

A Telephone-Based Intervention to Promote Diabetes Management in Veterans With Posttraumatic Stress Symptoms

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The primary objective of this pilot study was to develop and implement a telephone intervention for veterans with diabetes and posttraumatic stress symptoms (PTSS). Additional objectives were to evaluate study feasibility and to conduct exploratory analyses of the influence of the intervention on diabetic self-care, quality of life, treatment adherence, and mental health functioning. Twenty-three veterans with PTSS and diabetes enrolled in the study and received an initial assessment interview and intervention session. Twenty participants completed the study protocol in its entirety and also received 7 weekly motivational telephone calls with a clinician and a final assessment. Results revealed high levels of compliance with telephone calls. Participants reported satisfaction with and benefit from the intervention that occurred during weekly telephone calls. Participants reported a statistically significant increase in exercise behaviors and healthy eating from pre- to postintervention. Results also revealed a decrease in psychological distress. Although these data are preliminary, they speak to the feasibility and benefits of a brief telephone intervention to address self-care behaviors critical to the management of diabetes for individuals with PTSS.

Keywords: diabetes, posttraumatic stress, telehealth

Diabetes is one of the largest health care problems in terms of prevalence, cost, and impact on those living with the disease (Gonder-Frederick, Cox, & Ritterband, 2002). According to recently released statistics from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), over 25 million people in the United States aged 20 or older have diabetes (National Institute of Diabetes and Digestive and Kidney Diseases,

2011). It has been estimated that 8.3% of the adult population in the United States have been affected by diabetes (Centers for Disease Control and Prevention, 2011), and the prevalence of Type 2 diabetes has been reported to be substantially higher among veterans than the general population (Miller, Safford, & Pogach, 2004). The prevalence of posttraumatic stress disorder (PTSD) is also higher in veterans than in the general population and is

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associated with an elevated risk for medical issues (Andersen, Wade, Possemato, & Ouimette, 2010; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Magruder et al., 2005). For example, in a large scale study examining health in Vietnam theater and era veterans, Boscarino (2004) found that those with PTSD were substantially more likely to have insulin-dependent diabetes. Diabetes has also been shown to be associated with Agent Orange exposure in Vietnam veterans (e.g., Kang et al., 2006; Michalek & Pavuk, 2008). In addition, veterans with PTSD have been found to be less likely to engage in self-care and proactive health behaviors (e.g., blood sugar testing, regular screenings) and simultaneously more likely to engage in higher risk health behaviors (e.g., smoking, alcohol use) than those without PTSD (Buckley, Mozley, Bedard, Dewulf, & Greif, 2004; Zen, Zhao, Whooley, & Cohen, 2012). Given the importance of regimen adherence to successful diabetic control, individuals with PTSD are at particularly high risk for poor management of diabetes.

Self-care is a critical, yet complicated, component of successful diabetes management (American Diabetes Association, 2012). To maintain desired blood glucose levels and minimize complications, individuals with Type 2 diabetes are frequently asked to make and sustain numerous lifestyle changes, including modifying dietary practices, increasing physical activity, checking blood glucose levels regularly, doing regular foot inspections for signs of any sores or infection, and quitting all forms of tobacco use (for current users). This is in addition to the expectation that patients take all medications as prescribed and attend all recommended medical appointments. Motivational interviewing, goal setting, and problem solving are well-researched approaches to enhance patient confidence and investment in self-management of their health (Hettema, Steele, & Miller, 2005; Lorig & Holman, 2003; Miller & Rollnick, 2002). These approaches have been used successfully in promoting behavior change in patients with varying chronic conditions in both traditional face-to-face (Lorig et al., 1999) and telehealth-based settings (e.g., Lorig et al., 2012).

Telephone Approaches to Managing Diabetes and PTSD

The utility of telehealth in the management of chronic medical conditions is increasingly recognized, because these approaches provide a means for cost-effective, convenient interventions that can target large numbers of patients. Although less complex and novel than some of the more advanced technologies, telephones offer an accessible and convenient medium to deliver an intervention. Use of telephones remains very accessible to people of various socioeconomic backgrounds and provides a means for the provision of treatment to those who may have limited access to or comfort with more traditional, in-person health care.

