Relationship Satisfaction as a Moderator of Diabetes Duration and Diabetes-Related Emotional Distress

A Thesis Presented for the

Honors Degree

The University of Tennessee, Knoxville

Marcus Wild

May 2013

Acknowledgements

Thank you to Devin Pinkston, Claire McCarter, and Betsy Pack for their help and support in data collection and interpretation, and an immense debt of gratitude to Katie Wischkaemper and Dr. Kristina Coop Gordon for their guidance and help.

Abstract

Type 2 diabetes is a disease that affects millions of Americans and continues to grow in prevalence. Additionally, as a chronic illness, type 2 diabetes places a great deal of strain on the livelihoods of the individuals it affects, and the livelihoods of those close to diagnosed individuals (CDC 2011; Trief et al. 2003). While current research has examined the effects of diabetes on couples satisfaction and anxiety, research has yet to examine the interaction of couple satisfaction with other potential variables on the experience of diabetes-related emotional distress. This study sought to explore that interaction. We predicted that the length of time that a person has been living with diabetes would be significantly and positively associated with and diabetes-related emotional distress. In addition, we predicted that couple satisfaction will moderate this relationship. To that end, 160 individuals with type 2 diabetes and who had been in a relationship for one year or more completed self-report measures for couple satisfaction and diabetes-related emotional distress, indicating their date of diagnosis. Results showed that contrary to the hypothesis, it was the shorter duration and the lower couple satisfaction that was most strongly correlated with high diabetes related emotional distress. The findings suggest that the time immediately after initial diagnosis appears to be the most emotionally stressful stage of coping with diabetes. Individuals in supportive relationships seem to be able to develop more effective coping strategies for diabetes related emotional distress than those in less supportive relationships.

Key words: type 2 diabetes, couple satisfaction, diabetes related emotional distress

Relationship Satisfaction as a Moderator of Diabetes Duration and Diabetes-Related Emotional Distress

Diabetes Mellitus type 2, also known by the abbreviated name of type 2 diabetes or adult onset diabetes, is a disease in which the body, often in concert with an inability to fully secrete insulin, is unable to properly use insulin to absorb excess glucose from the blood (Shoback, 2011). Nearly 26 million Americans were affected by diabetes, types 1 and 2, in 2010. The prevalence rate of the disease has been rising sharply across demographics since 1990, indicating an increased need for research examining not only the physical effects of the disease, but the mental and emotional strains placed on individuals with diabetes (CDC, 2011; CDC, 2012).

Type 2 diabetes is associated with physiological co-morbidities such as hypertension and heart disease (Adler et al., 2000; Haffner et al, 1998). However, fewer research studies examine diabetes and co-morbid psychological disorders. Studies that include co-morbid psychological disorders emphasize the occurrence of mood disorders among individuals with diabetes (Trief et al. 2003, Fisher et al, 2000). One area of diabetes research that has been addressed is the co-morbidity of type 2 diabetes with the most common mood disorder, depression (Trief et al 2003). The prevalence and impact of other mood disorders, like bipolar disorder, have not been studied extensively in research literature.

In addition, couple satisfaction, mood disorders, and anxiety have been measured in couples in which at least one partner had type 2 diabetes. The findings of such studies demonstrate that anxiety is a common issue for individuals with type 2 diabetes (Jensen, 1985; Miller and Brown, 2005; Fisher et al, 2000; Skyler, 1980; Trief et al 2003). The Jensen's (1985) study examined 51 couples in which one person had diabetes, finding that the diabetic partner suffered more greatly than their partners without diabetes from fear and anxiety, fluctuations in

mood, and insecurities regarding their relationship as a result of the chronic nature of the disease. Miller and Brown (2005) found that couples in which one partner had type 2 diabetes became increasingly disengaged over time, with lifestyle adjustments, in particular dietary changes, being a primary factor in this process. Fisher and colleagues (2000) determined that there were ethnic and gender differences in the family coping strategies of families in which an individual had type 2 diabetes. This study revealed specifically that Hispanic individuals were more supported by family support systems, with this effect having little gender disparity, compared with European American individuals who had less familial support report and greater gender disparity.

