values reported by the participants were analyzed using IBM® SPSS® Statistics version 20.0.0.

The surveys were formatted and edited with the intention of being easy to complete and distribute. Patients meeting the inclusion criteria were given a survey packet by the primary nurse upon being taken to a private exam room for a regularly scheduled office visit. No questions were asked of the patients, and the nurse informed them that all that they needed to know was included in the packet. Each survey packet contained a cover letter from the principle investigators explaining the study, the survey, and the patients' options for opting out of the study. The patients were instructed to place all surveys, completed or incomplete, in the locked box at the receptionist's desk upon check out. After a period of two weeks the surveys were retrieved from the clinic.

Data Analysis

Patient survey responses were entered into a Microsoft® Excel® spreadsheet and then converted into IBM® SPSS® Statistics. Nominal data were numerically coded, and all data entries were checked for errors and corrected as needed. IBM® SPSS® Statistics version 20.0.0 was used to analyze the data.

Results

Six clients completed the survey entirely. Descriptive statistics are summarized in Table 1. Of the six patients, five were female (83.3%) and one was male (16.7%). All respondents self-identified as white. Participant ages ranged from 55 to 75, with a mean age of 62 years and a standard deviation of 8.4 years. Half of the respondents were divorced, while one each of the remaining three were either single, married, or widowed. The length of time since diagnosis of type II diabetes ranged from 6 months to 29 years, with a mean length of 12.75 years. Five of the respondents (83.3%) had relatives with type II diabetes, and half of the clients used insulin to manage their diabetes. All participants were born in Appalachia except for one individual that was born in the northeastern United States. All clients resided in Appalachia and have lived in the region for an average of 37.3 years with a standard deviation of 24.4 years.

Multiple statistical tests were used to analyze the survey responses. An analysis of variance (ANOVA) was used to compare the mean scores of all participants for survey questions related to three concept areas: emotional distress, religious and spiritual coping, and perceived self-efficacy of self-care. The null hypothesis stated that the means for all three groups were the same. Results from ANOVA (see Table 2) showed an $F\text{-value}=2.59$ which was less than the $F\text{-critical value}=3.13$. The $p\text{-value}$ for the $F\text{-test}=0.083$. This was greater than $\alpha=0.05$, indicating that the means for the three concept areas were the same and that we failed to reject the null hypothesis. Results from the Tukey Kramer Multiple Comparison Test (see Table 3) confirmed that there was no significant difference among the means of the three concept groups.

A correlation analysis was conducted for the three concept groups. These results are summarized in Table 4. A negative correlation was found to exist between emotional distress

and religious and spiritual coping. Positive correlations were found when comparing both emotional distress and religious and spiritual coping with perceived self-efficacy.

Discussion/Findings

The correlation analysis of participant answers to the survey questions demonstrated both expected and unexpected results with regards to what was suggested in previous studies by Rosswurm et al. (1996). As emotional distress increased, religious and spiritual coping decreased; this was an expected outcome. Furthermore, as religious and spiritual coping increased, perceived self-efficacy also increased, and this was also anticipated. In contrast, as emotional distress increased, so did perceived self-efficacy. This was highly unexpected, and is a deviation from what was hypothesized by Egede and Ellis (2009) when developing the Diabetes Fatalism Scale. In effect, we were unable to show with any certainty, that a negative correlation between fatalism and self-efficacy in ones own care exists among the sample.

This unexpected deviation between emotional distress and perceived self-efficacy could be due to a variety of different factors, including the lack of variability among the sample, particularly with regard to gender. This result might also indicate a form of bias, either in how the survey questions were phrased, or in what the respondents interpreted the questions to mean. Perhaps, using a research instrument with proven face, content, and construct validity, as well as an established alpha reliability coefficient, could have prevented any ambiguity experienced by the respondents completing the surveys and by the investigators when interpreting the results.

Therefore, our study showed type II diabetes can cause a significant amount of emotional distress, especially among Appalachians who are disproportionately affected by the disease. We feel that healthcare providers can influence self-efficacy by managing the psychological anxieties that patients experience from living with the disease. Given the fact that many

Appalachians have limited access to healthcare, as well as multiple risk factors and comorbidities, creative ways to implement this approach would be required. To make this approach effective, a comprehension of cultural sensitivity by those providing the care would be needed.

