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Reducing Diabetes Distress and Improving Self-Management with Mindfulness

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Abstract

Stress associated with diabetes makes managing diabetes harder. We investigated whether mindfulness-based stress reduction (MBSR) could reduce diabetes distress and improve management. We recruited 38 participants to complete an MBSR program. Surveys and lab values were completed at baseline and post-intervention. Participants showed significant improvement in diabetes-related distress (Cohen's d, −.71, p<.002), psychosocial self-efficacy (Cohen's d .80, p<.001), and glucose control (Cohen's d −.79, p<.001). Significant improvements in depression, anxiety, stress, coping, self-compassion, and social support were also found. These results suggest that MBSR may offer an effective method for helping people better self-manage their diabetes and improve mental health.

Keywords

diabetes distress; mindfulness; stress reduction; diabetes management; MBSR

Type 2 diabetes mellitus (DM) is a chronic, progressive condition affecting 29.1 million adults in the United States, about 9.3% of the adult population, with prevalence expected to increase dramatically in the coming decade (Centers for Disease Control and Prevention, 2014). DM is a serious metabolic disorder characterized by high levels of blood glucose due to improper production or use of insulin related to both genetic and environmental factors. It reduces life expectancy by more than 6 years, quality of life by 20–30%, and

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substantially increases costs of medical care (Tan, Lindquist, Rush, & O'Connor, 2002). Diabetes also disproportionately affects minority communities (Kanaya et al., 2011; Karter et al., 2013; Mayeda et al., 2013; Naranjo, Hessler, Deol, & Chesla, 2012). Optimal care for DM is achieved through good self-management that includes glucose monitoring, medication management, healthy eating, and regular physical activity which reduces the risks of serious complications (Clinical Evidence, 2001; Gaede, Lund-Andersen, Parving, & Pedersen, 2008). The rigorous daily self- management needs however, can also result in chronic stress including diabetes-related distress from the significant changes required in diet and lifestyle that affect self-perception, self-esteem and relationships with family and friends (Browne, Ventura, Mosely, & Speight, 2013; Stoop et al., 2014).

Chronic stress is associated with numerous deleterious effects on health and well-being, including poorer physical health, compromised immune function, increased mortality, social isolation, depression, anxiety and poor quality of life (R. J. Anderson, Freedland, Clouse, & Lustman, 2001; Nomura et al., 2000; Sapolsky, 2004). It sets off a cascade of physical effects including increases in hormones such as adrenaline, cortisol, and epinephrine leading to increased glucose and blood pressure as the body's flight or fight system is activated (Faulenbach et al., 2012; Nomura et al., 2000; Peyrot, McMurry, & Kruger, 1999; Sapolsky, 2004; Weijman et al., 2005). In this way, chronic stress not only increases the risk of poor quality of life, depression, and anxiety but also increases blood glucose and blood pressure levels making self-management and optimal diabetes care far more difficult and less likely.

Chronic stress directly associated with diabetes includes what has been termed diabetes-related distress. Diabetes-related distress has been defined as including diabetes regimen distress, emotional distress, physician-related distress, and interpersonal distress (Wardian & Sun, 2014). It has been linked to poor glycemic control and treatment adherence and is associated with an increased risk of mental health disorders such as depression (Fisher, Glasgow, & Strycker, 2010; Gonzalez, Shreck, Psaros, & Safren, 2014). Interventions to help people manage diabetes-related distress have focused primarily on stress management techniques, including relaxation and biofeedback (Esch, Fricchione, & Stefano, 2003; McGinnis, McGrady, Cox, & Grower-Dowling, 2005; McGrady & Horner, 1999; Surwit et al., 2002). Stress reduction techniques however, have shown mixed results, with biofeedback demonstrating better effects in short-term improvement in glucose control (measured as HemoglobinA1c level).

Increasingly people with diabetes are exploring complementary and integrative practices, as defined by the National Center for Complementary and Integrative Health, for addressing diabetes-related distress including: yoga (Yang et al., 2011), Qigong and T'ai chi (Gates & Mick, 2010; Liu, Miller, Burton, Chang, & Brown, 2011; Song, Ahn, Roberts, Lee, & Ahn, 2009), meditation (Callaghan, 2008; Teixeira, 2010), guided imagery (Wichowski & Kubsch, 1999), Acceptance and Commitment Therapy (ACT) (Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007), and Mindfulness-Based Stress Reduction (Rosenzweig et al., 2007; Whitebird, Kreitzer, & O'Connor, 2009). Research on these complementary practices ranges from uncontrolled exploratory studies (Rosenzweig et al., 2007; Wichowski & Kubsch, 1999) to controlled randomized controlled trials (Gregg et al., 2007; Liu et al., 2011).