Furthermore, it has been shown that increased marital dissatisfaction occurs in couples where either partner has been diagnosed with a psychiatric disorder, including mood disorders (Whisman and Bruce, 1999). Whisman and Bruce (1999) recruited 904 married individuals and measured the occurrence of a Major Depressive Episode (MDE) within 12 months of the baseline measurement. The results of the study showed a strong positive correlation between feelings of marital dissatisfaction and MDE, with dissatisfied individuals having a three times greater risk of MDE than satisfied individuals, even after controlling for depressive history. Another important finding from this study was that the risk of depression as a result of marital dissatisfaction was not affected by gender or demographics, indicating that it is applicable across populations.

Any health issue, particularly ones like type 2 diabetes that are chronic and without a cure are stressful experiences. Research shows that supportive relationships can mediate the stress felt by trying circumstances (Wilcox, 1981; Wills, 1985). Based on these findings, the aim of the proposed study is to examine the relationship between type 2 diabetes and emotional

distress that may result from type 2 diabetes. More specifically, this study examined the relationship between diabetes related anxiety and diabetes duration, and what moderating effect, if any, relationship satisfaction may have on that relationship.

Hypothesis

Given that literature supports the idea that diabetes is associated with anxiety and mood disorders and that couples satisfaction is also affected by the disease as well as by anxiety, we predicted that the length of time that a person has been living with diabetes would be significantly and positively associated with and diabetes-related emotional distress. In addition, we predicted that couple satisfaction will moderate this relationship. Specifically, at lower levels of couple satisfaction, we expected a stronger positive relationship between diabetes duration and self-reported diabetes emotional distress whereas at higher levels of couple satisfaction, the relationship between diabetes duration and diabetes-related emotional distress would be weakly correlated.

Methods

Participants

The participants for this study were all individuals 18 or older who had been diagnosed with type 2 diabetes and had been living with a significant other for at least one year. 160 individuals completed the questionnaires, 59 (36.9%) men and 101 (63.1%) women, with a mean age of 50.76 years (SD=11.56 years). These individuals consisted of 106 Whites (68.1%), 37 African Americans (23.1%), 8 Hispanics/Latinos (5%), 8 Native American (5%), 3 Asian Americans (1.9%), and 2 individuals (1.9%) who categorized themselves as “other” with respect to ethnicity.

Procedure

The study re-analyzed data that was collected by the Department of Psychology. The primary study was a scale development project measuring partner support for people living with type 2 diabetes. The research methods were approved by the University of Tennessee's Institutional Review Board. All participants were advised of the risks and benefits of completing the survey packets, gave informed consent, and received incentives after completion. Participants in the study were recruited from Cherokee Health Systems as well as diabetes seminars hosted by the Knox County Health Department. The study involved 160 individuals, 18 years or older, with type 2 diabetes and in a committed relationship of at least one year who completed a self-report relationship satisfaction questionnaire (CSI) and the Problem Areas in Diabetes (PAID) survey. Participants also provided demographic information and specific health information, including the year of diagnosis with type 2 diabetes and a self report of mental health history. Statistical Package for the Social Sciences (SPSS) was used for data analysis.

Measures

Couples Satisfaction Index (CSI) is an amalgam of several other couples satisfaction measures created by Funk and Rogge in 2007. This study used the abbreviated 4 item version due to the fact that the shorter version was found to have greater precision than the long form version. The CSI was found to have higher precision of measurement and a greater power of differentiation among levels of satisfaction than comparable measures of couple satisfaction, with excellent internal validity and convergent validity with other measures (Funk and Rogge, 2007).

Problem Areas in Diabetes Survey (PAID) is a 20 item questionnaire designed to assess the level of psychosocial distress being experienced by an individual suffering from type 2

diabetes. This measure was designed by William Polonsky and colleagues (1995) and has been found to have very high internal reliability when tested on the initial sample of 451 women with type 2 diabetes. Also, the measure demonstrates strong convergent validity with similar measures, though it has been noted that it does not differentiate between depressive and anxious symptoms (Polonsky et al, 1995).

Results

To test the hypotheses, a bivariate correlational analysis was conducted between the variables (Table 1.) No significant correlations were found between any of the variables except couples satisfaction and emotional distress ($r = -.23$, $p < .01$).