Limitations

This study had several limitations. First, the sample size of 6 respondents was extremely small. The intended sample size of at least 20 participants was unattainable due to time limitations and a last minute change in the study site that severely affected the response rate. Second, there was a significant lack of variability among the sample. All participants identified themselves as white, with a majority being female. In addition, the age range of the sample was not representative of the greater population. Third, we were not able to qualify what defined a participant as Appalachian. This was apparent when one respondent indicated that they were born in a region well outside of Appalachia, but has since relocated to this area. Fourth, our hybrid survey was not tested for validity or reliability, and therefore the results could not be definitive. Fifth, the results cannot be generalized to all Appalachians with type II diabetes because a convenience sample was used from only one study site in rural northeast Tennessee.

Recommendations

Nursing Education

Nursing education needs to place a larger emphasis on cultural sensitivity during the formative years of training, and with particular regard to cultural differences within rural and isolated areas. While it is often easy to recognize differences among those with other beliefs or backgrounds, it is difficult to assess those differences without assigning positive or negative values. Education should be focused on helping nursing students understand their own biases, as

that is often a major first step towards becoming a culturally competent and sensitive individual. Numerous assignments and Internet activities exist that can help students learn about bias and cultural sensitivity. By focusing on developing future healthcare professionals that are able to provide care in a culturally sensitive manner, greater strides should be made in encouraging increased self-efficacy in the ability to perform self-care activities for those with chronic illnesses in Appalachia.

Nursing Research

More research should be done to analyze the correlation between fatalistic and self-efficacy beliefs with regards to self-care treatment. It is imperative that a larger sample size be used to further explore the results that were found in this small pilot study. Along with new research, it will be important for investigators to establish specific demographic criteria that will ascertain exactly what defines a study participant as Appalachian. Qualitative studies should also be conducted along with future quantitative studies to provide an evidence base that might identify barriers to decreasing emotional distress and encouraging greater self-efficacy of type II diabetics in Appalachia.

Nursing Practice

Practicing registered nurses and nurse practitioners need to be willing to work with clients and identify ways to decrease the emotional distress that is experienced as a result of having a chronic illness. If future studies negate the results of our pilot and support the outcomes established in previous studies, then managing anxieties at the bedside and in the clinic could result in greater feelings of self-efficacy in patients when implementing their own care. Nursing professionals also need to be committed to maintaining cultural sensitivity when interacting with

clients. This could be accomplished through in-services and continuing education classes that emphasize different cultural regions within the United States.

Conclusions

This study did not find a significant inverse correlation between fatalistic beliefs and perceived self-efficacy in self-care behaviors. Additional research with a larger sample would be needed to explore a true correlation between the two variables and attribute any significance of those results to the broader population of Appalachians with type II diabetes. Greater emphasis on managing the emotional distress experienced by patients with type II diabetes, as well as the best evidence based methods to implement that care, need to be addressed in both nursing practice and research. Cultural sensitivity training should also be encouraged in primary nursing education and continued throughout the career.

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Appendix AIRB Approval Letter

East Tennessee State
University

Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-
1707

Phone: (423) 439-6053 Fax: (423) 439-
6060

IRB APPROVAL – Initial Exempt

October 4, 2012

Dwyn "Mack" Mounger

RE: A Correlational Pilot Study of Fatalism and Self-efficacy among
Appalachians with Type II Diabetes Mellitus.

IRB#: 0912.7e

ORSPA#: ,

On **October 2, 2012**, an exempt approval was granted in accordance with 45 CFR 46.101(b)(). It is understood this project will be conducted in full accordance with all applicable sections of the IRB Policies. No continuing review is required. The exempt approval will be reported to the convened board on the next agenda.

- X Form 103, Bibliography, CV, Dear Participant letter, Patient survey

Projects involving Mountain States Health Alliance must also be approved by MSHA following IRB approval prior to initiating the study.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research cannot be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research

subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following its implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,
George Youngberg, M.D., Chair
ETSU/VA Medical IRB



*Accredited Since December
2005*

Appendix B

Emails granting permission to collect data at the ETSU Nurse Managed Clinics

Prospectus for Undergraduate Study

Vanhook, Patricia M. <VANHOOK@mail.etsu.edu>

Tue, Sep 11, 2012 at 2:07 PM

To: "Holbrook, Helene Marie" <HOLBROOKH@mail.etsu.edu>, "Stuart, Charles Albert"

<STUARTC@mail.etsu.edu>, "Fleming, Lisa K." <FLEMINGL@mail.etsu.edu>

Cc: "Edwards, Joellen B." <EDWARDSJ@mail.etsu.edu>, "Smith, Sheila K."