Of greatest relevance to the present study is existing research on telephone-based interventions focused on the management of Type 2 diabetes. Piette and colleagues (2000) evaluated the impact of assessment and education delivered via automated calls combined with telephone follow-up by a live nurse educator in comparison with usual care (i.e., no contact between regular clinic visits) in patients with diabetes. The intervention involved biweekly telephone calls offered over a 12-month period. Results revealed improvements in glycemic control and significantly lower serum glucose levels and improvements in self-reported glucose moni-

toring, medication adherence, weight monitoring, and proper foot care in the intervention group relative to those receiving usual care. Results from other research of telephone-based interventions have also demonstrated improvement in diabetes control (Walker et al., 2011) and diabetes-related self-care behaviors (Walker, Schechter, Caban, & Basch, 2008; Walker et al., 2011; Wolever et al., 2010). Satisfaction with telephone-based interventions is high (Long, Gambling, Young, Taylor, & Mason, 2005).

Although there are fewer studies examining telephone-based interventions in the treatment of PTSD, there is some research supporting this approach. Niles, Klunk-Gillis, Ryngala, Silberbogen, Paysnick, and Wolf (2012) compared two telephone-based interventions for PTSD: mindfulness and psychoeducation. Results revealed good compliance and high satisfaction with this mode of delivery, and a reduction in PTSD symptoms for the group that received mindfulness training. Although additional work in this area is needed, there is strong preliminary support for the use of telehealth technologies in the treatment of diabetes and PTSD.

The current pilot study seeks to expand upon existing research by (a) incorporating empirically supported techniques to promote lifestyle change (e.g., goal setting, use of motivational interviewing, psychoeducation on diabetes management; Lorig et al., 1999; Miller & Rollnick, 2002) with the convenience of a telephone-based intervention and one-on-one contact with a mental health staff member and (b) applying this approach to a veteran population with Type 2 diabetes and posttraumatic stress symptoms (PTSS). The primary goal of the current study was to evaluate feasibility and patient satisfaction of a telephone intervention for veterans with diabetes and PTSS. A secondary goal was to evaluate the impact of the intervention on psychological distress and diabetic treatment adherence.

Method

Participants

Twenty-three veterans (18 men) with diabetes and PTSS (mean age = 55.3 years, age range = 46–64 years) initiated the protocol. Participants were recruited through study flyers posted throughout the medical center and through the use of an electronic database of possible research participants that was maintained by one of the programs at the medical center. The research participant database was approved for study recruitment by the medical center's institutional review board (IRB). Twenty participants completed the protocol. See Table 1 for sample characteristics. Inclusion criteria for the study were as follows: (a) medical record indication of PTSD as recorded in the patient's problem list, (b) medical record diagnosis of Type 2 diabetes, (c) current prescription for medication for diabetes, (d) access to a telephone, and (e) a stable living environment for the duration of the 8-week intervention.

Procedure

Clinicians conducting the intervention were psychologists or clinical psychology interns in a large VA medical center in a major metropolitan area. Prior to the initial assessment, clinicians spoke by telephone and reviewed the medical record of potential participants to determine that inclusion criteria were met. Participants

Table 1
Demographic Characteristics of Sample

Characteristic	<i>N</i>	%
Gender		
Male	15	75.0
Female	5	25.0
Race		
Caucasian	8	42.1
African American	7	36.8
Hispanic	3	15.8
American Indian/Alaskan	1	5.3
Marital status		
Married/live-in partner	6	30.0
Not married	14	70.0
Education		
Less than high school	1	5.3
High school/some college	13	68.5
College degree or more	5	26.3
Employment status		
Retired or disabled	11	55.0
Working full or part time	4	20.0
Unemployed	4	20.0
Student	1	5.0
Smoking status		
Current smoker	6	30.0
Non-smoker	14	70.0
Age	<i>M</i>	<i>SD</i>
	55.9	3.7

Note. Data are missing for some participants.

were then scheduled for their baseline assessment and first intervention session in-person at the VA medical center. Informed consent procedures were followed in accordance with the process approved by the medical center IRB. The clinician who conducted the baseline assessment also completed the eight intervention sessions with the participant. Immediately following the baseline assessment, participants completed the first 20-min in-person session with the clinician. The seven telephone sessions were conducted weekly, starting one week after the initial session. After completing the intervention, participants were scheduled to come to the medical center for a postintervention assessment that was conducted in-person by one of the study clinicians. In most cases, the clinician completing the final assessment was the same person who delivered the intervention.

