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Treatment of post traumatic stress disorder symptoms in emotionally distressed individuals

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ABSTRACT

Older individuals with emotional distress and a history of psychologic trauma are at risk for post traumatic stress disorder (PTSD) and major depression. This study was an exploratory, secondary analysis of data from the study "Prevention of Depression in Older African Americans". It examined whether Problem Solving Therapy-Primary Care (PST-PC) would lead to improvement in PTSD symptoms in patients with subsyndromal depression and a history of psychologic trauma. The control condition was dietary education (DIET). Participants ($n=60$) were age 50 or older with scores on the Center for Epidemiologic Studies -Depression scale of 11 or greater and history of psychologic trauma. Exclusions stipulated no major depression and substance dependence within a year. Participants were randomized to 6–8 sessions of either PST-PC or DIET and followed 2 years with booster sessions every 6 months; 29 participants were in the PST-PC group and 31 were in the DIET group. Mixed effects models showed that improvement of PTSD Check List scores was significantly greater in the DIET group over two years than in the PST-PC group (based on a group time interaction). We observed no intervention*time interactions in Beck Depression Inventory or Brief Symptom Inventory-Anxiety subscale scores.

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1. Introduction

Post Traumatic Stress Disorder (PTSD) is prevalent and associated with psychiatric comorbidity (Kessler et al., 2005), psychiatric impairment (Schnurr et al., 2000) and increased use of both medical and psychiatric services (Walker et al., 2003). In individuals ≥ 65 years of age, rates of PTSD in primary care clinics have been reported to be approximately 6.3% (Frueh et al., 2007). Thus, assessment for PTSD is important and relevant to clinical practice (Kulka et al., 1990).

Syndromal PTSD appears to represent the upper tail-end of a stress-response continuum (Ruscio et al., 2002). The concept of partial or subthreshold PTSD has emerged from these observations and has been shown to have significant clinical consequences. Subthreshold PTSD (Grubaugh et al., 2005) is associated with intermediate levels of psychosocial impairment and health related quality of life relative to individuals without PTSD and those with full syndromal PTSD.

Subsyndromal depressive disorders are common in primary care settings (Oslin et al., 2006; Ross et al., 2008) and generally include various disorders such as dysthymia, minor depression, adjustment disorder with depression, and mixed anxiety depression. Although no single approach to defining subjects with 'less than Major Depression' has been universally accepted (Lyness et al., 2007), understanding this spectrum is important since already symptomatic individuals with subsyndromal depression are at high risk for developing episodes of major depression and PTSD (Lyness et al., 2007; Ross et al., 2008). How much subsyndromal depression is due to PTSD symptoms is not clear.

We undertook an exploratory, secondary analysis of a subgroup of data from the study "Prevention of Depression in Older African Americans," which randomized 247 individuals with subsyndromal depression to a preventive intervention consisting of Problem Solving Therapy-Primary Care and to an attention only intervention providing education in healthy nutritional practices (DIET). Since the trial was intended to be an indicated depression prevention intervention, we recruited individuals having subsyndromal depression.

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Our operational definition of subsyndromal depression was defined as a score of 11 or greater on the Centers for Epidemiologic Studies -Depression (CES-D) scale, a scale which assesses emotional distress (Radloff, 1977; Reynolds et al., 2014). The CES-D scale has been used to screen for depressed individuals in other studies (Bruce et al., 2004). Both PST-PC and DIET encouraged and reinforced active coping to tackle a problem (in the case of DIET, a health issue). Dietary education was chosen since it was 1) a culturally acceptable active control condition that facilitates enrollment and retention of participants; 2) more than a face to face contact, it is an active intervention in its own right, coaching people to address the challenges of implementing healthy dietary practices (an active coping component); 3) had no issues of safety, stigma, or financial burden; and 4) many individuals reporting high levels of life stress also reported being overweight or obese.

We focused on the subgroup of individuals with symptoms of emotional distress and a history of psychologic trauma. The trial is described in Sriwattanakomen et al. (2008, 2010), Kasckow et al. (2010, 2012, 2013) and Reynolds et al., 2014. The individuals with a history of psychologic trauma ($n=60$) were a subset of the total sample of individuals with subsyndromal depression ($n=247$). As a treatment, Problem Solving Therapy focuses on improving problem solving skills and depressive symptoms. The ability of depressed older individuals to use important components of Problem Solving Therapy (such as setting goals, generating alternative solutions, decision making and solution implementation) is what accounts for improvements in depression in older individuals (Alexopoulos et al., 2003).

Depressive symptoms are negatively associated with problem solving skills (Kasckow et al., 2010) and individuals with symptoms of PTSD also have deficient problem solving skills (Nezu and Carneville, 1987; Sutherland and Bryant, 2008). Furthermore, higher PTSD scores are known to predict poorer problem solving skills in subsyndromally depressed individuals (Kasckow et al., 2012), which suggests that Problem Solving Therapy may be an appropriate treatment or preventive intervention for this population.

Furthermore, we focused the parent trial: "Prevention of Depression in Older African Americans" on recruiting disadvantaged participants, many of whom inhabit neighborhoods perceived to be dangerous. Because PST-PC teaches the practice of active coping and confronting difficulties in one's life, we thought it would benefit participants not only with respect to protecting them from depression but also in respect to navigating the challenges of living in disadvantaged, low-resource neighborhoods. PST-PC teaches people to see the connection between active coping/problem solving/learning from problems and feeling better. This is important from a public health perspective since effective interventions are needed to reduce rates of new onset anxiety disorders in individuals with subsyndromal depressive symptoms. Thus, we hypothesized that in those individuals presenting with emotional distress and a history of traumatic exposure, Problem Solving Therapy would lead to a greater improvement in PTSD symptoms than in those receiving dietary education (DIET).