<SMITHSK2@mail.etsu.edu>, "Mack Mounger (mounger@goldmail.etsu.edu)"

<mounger@goldmail.etsu.edu>, "Robyn Frank (frankr@goldmail.etsu.edu)"

<frankr@goldmail.etsu.edu>

Please see the attached. Mack and Robyn are HID students who will be graduating in December. They have submitted their IRB to collect data at JCDC. They hope to get 20 surveys completed. They will be bringing the surveys and a sealed box to JCDC for survey collection as soon as they receive IRB approval. I do believe they could get their data in a minimum of 2 weeks if we help them distribute the surveys.

Mack and Robyn when you receive approval, I suggest you meet with Lisa and Drs. Holbrook and Stuart. Thanks!

Patti Vanhook, PhD, RN, FNP-BC

Associate Dean, Practice & Community Partnerships
ETSU College of Nursing

142 Nick's Hall

P.O. Box 70403

Johnson City, TN 37614
[423-439-7184](tel:423-439-7184)

HID IRB Update

Vanhook, Patricia M. <VANHOOK@mail.etsu.edu>

Wed, Oct 10, 2012 at 7:36 AM

To: Mack Mounger <mounger@goldmail.etsu.edu>

This is good news. With the transition at JCDC it may be better for you to focus on the MC clinic

Patti Vanhook, PhD, RN, FNP-BC
Associate Dean, Practice & Community Partnerships
ETSU College of Nursing
142 Nick's Hall
P.O. Box 70403
Johnson City, TN 37614
[423-439-7184](tel:423-439-7184)

HID IRB Update

Vanhook, Patricia M. <VANHOOK@mail.etsu.edu>

Thu, Oct 11, 2012 at 8:32 AM

To: Dwyn Mounger <mounger@goldmail.etsu.edu>

Cc: "Cooke, Sheila Maragret" <COOKES@mail.etsu.edu>, "Osborne, Teresa Dawn" <OSBORNETD@mail.etsu.edu>

Please get in touch with Shelia Cooke.

Shelia and Teresa-this is an undergraduate study for our diabetic patients. Please assist Mack with logistics. Thanks!

Patti Vanhook, PhD, RN, FNP-BC

Associate Dean, Practice & Community Partnerships
ETSU College of Nursing

142 Nick's Hall

P.O. Box 70403

Johnson City, TN 37614
[423-439-7184](tel:423-439-7184)

Appendix C

Patient Cover Letter

EAST TENNESSEE STATE UNIVERSITY
COLLEGE OF NURSING
UNDERGRADUATE PROGRAMS
HONORS-IN-DISCIPLINE PROGRAM

October 3rd, 2012

Dear Participant,

We are nursing students at East Tennessee State University and we are conducting a research study of people in our region with Type II Diabetes. The purpose of this research project is to attempt to understand how individuals with Type II Diabetes feel about their disease and how those feelings influence their self-care. Through your participation, we eventually hope to understand how best to satisfy the needs of individuals with Type II Diabetes in promoting their own care.

Enclosed with this letter is a brief survey that asks a variety of questions about your attitudes and beliefs regarding your Diabetes. There are a total of 22 questions, which should take no more than 5-10 minutes to answer completely. We are asking you to look over the questionnaire and, if you choose to do so, fill out the survey and return it to your nurse. Your participation in completing this survey is entirely voluntary. You may refuse to participate or discontinue your participation at any time without penalty or loss of benefits. If you refuse to participate or wish to discontinue your participation, simply return your incomplete survey to your nurse.

If you choose to participate, do not write your name on the survey. We do not need to know who you are and no one will know whether or not you participated in this study. Your responses will not be identified with you personally. Nothing you say on the questionnaire will in any way influence your treatment at this clinic.

We hope you will take a few minutes to complete this questionnaire. Without the help of people like you, research on individuals with Type II Diabetes could not be conducted.