Intervention

To facilitate rapport while also offering the convenience and other advantages of telephone therapy, a combination of one face-to-face and seven telephone sessions was used. Session content included psychoeducation, goal setting, and discussion of confidence about making a change and strategies for enhancing confidence. When participants expressed ambivalence about change, motivational interviewing techniques of open-ended questioning, reflective listening and other core skills were implemented. To ensure therapist adherence to the protocol, study clinicians followed a session checklist that detailed core topics to cover (see topics detailed below in the description of the handbook) and specific techniques to use (e.g., goal setting, problem solving).

At the initial session, participants received a handbook entitled "Healthy Living with Diabetes," that was developed by the study investigators.¹ The handbook contained seven sections that covered nutrition, exercise, smoking, blood glucose monitoring, foot care, diabetes medication usage, and goal setting. The content of each section included diabetes-specific information and suggestions for how to integrate the information into diabetes self-management. Participants were asked to read each section between sessions. All content was reviewed by a certified diabetes educator prior to reproduction.

During the initial face-to-face session, the handbook was reviewed and the importance of goal setting as a behavior change tool was emphasized. Participants were then asked to set three goals in any of the six diabetes-specific content areas of the handbook (i.e., foot care, nutrition, blood glucose testing, etc.). For example, within the category of exercise, a goal could be to walk for 20 min three times per week. In the area of foot care, the goal could be to examine feet before bed daily. At the end of the session, the goals were recorded by both the patient (on a goal setting form that was provided in the handbook) and by the clinician. Before concluding the session, the clinician and participant engaged in problem-solving surrounding any perceived obstacles to goal attainment. At the end of the first session, the clinician and participant established a regular, weekly telephone time. The time was then recorded in the participants' binders and on a magnet that participants were encouraged to place in a visible location, such as their home refrigerator. Participants were also provided with contact information for their study clinician in the event of a scheduling conflict or if questions arose.

Sessions 2 through 8 were conducted via telephone. All telephone sessions were approximately 15 to 20 min in length. Each telephone session began with an evaluation of goal progress. The clinician then worked with the patient to set three goals for behavior change for the subsequent week. Goals could be similar or different from those set in previous weeks. After recording the goals and problem-solving possible obstacles to goal progress with the participant, the clinician concluded the call with a diabetes-related "tip of the week." The tips were in the same content areas as those in the handbook (e.g., exercise, blood glucose testing), but also covered the topics of communication with providers and safe travel practices when away from home (e.g., carrying a medic alert card or wearing a diabetes alert bracelet, keeping medications/glucose tablets in an accessible location, etc.). Motivational interviewing techniques, such as reflection on pros and cons of behavior change, were incorporated into the session content when participant ambivalence was encountered.

Measures

The following measures were administered in-person at both the baseline (Time 1) and posttreatment (Time 2) assessments unless otherwise noted.

Beck Depression Inventory–Amended (BDI-IA). This 21-item self-report inventory (Beck, Rush, Shaw, & Emery, 1979) was designed to assess depressed mood and associated vegetative symptoms and has been in use for more than 35 years. It has

¹ The "Healthy Living Handbook" is available upon request from the first author.

become one of the most frequently used instruments for detecting depression and has demonstrated reliability and validity (Beck, Steer, & Garbing, 1988). Scores were converted into BDI-II scores per guidance provided in the BDI-II manual (Beck, Steer, & Brown, 1996). The pre/postassessment Cronbach's alpha for the current sample was .86 and .94, respectively.

PTSD Checklist - Civilian (PCL-C). This 17-item scale (Weathers, Litz, Herman, Huska, & Keane, 1993) is based on PTSD symptom criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (American Psychiatric Association, 2000). Respondents indicated how much they were bothered by reexperiencing, avoidance and numbing, and hyperarousal symptoms in the past month. The PCL-C has high internal consistency reliability and is strongly related to other measures of PTSD (e.g., the Clinician-Administered PTSD Scale; Blake et al., 1995). The Cronbach's alpha for the current sample was .85 at Time 1 and .90 at Time 2.