Mindfulness-based stress reduction (MBSR) is a stress-reduction technique that includes elements of these integrative approaches. Developed by Jon Kabat-Zinn in the late 1980's at the University of Massachusetts Medical Center for patients with chronic pain, it is a standardized group-based program that is 8-weeks long and focuses on reducing stress and managing difficult emotions through training in mindfulness (Kabat-Zinn, 1990). The practice of MBSR focuses on present moment mindfulness, nonjudgmental awareness and acceptance of experience, both internal and external, with a stance of openness and curiosity (Bishop, 2002; Chambers, Gullone, & Allen, 2009). Chambers et al. (2009) note that mindfulness may facilitate the development of metacognitive insight, where thoughts are perceived to be insubstantial and transient events rather than accurate representations of reality, a process known as decentering. MBSR training teaches participants to become more aware of their thoughts and feelings so they can change their relationship to them. This is accomplished through accepting thoughts and feelings as they arise without judgement and letting go them, then refocusing attention to an object of focus, most commonly the breath (Bishop, 2002). MBSR includes a formal meditation practice done though sitting or standing meditation and mindful movement, it also includes guided meditations such as scanning of the body. Daily practice of MBSR includes incorporating mindfulness into one's everyday life (Cullen, 2011).

The use of MBSR has been studied for decreasing symptoms in a wide range of medical conditions and improving quality of life. It has been used with cancer patients and for managing symptoms, and improving quality of life following solid organ transplant (Gross et al., 2004; Gross et al., 2010; Kreitzer, Gross, Ye, Russas, & Treesak, 2005; Ledesma & Kumano, 2008; Lengacher et al., 2008). It has also been studied in patients with pain, rheumatoid arthritis and fibromyalgia (Grossman, Tiefenthaler-Gilmer, Raysz, & Kesper, 2007; McCracken, Gauntlett-Gilbert, & Vowles, 2007; Pradhan et al., 2007; Rosenzweig et al., 2010). We studied its use for decreasing stress and burden in caregivers of people with dementia (Whitebird et al., 2012; Whitebird et al., 2011). In aggregate, studies of MBSR have found decreases in medically related symptoms and improved functioning including reduced stress, anxiety and depression (Astin, Shapiro, Eisenberg, & Forys, 2003; Fjorback, Arendt, Ørnbøl, Fink, & Walach, 2011; Grossman, Niemann, Schmidt, & Walach, 2004; Hofmann, Sawyer, Witt, & Oh, 2010).

Studies of MBSR have also begun to look at its potential for people with diabetes (Whitebird et al., 2009). Hartmann and colleagues (2012) looked at the use of an adapted version of MBSR using an acceptance and mindfulness-based group intervention to reduce psychosocial distress and decrease the progression of nephropathy in people at high risk for diabetes complications. Results showed a reduction in psychosocial distress, although no significant differences in nephropathy. Rosenzweig et al. (2007) in small study of MBSR at an academic medical center in 14 patients with diabetes, looked at glycemic control in addition to stress-related psychological symptoms, weight and blood-pressure at one month follow-up. While the study found decreases in HbA1c, blood pressure and stress related psychological symptoms, only 11 of the 14 people completed the study and participant's initial HbA1c were restricted to being within >6.5 and <8.5, indicating relatively well-controlled diabetes at the start of the study. Considering the few studies of MBSR in people with diabetes, and the improvements that MBSR has shown for people with

other chronic conditions, we were interested in the potential of a community-based MBSR program to improve diabetes management and reduce stress related specifically to diabetes, especially for those with poor diabetes control. The purpose of the present study was to examine whether a community-based MBSR program can improve diabetes management by improving HbA1c values and decrease diabetes related-distress and improve anxiety and depression in people with Type 2 diabetes.