Next, a multiple regression analysis was conducted, in which the scores on the Couples Satisfaction Inventory and the duration of diabetes, in years, and the interaction term between the two were regressed on the scores from the Problem Areas in Diabetes measure. The results were statistically significant ($R^2 = .10$, $p < .05$), indicating that the interaction of couple satisfaction and time since diagnosis with diabetes accounted for 10% of unique variance in diabetes emotional distress. The unstandardized regression coefficient for the interaction between couple satisfaction and diabetes duration was $\beta = .150$, $p < .05$.

The results of the study show that the duration of diabetes was not significantly correlated with diabetes related emotional distress as predicted (Table 1). However, the findings support the second part of the hypothesis such that the effect of duration of diabetes was significantly moderated by high or low couple satisfaction ratings (Figure 1). For example, at high levels of couple satisfaction, individuals who have been diagnosed with diabetes for a shorter period of time have more diabetes distress than individuals who have been diagnosed for longer periods of time. On the other hand, at low levels of couple satisfaction, we see a similar relationship, such

that individuals who have been diagnosed with diabetes for a shorter period of time have more diabetes distress than individuals who have been diagnosed for longer periods of time. However, the effect is not as pronounced among individuals with high couples satisfaction.

Discussion

While the results did not support the initial hypothesis that there would be a positive correlation between the duration of diabetes and the self-report of diabetes-related emotional distress, the predicted moderating effect of couple satisfaction was found to have a statistically significant effect on diabetes-related emotional distress in its interaction with diabetes duration. In essence, this finding indicates that someone who has been recently diagnosed with type 2 diabetes and has low couple satisfaction will present with the greatest amount of diabetes-related emotional distress, whereas someone who has high couple satisfaction and was also recently diagnosed will have significantly lower distress.

This may be an indication that the relationship among the variables involved in the experience of diabetes-related emotional distress are far more complicated than simply an interaction between duration of the disease and couples satisfaction, perhaps also involving gender, ethnicity, income level, and medical history. An intriguing secondary observation was the fact that diabetes duration was negatively correlated with diabetes-related emotional distress in the interaction analysis, perhaps implying that the longer one has diabetes, the greater one's ability to cope with the stress becomes. This could result from the initial diagnosis creating a greater deal of emotional distress at first, but that as one learns to cope with the lifestyle changes, the emotional distress becomes reduced.

There were several limitations to this study, with the most significant being the fact that this study involved only correlational data thereby limiting the additional generalizations that can

be made based on these results. Furthermore, we cannot assume any causal relationships between the variables. Additionally, the data in this study was collected by means of self report, meaning that the answers given were subjectively reported by participants rather than collected through objective measures. Finally, the reliability of the Problem Areas in Diabetes measure does not address either depression or anxiety, but rather a mixture of the two.

Further research may benefit from a more specific and targeted measure of anxiety or depression, such as the Beck Depression Inventory or the Beck Anxiety Inventory, which have been shown to differentiate between anxious and depressive symptoms more effectively than many other scales, including the PAID (Beck, 1988; Dobson, 1985). Follow-up studies could also provide longitudinal data that could offer greater generalizations and implications about causation to the public at large. Another interesting avenue of future research involves an examination of the prevalence of mood disorders in couples with diabetes and examining the moderating effect of couple satisfaction. The population sampled in this study had a prevalence rate for mood disorders of 11.25% (18 of the 160), which is nearly three times the lifetime prevalence in the United States (3.9%), according to the National Institute of Mental Health (Kessler, 2005). This high prevalence of mood disorders could also be a confounding variable in the measure of diabetes related anxiety due to the previous point regarding the issues with the PAID scale of distinguishing between anxious symptoms and those of mood disorders. Future projects should focus on the narrowing and refining of the scales and aspects of diabetes-related emotional distress examined, focusing on the feelings of anxiety and couple satisfaction in the context of other potentially moderating factors such as gender and medical history.

In conclusion, this study sought to examine the effects of the duration of type 2 diabetes and couple satisfaction on the diabetes-related emotional distress experienced by individuals

suffering from the disease. This research fills a gap in the literature thus far conducted in the area and addresses an important aspect of the experience and maintenance of relationships when living with a chronic illness. Future research will undoubtedly further elucidate the nature of the emotional effects of type 2 diabetes and the very important role that partner support plays in alleviating the negative emotions experienced.