Diabetes Quality of Life (DQOL). This 47-item questionnaire (Jacobson, Barofsky, Cleary, & Rand, 1988) addresses four separate areas: satisfaction with treatment, impact of treatment, worry about the future effects of diabetes, and worry about social/vocational issues. It also contains a single item measure of overall well-being. The DQOL has good internal consistency (Cronbach's alpha for subscales range from .47 to .92), demonstrates reliability (test-retest over 1 week, correlations range from .78 to .92) and validity (strong correlations with other measures of psychological symptoms, well-being, and adjustment to change; Jacobson et al., 1988). Items were reverse-scored per scoring instructions (Jacobson, 1994) so that higher scores indicate better quality of life. The Cronbach's alpha for the full scale in the current sample was .94 at Time 1 and .98 at Time 2. Reliability estimates for the subscales in the current sample ranged from .76 to .90 at Time 1 period and .60 to .87 at Time 2.

Summary of Diabetes Self-Care Activities (SDSCA). Ten items from the SDSCA measure (Toobert, Hampson, & Glasgow, 2000) were used in the present study and addressed the following aspects of diabetes self-management: general diet, specific diet, exercise, blood-glucose testing, and foot care. Respondents indicated the frequency with which they engaged in self-care activities during the previous 7 days. The SDSCA has demonstrated adequate psychometric properties, with the exception of the two-item specific diet subscale. The specific diet subscale has shown poor internal reliability, leading the scale creators to recommend evaluating the individual items for the subscale separately (Toobert et al., 2000). The individual items assess the number of days in the past week that the respondent has eaten five or more servings of fruits and vegetables and eaten high fat foods such as red meat or full-fat dairy products. The Cronbach's alpha for the two-item subscales in the present sample ranged from .45 to .93 at Time 1 and .73 to .81 at Time 2.

Weight. Weight was measured using a Detecto mechanical physician scale during both the baseline and posttreatment assessments.

Systolic and diastolic blood pressure. Systolic and diastolic blood pressure readings were measured using a Dinamap (Critikon) Model 1846 SX unit. Measurements were taken at two time points during each assessment session: at the beginning of the session and 10 min later.

Satisfaction with the telehealth intervention. This 16-item questionnaire was used in previous studies by the research team (Niles et al., 2012; Silberbogen, Ulloa, Mori & Brown, 2012) and was adapted for this pilot study. The measure was administered at the end of the 8-week intervention to assess participant satisfaction with the telehealth intervention. Participants were asked to rate on a 5-point scale ranging from "strongly agree" to "strongly disagree," the extent to which they agreed with statements related to their willingness to participate in a similar program again, to recommend the program to a friend, or to the usefulness of the program in promoting healthy behaviors.

Analyses

Feasibility was evaluated based on the percentage of patients who completed the protocol and mean satisfaction rating. Paired samples *t* tests were conducted to determine the significance of changes on measures of psychological distress, diabetes quality of life, diabetes self-care, weight and blood pressure. However, consistent with guidance provided by Jacobson (1994), only 9 participants were included in the analysis of the Social Worry subscale of the DQOL instrument because of the number of items endorsed as not applicable. The Social Worry subscale contains items of greater relevance to a younger demographic than those represented in the present sample (e.g., "How often do you worry about whether you will get married?").

Results

Results revealed high levels of compliance with telephone calls and satisfaction with the telephone intervention. Eighty-seven percent of participants who began the treatment completed the protocol in its entirety, participating in eight weekly sessions as well as the pre- and posttreatment assessment sessions. Of the three participants who did not complete the protocol, one participated in all telephone calls, but did not complete the posttreatment assessment. The other two participants completed three and five sessions of the intervention, respectively, but were then unable to be reached. There were no pretreatment significant differences between completers and noncompleters on any of the study outcome variables. Those who completed the protocol reported high satisfaction on a Participant Satisfaction Questionnaire ($M = 1.48$, $SD = .57$), with lower scores indicative of higher satisfaction. Ninety-five percent endorsed that the calls gave them the confidence to better manage their diabetes, 100% reported that the calls motivated them to improve their diet, 75% said that they looked forward to the calls, and 95% endorsed that they would recommend the program to other individuals with diabetes and that they would use the program again if given the opportunity.

Results for all *t* tests are summarized in Table 2. Participants reported statistically significant improvement on measures of psychological distress. Both posttraumatic stress and depressive symptoms decreased from the baseline assessment to posttreatment assessment.

Participants evidenced improvement on three of the four DQOL subscales: Satisfaction with Treatment, Impact of Treatment, and Worry about Effects of Diabetes. Improvement was also seen on the total DQOL score. No improvement was noted on the Social Worry subscale. However, as noted above, only nine participants were included in the analysis of the Social Worry subscale.