Methods

Participants

The study *Managing Diabetes Mindfully*, was a one-arm pilot study that was conducted from 2012 to 2013 in the upper Midwest at a nonprofit research center affiliated with a mixed-model health plan. Participants were members of the health plan and were eligible to participate in the study if they had Type 2 diabetes and had two Hemoglobin (Hb)A1c values of ≥ 8.0% in the prior 16 months, with the most recent HbA1c > 8% in the prior 3 months. Eligibility criteria also included the ability to speak and read English (for course participation and to read the course materials), no history of mental illness or major depression and the ability to attend weekly classes. Potential participants were excluded if they had completed formal training in other mind body practices such as meditation, yoga, or tai chi within the prior year.

The study screened 193 people for potential participation, 56 of whom were eligible, and 38 who agreed to participate, were enrolled and consented to participate in the study (Figure 1). Our target recruitment goal was 30 participants; we over-recruited to address potential dropouts and loss to follow-up. Of the 38 participants, 6 withdrew prior to completing the intervention and 1 withdrew during the intervention; we had 1 loss to follow-up. Reasons for withdrawal included time conflicts, health, and anxiety. The study was reviewed and approved by the local Institutional Review Board.

Materials and Procedure

Participants were recruited to participate in the study through letter and telephone contact, they completed eligibility screening for participation at that time. Those interested in study participation met with the study coordinator where they received additional study information, completed their consent form, and received a yoga mat and blood pressure cuff. Participants also received a daily log to track their time in home practice course activities which included meditation and yoga, and their daily morning blood pressure. Participants filled out surveys prior to the start of the intervention and following completion, they also participated in an open-ended qualitative interview about their perceptions of their course participation.

Intervention—The study included participation in a community-based MBSR course that was offered through a Center affiliated with a state university program. Participants were enrolled in an MBSR course offered at a variety of locations in a metropolitan area. Course facilitators were trained using Jon Kabat-Zinn's MBSR program and the course was conducted as described in his book *Full Catastrophe Living* (Kabat-Zinn, 1990). Participants

received 8-weeks of program instruction in MBSR that included four forms of meditation (sitting, standing, walking and supine) and gentle Hatha yoga. Participants learned the skills of meditation from the instructor, guided and reinforced by an audio series (CD/MP3) for home practice. The eight sessions were 2.5 hours each week and included a one-day retreat was held between weeks 6 and 7 of the course. Participants were encouraged to do at least one meditation practice 5–6 days per week for 20 minutes throughout course and to track their home practice in a daily log.

Measures

A study survey was used to collect information on participant demographics, stress, mental health, social support and diabetes-related distress and self-management. Lab values measuring Hemoglobin A1c and self-reported blood pressure were also collected.

Mental health—General mental health was measured using the Short-Form-12 Health Survey (SF-12) which provides composite scores of mental health (MCS-12). It has been used widely and demonstrates good reliability and validity (McDowell, 2006). Symptoms of depression were measured using the Patient Health Questionnaire (PHQ9), a widely-used clinical measure of depression demonstrating good validity and reliability. (Kroenke, Spitzer, & Williams, 2001; Kroenke, Spitzer, Williams, & Lowe, 2010). Anxiety was measured with the State-Trait Anxiety Inventory (STAI) - State Version Y subscale. The STAI is widely used clinical practice and research demonstrating internal consistency and validity (Spelberger, 1983).

Stress and coping—Stress was measured using the Perceived Stress Scale (PSS) 10-item version. This is a self-reported measure looking at previous month and the degree to which situations were considered stressful (S. Cohen, & Williamson, G., 1988; Cohen, Kamarck, & Mermelstein, 1983). Coping was measured the short-form version of the Coping Strategies Inventory (CPI-SF) which measures engaged and disengaged coping styles. The CSI-SF has been studied and found to have adequate validity and reliability for all scales (Addison et al., 2007).

Social support and self-compassion—Social support was measured using the Medical Outcomes Study (MOS) Social Support Survey. The scale covers four categories of support: emotional or informational support, positive social interaction, tangible support and affectionate support. The MOS social support survey has been extensively studied demonstrating good validity and reliability (McDowell, 2006). Self-compassion, which is associated with psychological well-being, was measured using the short-form of the Self-Compassion Scaled (SCS-SF) which has been shown in factorial validation to have good validity and reliability (Raes, Pommier, Neff, & Van Gucht, 2011).