2. Methods

All participants were subjects in an NIH- sponsored trial to determine the ability of Problem Solving Therapy in Primary Care vs a dietary education control to prevent or delay episodes of major depression in individuals with subsyndromal depression, as described previously (Sriwattanakomen et al., 2008, 2010; Kasckow et al., 2010, 2012, 2013; Reynolds et al., 2014). "Prevention of Depression in Older African Americans," aimed to explore whether race could moderate Problem Solving Therapy's hypothesized depression preventive efficacy. The analysis presented here used intervention data acquired during the period 3/2007 until 8/2012.

Individuals were recruited at community and primary care clinics in the Pittsburgh metropolitan area. If interested individuals contacted a research team member, they would then be screened with the Centers for Epidemiological Studies–Depression scale (CES-D scale; Radloff, 1977) under the authority of a University of Pittsburgh IRB approved 'Waiver of Informed Consent' and 'Waiver of Documentation of Informed Consent'. Participants $\geq$50 years of age with $\geq$11 scores on the CES-D scale were then asked to come in to consider signing informed consent. The age to enter was 50 or greater on the advice of our Community Advisory Board in the Graduate School of Public Health. These colleagues advised that since we were oversampling African Americans, enrolling somewhat younger participants would facilitate intake of those of greater medical comorbidity still in their 50's. There were 247 individuals who were randomized in the parent trial.

We assessed whether individuals had experienced a traumatic event sometime in their lifetime. This was obtained during administration of the Structured Clinical Interview for DSM-IV Axis 1 disorders (SCID; American Psychiatric Association, 2000). A traumatic event was defined as exposure to 1) actual or threatened death or serious injury, 2) a threat to one's physical integrity; 3) witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or 4) learning about an unexpected or violent death, serious harm, threat of death or injury experienced by a family member or other close associate. The diagnosis of PTSD depends on the presence of intense fear, helplessness, or horror in response to the event (American Psychiatric Association, 2000). Any individual who met criteria for exposure to a significant psychological traumatic event sometime in their life were included in this secondary analysis.

Demographic information was collected and included age, gender, self-reported race, employment status and marital status. Clinical assessments included the civilian version of the PTSD Checklist (PCL-C; Weathers et al., 1993), the Social Problem Solving Inventory (SPSI; D'Zurilla and Nezu, 1990), the 17 item Hamilton Rating Scale (HSRD; Hamilton, 1960), the Cumulative Illness Rating Scale – Geriatrics (Miller et al., 1992), the anxiety subscale of the Brief Symptom Inventory (Derogatis and Melisaratos, 1983), health-related quality of life (SF 12; Ware, 1997) and social and physical functioning (Late Life Function and Disability Instrument, LL-FDI; Sayers et al., 2004).

2.1. Interventions

The experimental group received manualized problem solving therapy for primary care (PST-PC; Areán et al., 1999). The first session lasted an hour and each subsequent session lasted 30 min each. Participants in the DIET group received coaching in healthy eating practices. Using a manualized educational intervention, interventionists reviewed general nutrition guidelines, including the US Department of Agriculture Food Pyramid, helped with preparing weekly menus and grocery lists, saving food coupons, and reviewed food intake since last visit. The topics discussed included access to healthy food, cost of food, meal preparation, culturally specific and acceptable foods, and specific topics raised by participants.

PST-PC and DIET had similar numbers of sessions (6–8 sessions each) and semi-annual boosters (30–45 min at 3, 9, and 15 months). Both interventions included homework assignments, monitoring of adherence, and both focused on concerns identified by each participant. Both interventionists were provided by staff trained at the NIMH-sponsored Advanced Center for Late Life Depression Prevention and Treatment at University of Pittsburgh School of Medicine and Graduate School of Public Health. Interventionists were 6 non-Latino White social workers and mental health nurses. The same interventionists delivered both PST-PC and DIET, in order to avoid confounding intervention with clinician effects. The protocol was overseen by a Data Safety Monitoring Board and reviewed and approved annually by the University of Pittsburgh's Institutional Review Board.

2.2. Statistical analysis

Prior to all analyses, we examined data for normality and used transformations where necessary. Our analysis was based on an intent to treat approach and utilized hierarchical linear models. Comparisons were made according to the assigned intervention group regardless of study completion. Descriptive statistics were generated (means, standard deviations and %, n) to characterize demographics and baseline clinical characteristics of subjects randomized to PST-PC and DIET. Differences between the 2 intervention groups were tested using t tests or Wilcoxon exact tests for continuous measures and chi-square or Fisher exact tests for categorical variables.

We tested for group, time and group by time differences by employing a mixed models approach. This was accomplished with the SAS PROC MIXED procedure which uses all available data regardless of the number of follow-up assessments available. Models first considered a quadratic effect to test for nonlinear trajectories. When the quadratic component was not significant, we moved to a linear model. A best fit model was determined comparing Bayesian information criterion (BIC) values between models. Time was treated as continuous with actual visit date used to model time. Variables that differed between the 2 intervention groups at baseline or had other clinical relevance were considered as possible covariates in the mixed models. We examined PCL-C scores as main outcome and SPSI, BDI and BSI anxiety scores as secondary outcome measures. Statistical analyses were conducted using SAS version 9.3 statistical software (SAS Institute, INC, Cary, North Carolina).