References

Adler, A. I., Stratton, I. M., Neil, H. A. W., Yudkin, J. S., Matthews, D. R., Cull, C. A., ... & Holman, R. R. (2000). Association of systolic blood pressure with macrovascular and microvascular complications of type 2 diabetes (UKPDS 36): prospective observational study. *BMJ: British Medical Journal*, *321*(7258), 412.

Beck, A.T., Epstein, N., Brown, G., Steer, R.A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology* 56: 893–897.

CDC. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://www.cdc.gov/diabetes/pubs/factsheet11.htm. Accessed May 3, 2013

CDC. Diabetes data and trends. 2012. Atlanta, GA: US Department of Health and Human Services, CDC, National Diabetes Surveillance System. Available at www.cdc.gov/diabetes/statistics. Accessed May 3, 2013

Dobson KS (1985). An analysis of anxiety and depression scales. *Journal of Personality Assessment* 49: 522–527.

Fisher, L., Chesla, C. A., Skaff, M. M., Gilliss, C., Mullan, J. T., Bartz, R. J., ... & Lutz, C. P. (2000). The family and disease management in Hispanic and European-American patients with type 2 diabetes. *Diabetes Care*, *23*(3), 267-272.

Funk, J. L. & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology, 21*, 572-583.

Haffner, S. M. (1998). Epidemiology of type 2 diabetes: risk factors. *Diabetes care*, *21*(Supplement 3), C3-C6.

Jensen, S.B. (1985). Emotional aspects in diabetes mellitus: A study of somatopsychological reactions in 51 couples in which one partner has insulin-treated diabetes. *Journal of psychosomatic research, 29 (4)*, 353-359.

Kessler, R.C., Berglund, P.A., Demler, O., Jin, R., Walters, E.E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). Archives of General Psychiatry.62(6):593-602

Miller, D., & Brown, J. L. (2005). Marital interactions in the process of dietary change for type 2 diabetes. *Journal of nutrition education and behavior*, *37*(5), 226-234.

Polonsky, W. H., Anderson, B. J., Lohrer, P. A., Welch, G., Jacobson, A. M., Aponte, J. E., & Schwartz, C. E. (1995). Assessment of diabetes-related distress. *Diabetes Care*, *18*(6), 754-760.

Shoback, edited by David G. Gardner, Dolores (2011). *Greenspan's basic & clinical endocrinology* (9th ed.). New York: McGraw-Hill Medical. pp. Chapter 17.

Skyler, J. (1980). Living with complications of diabetes.Behavioral and Psychological Issues in Diabetes. Proc Natn Conf, Government Printing Office, Washington DC (1980), pp. 167–181 NIH publ. 80-1993

Trief, P. M., Sandberg, J., Greenberg, R. P., Graff, K., Castronova, N., Yoon, M., & Weinstock, R. S. (2003). Describing support: A qualitative study of couples living with diabetes. *Families, Systems, & Health*, *21*(1), 57.

Whisman, M. A., & Bruce, M. L. (1999). Marital dissatisfaction and incidence of major depressive episode in a community sample. *Journal of Abnormal Psychology*, *108*(4), 674.

Wilcox, Brian L (1981). Social support, life stress, and psychological adjustment: A test of the buffering hypothesis. *American Journal of Community Psychology, 9(4)*, 371-386.

Wills, Thomas Ashby; Cohen, Sheldon (Ed); Syme, S. Leonard (Ed), (1985). Supportive functions of interpersonal relationships. Social support and health., (pp. 61-82). San Diego, CA, US: Academic Press, xvii, 390 pp.

Figures and Tables

Table 1. Pearson Correlation Matrix for Couple Satisfaction and Diabetes Duration Interaction on Diabetes-Related Emotional Distress

	Diabetes Duration	Couple Satisfaction	Diabetes Distress
1. Diabetes Duration	**1**	-.16	.02
2. Couple Satisfaction		**1**	-.23**
3. Diabetes Distress			**1**

**$p < .01$.

Figure 1. Couple Satisfaction and Duration Interaction on Diabetes Related Emotional Distress