Table 2
Paired Samples *T* Tests

Variable	Time 1 <i>M</i> (<i>SD</i>)	Time 2 <i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i>	Cohen's <i>d</i>
PCL	57.30 (12.99)	51.57 (14.54)	2.46 (19)	.02*	.41
BDI	21.50 (9.68)	16.22 (12.69)	2.63 (17)	.02*	.47
DQOL–Satisfaction	46.46 (14.26)	60.17 (17.54)	–4.34 (19)	.00**	.86
DQOL–Impact	55.70 (15.30)	62.37 (11.87)	–2.17 (19)	.04*	.49
DQOL–SW	68.19 (22.25)	69.05 (28.46)	–.13 (8)	.90	.03
DQOL–DW	50.33 (26.12)	60.85 (23.04)	–2.02 (18)	.06	.43
DQOL–Total	50.32 (13.38)	59.87 (13.40)	–3.19 (19)	.00**	.71
DSC–General Diet	3.32 (2.24)	4.80 (1.57)	–3.55 (19)	.00**	.76
DSC–Specific Diet 1	3.05 (2.80)	4.75 (2.02)	–2.27 (19)	.03*	.70
DSC–Specific Diet 2	2.50 (2.06)	4.25 (2.12)	–3.73 (19)	.00**	.84
DSC–Exercise	2.65 (2.25)	4.45 (2.26)	–3.24 (19)	.00**	.80
DSC–Foot Care	3.80 (2.43)	5.15 (2.01)	–2.25 (19)	.04*	.60
DSC–Blood Sugar	4.40 (2.71)	5.68 (1.83)	–2.55 (18)	.02*	.55
Weight	212.85 (43.02)	210.32 (42.84)	1.83 (19)	.08	.06
Systolic BP	128.80 (20.56)	125.05 (20.95)	1.06 (19)	.30	.18
Diastolic BP	76.45 (9.46)	74.60 (9.27)	.97 (19)	.34	.20

Note. PCL = PTSD checklist; BDI = Beck Depression Inventory; DQOL = diabetes quality of life; SW = social worry; DW = diabetes worry; DSC = diabetes self-care; DSC-specific diet 1 = fruits and vegetables; DSC-specific diet 2 = high fat foods; BP = blood pressure.

* $p < .05$. ** $p < .01$.

There was significant improvement on the Diabetes Self-Care measure. Changes were seen for general diet and specific diet choices (e.g., fruits and vegetables, high-fat foods), exercise, foot care, and blood glucose monitoring. No significant changes in weight loss or systolic or diastolic blood pressure measurements were found.

Discussion

In the current study, participants evidenced high levels of compliance and satisfaction with the telephone intervention. Twenty of the 23 participants who initiated the protocol completed the intervention. Participants reported feeling more confident and motivated to engage in diabetes-related self-care behaviors and indicated they would participate in the program again or would refer others if given the opportunity. Results also revealed improvement in level of psychological distress as measured by the PCL and BDI-IA. Although mental health symptoms were not directly addressed during the course of the intervention, participants engaged in weekly goal setting and problem solving focused on health promotion. Incorporation of healthy self-care practices may have contributed to improvement in mental health. The regular contact and support provided as part of the intervention may also have contributed to the improvement in psychological distress. Although available evidence-based treatments for PTSD are effective for many individuals who seek treatment for it, (Foa, Keane, Friedman, & Cohen, 2009), some veterans with PTSD may not seek mental health treatment because of concerns related to stigma (e.g., Hoge et al., 2004) and considerable proportions of those who do seek treatment for PTSD either drop out of therapy or are not substantially helped by it (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). One possible interpretation of the current findings is that treatment focused on improving health behaviors may also improve symptoms of posttraumatic stress. A recent review piece by Walsh (2011) highlighted the important, but oft-neglected value of lifestyle factors, such as diet and physical activity, in the treatment of multiple psychopathologies. A focus on physical

health, rather than on traumatic events and PTSD-related symptoms, may also seem less threatening and may engage and retain more individuals in treatment. However, other mechanisms of action unrelated to the intervention should also be considered including distribution of the handbook, usual clinical care, or other unknown factors.