Diabetes-related distress—Diabetes-related distress was measured using the Problem Areas In Diabetes Questionnaire (PAID). The PAID is a measure of diabetes distress developed by the Joslin Diabetes Center (Polonsky et al., 1995). It has been shown to have high internal reliability and to correlate with general theoretical constructs such as diabetes distress, diabetes self-care behaviors, diabetes coping, and health beliefs (Reddy, Wilhelm,

& Campbell, 2013; Snoek, Pouwer, Welch, & Polonsky, 2000; Van Der Ven et al., 2003; Welch, Weinger, Anderson, & Polonsky, 2003).

Diabetes self-management and self-efficacy—Diabetes self-management and psychosocial self-efficacy was measured using the Diabetes Empowerment Scale (DES). The DES is a psychosocial measure that has been predictive of self-management and self-efficacy in diabetes health interventions (Lorig et al., 2001). The DES is a valid and reliable measure of overall diabetes-related psychosocial self-efficacy and self-management (R. M. Anderson, Fitzgerald, Gruppen, Funnell, & Oh, 2003; R. M. Anderson, Funnell, Fitzgerald, & Marrero, 2000). The DES is conceptually related to sense of control, a construct found to be enhanced by MBSR (Astin, 1997; Astin, Shapiro, Lee, & Shapiro, 1999).

Hemoglobin A1c (HbA1c)—HbA1c refers to glycated hemoglobin and provides a clinical picture of blood sugar levels over the prior 10–12 weeks. It is a standard clinical measure used to monitor glucose levels in the blood. Baseline HbA1c lab values were collected from medical records tied to in-person visits and follow-up HbA1c labs were also collected from in-person clinic visits between weeks 13–16 following intervention completion. This latter HbA1c test centered the test result (an average of the prior 3 months) at the end of course participation and in the first weeks following the course completion.

Statistical Analysis

Baseline characteristics and outcomes were descriptively analyzed including mean values ± standard deviation, or frequency distribution. Outcome measures were analyzed for departure of normality. Pre-post changes of outcome measures were evaluated using pair-wise t-test. Cohen-D Statistic (pre-post change divided by pre outcome measure standard deviation) were calculated to evaluate the size of the effect (J. Cohen, 1988; Kotrlik, 2003).

Results

Participants (n=31) in the study were 31 to 78 years of age with a mean age of 56 years. They were predominately non-Hispanic White (70%) women (67%), the majority of whom were married (62%) with some post-secondary education (Table 1). Adherence to the intervention included attendance at the eight weekly group meetings and the one-day retreat; group sessions had a mean adherence of 7.5 and the retreat .94, with a combined attendance of 8.0 sessions (Table 2). Participants did an average of 4.9 home practice sessions per week for an average of 35 minutes per session.

There were two patterns of outcomes that indicated support for the efficacy of MBSR in improving diabetes self-management and mental health. The first was observed for measures of diabetes-related distress and self-management, with participants showing significant improvements in pre-post measures (Table 3). There was a significant decrease in diabetes-related distress as measured by the PAID (Cohen’s d −.71, $p<.002$), and significant improvement in diabetes self-management as measured by HbA1c levels (Absolute change: −.79, Cohen’s d −.67, $p<.001$), and psycho-social self-efficacy as measured by the DES (Cohen’s d .80, $p<.001$).

The second pattern of support can be seen in measures of mental health (Table 4). Participants showed significant improvement in measures of pre-post change in perceived stress as measured by the PSS (Cohen's d −.76, p<.001), decreases in depressive symptoms as measured by the PHQ9 (Cohen's d −.62, p<.001), improvement in anxiety as measured by the STAI (Cohen's d −.66, p<.001), and improvement in overall mental health as measured by the SF12 (Cohen's d .69, p<.001). Improvement was also seen in measures of coping engagement as measured by the CSI (Cohen's d .52, p<.001), social support as measured by the MOSS (Cohen's d .38, p<.02) and self-compassion as measured by the SCS (Cohen's d .33, p<.04).

Discussion

There has been little study to date on the use of a community-based MBSR programs to improve diabetes-related distress, self-management and mental health in people with diabetes, especially for those with poorly-controlled diabetes. Participants in our study showed significant improvements in pre-post measures of diabetes-related distress, psychosocial self-efficacy and glucose control, all measures related to good diabetes self-management. Participants also showed significant improvement in measures of mental health including depression, anxiety, stress, coping, self-compassion and social support. The pre-post changes observed in this pilot study were large and significant and add to the literature on the benefits of community-based MBSR programs for people with diabetes. While the study design precludes causal inference, these results suggest that community-based MBSR programs may offer an effective method for helping people reduce diabetes-related distress, better self-manage their diabetes and improve their mental health.