If you have any questions or concerns about completing the questionnaire, participating in this study, your rights as a research participant, or risks associated with this study you may contact our faculty advisor, Patricia Moore, at 423-439-4397 or at moorepa@etsu.edu. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at 423-439-6055 or 423-439-6002.

Sincerely,

Dwyn "Mack" Mounger and Robyn Frank
Honors in Discipline Scholars
Department of Nursing
East Tennessee State University

Appendix DPatient Survey

1. **Age:** _____ years
2. **Gender (please circle):** Male Female
3. **Marital Status (please circle):** Single Married Widowed Divorced
4. **Race/Ethnicity (please circle):** White African American Hispanic Other _____
5. **How long since first diagnosis of diabetes:** _____ years
6. **Do any family members have diabetes:** Yes No
7. **Do you use insulin? (please circle):** Yes No
8. **City and State of birth:** _____
9. **Current City and State:** _____
10. **How long have you lived in your current City and State:** _____ years

Please circle the most appropriate answer about how accurately the following statements describe your feeling about your diabetes.

(Emotional Distress)**1. I get upset when I think about my diabetes.**

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

2. I get frustrated with having to live with diabetes.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

3. Diabetes is a disease that makes life more difficult.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

4. Diabetes causes a lot of suffering for me.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

(Religious and Spiritual Coping)**5. Having faith has helped me better deal with my diabetes.**

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

6. I believe God can completely cure my diabetes (I believe adherence in my faith can completely cure my diabetes).

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

7. I have prayed about my diabetes so I am not going to worry about it anymore.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

(Perceived Self-efficacy)**8. I use frequent physical activity to manage my diabetes.**

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

9. I watch what I eat most of the time in order to manage my diabetes.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

10. I am confident that I know what to do when my blood sugar is high or low.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

11. I am confident in my ability to test my blood sugar in order to monitor my diabetes.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

12. I take my diabetes medication as directed by my healthcare provider.

6 (strongly agree), 5 (moderately agree), 4 (agree), 3 (disagree), 2 (moderately disagree), 1 (strongly disagree)

Table #1*Descriptive demographic data for study participants.*

	Age	Gender	Marital Status	Race/ Ethnicity	Length of time (years) since Type II DM Diagnosis	Do other family members have DM	Place of birth in Appalachia	Current residence in Appalachia	Length of time (years) in current residence
Client #1	57	Female	Widowed	White	21	Yes	Yes	Yes	57
Client #2	66	Female	Divorced	White	29	Yes	Yes	Yes	66
Client #3	75	Female	Single	White	8	No	Yes	Yes	18
Client #4	57	Female	Divorced	White	10	Yes	No	Yes	13
Client #5	-	Female	Divorced	White	0.5	Yes	Yes	Yes	15
Client #6	55	Male	Married	White	8	Yes	Yes	Yes	55

Note: - = not answered by participant. DM = Diabetes Mellitus.

Table #2*ANOVA Results.*

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	9.565079365	2	4.782539683	2.590248284	0.082497426	3.133762315
Within Groups	123.7063492	67	1.846363421			
Total	133.2714286	69				

Note: p-value significant at $p < 0.05$

Table 3*Tukey Kramer Multiple Comparison Test Results.*

Group	Sample Mean	Sample Size	Comparison	Absolute Difference	Std. Error of Difference	Critical Range
Emotional Distress	4	24	Group 1 to Group 2	0.388888889	0.299589348	1.01560789
Religious and Spiritual Coping	4.388888889	18	Group 1 to Group 3	0.857142857	0.267276411	0.90606703 4
Perceived Self-efficacy	4.857142857	28	Group 2 to Group 3	0.468253968	0.290273402	0.98402683 4

Other Data	
Level of significance	0.05
Numerator d.f.	3
Denominator d.f.	67
MSW	1.846363421
Q Statistic	3.39

Table 4*Correlation Results.*

	<i>Emotional Distress</i>	<i>Religious and Spiritual Coping</i>	<i>Perceived Self-efficacy</i>
Emotional Distress	1		
Religious and Spiritual Coping	-0.021937107	1	
Perceived Self-efficacy	0.60404045	0.133423602	1

Note: numbers indicate r-values between the concept groups.