Results from the current study demonstrate the effectiveness of a brief telehealth intervention in promoting several aspects of diabetes management. Specifically, participants indicated improvement in three of four areas of diabetes-related quality of life: satisfaction with treatment, impact of treatment and worry about the future. Participants also showed improvement in diabetes self-care. Participants reported significant increases in the number of days that they engaged in all measured aspects of diabetes self-care. Improvements were noted in both general and specific (e.g., eating fruits and vegetables) eating behaviors and in the frequency of exercise, blood-glucose testing, and foot care practices. These improvements are consistent with that demonstrated in larger scale, group interventions to address self-management in a chronically medically ill population (e.g., Lorig et al., 1999). Given the brief nature of contact with participants, results provide encouraging evidence that diabetes management may be enhanced without extensive staffing or time-based resources.

There are several limitations to this study that should be noted. First, the study design did not include a control group; therefore it is impossible to discriminate whether the changes made were because of the content of the intervention or other unknown factors. Similarly, because of the lack of control group, it is not possible to identify the specific study components (e.g., weekly supportive contacts, goal setting, psychoeducation), that resulted in improvements in study outcome variables. Participants were included based on indication of PTSD in the medical record and were not necessarily diagnosed with PTSD based on a structured interview. However, participants endorsed substantial PTSD symptoms as evidenced by baseline PCL scores and the term PTSS was used throughout the manuscript to most accurately reflect the

characteristics of the study sample. Because this was a pilot study, the sample was small and comprised of primarily male veterans. Generalization to other populations should be made with caution. Because of resource limitations, we were unable to collect follow-up data or evaluate any objective indicators of blood glucose control (e.g., HbA1c). We did not control for other variables (e.g., concurrent psychological treatment or weight management treatment) that may impact change in lifestyle or psychological functioning because of the small sample size. Although used in other research, the telehealth satisfaction measure adapted for use in this study did not have established psychometric properties. Finally, study clinicians frequently conducted the postintervention assessments with participants. It is possible that demand characteristics resulted in inflated results, as participants sought to “please” their clinicians. This was mitigated, however, by the fact that measures were self-report and were completed by participants on their own in a private room. The encouraging results from this pilot study should serve to inform larger-scale, longitudinal research projects that incorporate objective measurement methods (e.g., glucose testing, HbA1c measurement) and comparison groups, and can tease apart the active ingredients of this type of intervention.

Telephone- and other telehealth-based approaches for health care delivery remain key initiatives in the Department of Veterans Affairs. In the present study, veterans with diabetes and PTSS demonstrated high compliance and satisfaction levels with a telephone intervention that they could access from home (or any other location). Results provide additional support that alternative approaches to health care delivery are feasible and well received by more complicated patient populations.

Implications and Applications

Type 2 diabetes and posttraumatic stress are associated with reduced quality of life and high costs to health care systems. This study suggests that a brief telephone intervention can simultaneously increase positive health behaviors and improve both quality of life and mental health symptoms. Cost-effectiveness is a possible benefit of using a telephone intervention, rather than a traditional clinic-based program, to promote diabetes self-care. In the present study, aside from the initial face-to-face meeting with the study clinician, all sessions took place over the telephone. Sessions were brief and followed a specified content structure that facilitated efficient documentation of session content. In addition to efficient use of clinician time, telephone interventions may also reduce clinic space demands and the burden on patients to travel to and attend regular sessions outside their homes. Although beyond the scope of this pilot study, additional cost effectiveness analyses of telephone-based interventions should be conducted to evaluate the costs of implementing and maintaining this type of intervention.

The use of telephone-based interventions provides accessibility to important services. Use of cellular phone technology is widespread and continuously expanding and serves to enhance convenience and accessibility for both patients and health care professionals alike. In the present study, veterans with diabetes and PTSS evidenced high compliance and satisfaction rates with the telephone intervention. Telephone interventions may improve access to care for this high-risk population by removing barriers common

to traditional, in-person treatment (e.g., driving in traffic, crowded elevators, time in waiting rooms). In addition, telephone interventions to promote self-care may address many barriers to care that are specific to individuals with diabetes such as increased risk of hypoglycemia, pain, feeling sick, and the need for regular blood glucose monitoring.

The study findings provide support to the current VA rollout of telephone treatment in the Patient Aligned Care Teams (PACTs), weight management and other clinics, and may provide some ideas for elements (e.g., patient-led goal setting and problem-solving), of behavior change-focused telephone visits. The intervention presented in this paper offers a highly accessible, proactive approach to address treatment adherence and self-care in a high-risk population.

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