How the practice of MBSR specifically affects diabetes self-management and mental health is not yet unclear. Prior research of MBSR with other chronic conditions has found improvements in medically-related symptoms and functioning, and decreases in stress, anxiety, and depression (Astin et al., 2003; Fjorback et al., 2011; Grossman et al., 2004; Hofmann et al., 2010). Certainly, improving the management of stress can have significant benefits to both physical and mental. Chronic stress can elevate blood glucose and blood pressure levels and interfere with diabetes self-management through both its physiological effects and psychosocial consequences such as anxiety and depression, which are known to be correlated with diabetes (R. J. Anderson et al., 2001; Faulenbach et al., 2012; Surwit & Schneider, 1993; Surwit, Schneider, & Feinglos, 1992; Surwit et al., 2002).

People with diabetes also experience psychosocial issues that are unique to their condition. Browne and colleagues (2013) for example, in their qualitative study of people with diabetes found that people experienced diabetes-related social stigma. They note that blame, shame and guilt are often associated with the condition due to its relationship to poor dietary habits and being overweight. In their study, people with diabetes described feeling judged and blamed by others for bringing the condition on themselves. Here the foundational features of MBSR, present-moment mindfulness and nonjudgmental awareness, may be significant factors in the beneficial effects on diabetes management.

Present-moment mindfulness has been found to have moderating and potentially protective effects against the harmful aspects of stress (Haenen, Nyklicek, van Son, Pop, & Pouwer, 2016; van Son et al., 2015; Whitebird et al., 2012). The practice of nonjudgmental awareness, especially where one is feeling judged and stigmatized, may also have significant mediating effects on mental health. Nidich and colleagues (2009) in a study of the effects of meditation on hypertension using TM meditations which also focuses on present moment mindfulness, found that it decreased psychological distress and increased coping, similar to our findings of improved coping in our study participants. It may be that improved coping skills enhance resilience in people's capacity to respond to difficult situations.

We also found improvement in self-compassion among our study participants, as did Robins et al (2012) in their study of MBSR on emotional experience and expression. Self-compassion is an important component of mental health and they posited that because MBSR emphasizes not judging experiences as intrinsically good or bad, it would increase self-compassion and emotion regulation, which was consistent with their findings. Improvements in mental health though management of stress and decreases in worry and rumination have all been associated with MBSR (Raes, 2010; Raes, Dewulf, Van Heeringen, & Williams, 2009).

Currently diabetes education and self-management programs, which are the cornerstone of diabetes care, focus primarily on decreasing the risk of the serious complications associated with diabetes through increasing knowledge and improving self-management skills such as medication management, glucose monitoring, and self-care behaviors including checking eyes and feet. While these skills are important, prior RCTs of education and self-management programs have shown mixed results in the short and long-term success for improving people's ability to self-manage their diabetes (Chodosh et al., 2005; RAND, 2003). This may be in part because they do not address the significant psychosocial issues including the many facets of diabetes-related distress that underlie having this long-term chronic condition (Dahl, 2004; O'Connor, Crabtree, & Yanoshik, 1997; Sperl-Hillen et al., 2011; Surwit et al., 2002; Tillotson & Smith, 1996). Until psychosocial issues resulting from the significant lifestyle changes required by the condition are addressed, good diabetes self-management may prove challenging for many.

There are limitations to this study. As a single-arm pilot study the design precludes causal inference and thus only provides preliminary data to address the question of effectiveness of MBSR with diabetes-related distress and self-management. Our sample size was small and predominately female with limited representation of minorities. This population profile however, fits what we know about the overall interest in the population regarding this type of health intervention. The study does however, provide encouraging results to support for the potential efficacy of MBSR as an integrative intervention to improve diabetes-related distress and self-management.

Implications for future research include larger randomized controlled trials of community-based MBSR programs for people with diabetes, especially those with uncontrolled diabetes. Research should also investigate adaptations of community-based MBSR programs that may be specifically relevant and important in meeting the needs of people with diabetes. Other

areas of potential research include development of programs that combine both diabetes education and MBSR in a new and innovative ways, and finally studying the experiences of people with diabetes and what causal mechanisms support continuation of good diabetes self-management over time.

Implications for Social Work

Social workers are an integral part of the provision of health care (Golden, 2011). From providing mental health services to individuals and families, to working on interdisciplinary teams in acute and chronic care settings (Moore et al., 2016), social workers are often on the front lines of serving people with chronic conditions such as diabetes (Claiborne & Vandenburgh, 2001; DeCoster, 2001). They are far more likely than many other health care professionals in health care settings to be called on to address psychosocial issues associated with chronic conditions, such as diabetes-related distress or mental health concerns, guiding individuals and families to interventions and services that will meet their needs (Wardian & Sun, 2015). The physical and mental health consequences of poorly-managed diabetes are significant, for both people with diabetes and their families (Wardian & Sun, 2014). MBSR is an intervention that is readily available in many communities and could provide a valuable tool for many people with diabetes to help reduce diabetes-related distress and improve their self-management over the long-term.

Conclusion

People with diabetes often struggle to address the significant lifestyle changes that are required for living with a chronic condition such as diabetes. Practices such as MBSR that decrease stress and improve mental health may provide the ongoing support that many need While current diabetes education and self-management programs address the knowledge needed for the life-style changes that are required, they don’t provide the necessary tools to help weather the stressful emotional toll that diabetes can have on relationships, self-identity and self-esteem. It is likely that diabetes-related distress also negatively impacts the ability to maintain good diabetes self-management over time. Until we tackle the thorny problems of stress and mental health in diabetes care, good diabetes self-management may prove an elusive reality for the many people living with diabetes.

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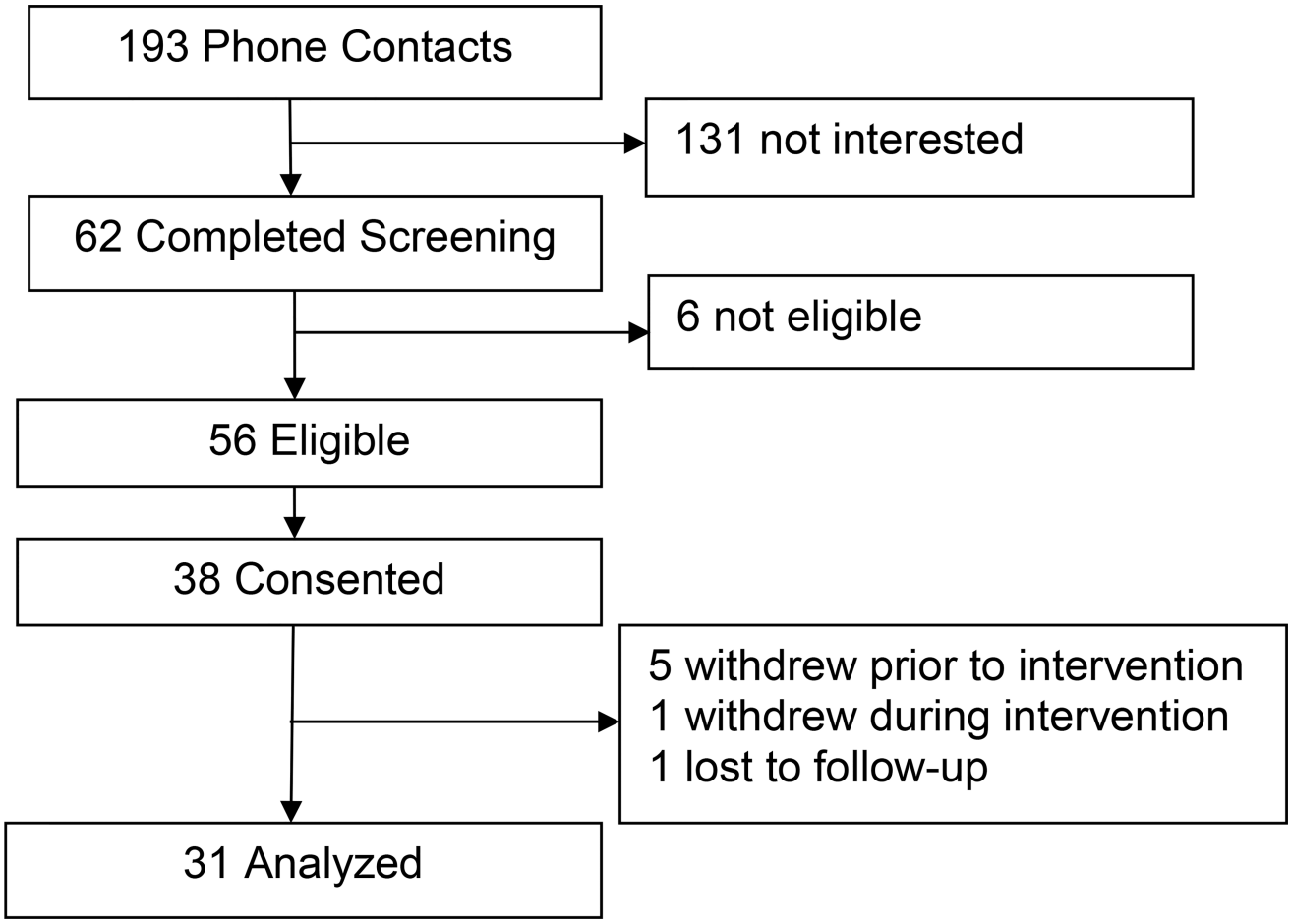

Figure 1.
Participant Flow though the study.

Table 1

Characteristics of Study Participants

Demographics	**N=31**
Age M (SD)	56.6(12.6)
Female N (%)	21 (67.4)
Race N (%)	
White	22 (71.0)
African American	7 (22.6)
Other	2 (6.5)
Hispanic N (%)	2 (6.5)
Non-Hispanic white N (%)	29 (93.5)
Marital status N (%)	
Married	19 (62.3)
Never married	7 (22.6)
Widowed, divorced, separated	5 (16.1)
Education N (%)	
High school graduate	3 (9.7)
Some post-secondary	12 (38.7)
College graduate	9 (29.0)
Graduate school	7 (22.6)
Employment N (%)	
Employed	17 (54.8)
Out of work/unable to work	5 (16.1)
Student	2 (6.5)
Retired/homemaker	7 (22.6)

Table 2

Adherence to the Study Intervention

Intervention Adherence	**Mean ±-SD**
Number of weekly sessions	7.6± 0.72
Attendance at Retreat/Wellness Day	0.94±0.25
Number of total sessions attended	8.0 ±1.9
Sessions per week of MBSR home practice, M (SD)	5.0±2.6
Minutes per session per week of MBSR home practice, M (SD)	35.5 ±22.5

Table 3

Observed pre, post mean (SD) and Cohen-D of Hemoglobin A1C and Measures of Diabetes Management

DM Management Outcome	PRE	POST	*Cohen-D*	*P*
Hemoglobin A1C	9.2 (1.2)	8.4 (1.3)	Absolute diff −.79 Cohen-D −0.67	.0004
Problem areas in diabetes scale (PAID)	30.3 (2.7)	18.3 (0.14)	−.71	.002
Diabetes engagement scale	3.4 (0.14)	4.1 (0.11)	.80	<.001

Table 4

Observed Mean (SD) of Mental and Behavioral Health Measures at PRE-POST, Cohen's d for PRE-POST Difference, Significance of Simple Effects Test

Mental Health/ Behavioral Measures	**PRE M (SD)**	**POST M (SD)**	***Range***	***d***	***P***
Perceived stress (PSS)	16.5 (1.0)	11.7 (1.3)	(0–40)	−0.76	.001
Depression (PHQ9)	7.7 (1.0)	3.9 (0.9)	(0–27)	−0.62	.001
Anxiety (STAI)	40.4 (2.2)	31.4 (2.0)	(20–80)	−0.66	.001
Mental Health (MCS-12)	46.1 (1.4)	51.8 (1.1)	(0–100)	0.69	.001
Social Support (MOSS)	64.9 (4.3)	74.91 (3.83)	(0–100)	0.38	.02
Coping (CSI-engagement)	25.3 (0.9)	28.1 (0.8)	(8–40)	0.52	<.001
Coping (CSI – disengagement)	24.8 (0.8)	23.5 (0.8)	(8–40)	−0.27	.18
Self-compassion (SCS)	3.2 (0.1)	3.4 (0.1)	(12–60)	0.33	.04