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Research paper

Mental health and behavioral weight loss: 24-month outcomes in Veterans

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ABSTRACT

Background: Individuals with mental health (MH) disorders have an increased risk of being overweight/obese; however research on behavioral weight loss interventions has been limited. A priori hypothesis was that Veterans with serious mental illness (SMI) and/or affective disorders (AD) would lose significantly less weight and have a different pattern of weight loss than Veterans without these diagnoses.

Methods: Secondary data analysis of ASPIRE-VA study, three-arm randomized, effectiveness weight loss trial among Veterans (n=409) categorized by MH diagnoses: 1) SMI, 2) AD without SMI, or 3) No SMI/No AD. Linear mixed-effects model analyzed weight changes from baseline thru 24 months.

Results: SMI and AD were diagnosed in 10% (n=41) and 31% (n=125). Participants attended approximately 15 sessions from baseline to 24 months. On average, participants lost a modest amount of weight over 24 months regardless of MH diagnosis. Longitudinally, no statistically significant differences were found in weight loss patterns by MH diagnosis. Unadjusted average weight loss (kg) was 1.6 ± 4.0 at 3 months (n=373), 1.9 ± 6.5 at 12 months (n=361), 1.5 ± 7.8 at 18 months (n=289), and 1.4 ± 8.0 at 24 months (n=279).

Limitations: ASPIRE-VA study was not designed or powered to detect weight loss differences among MH diagnostic groups.

Conclusions: Veterans achieved and maintained modest weight loss, through 24 months, with the three behavioral weight loss interventions. Contrary to our hypotheses, the amount and pattern of weight loss did not differ by MH diagnosis. Greater inclusion of individuals with MH diagnoses may be warranted in behavioral weight loss interventions not specifically tailored for them.

1. Introduction

Although individuals with mental health (MH) disorders have an increased risk of being overweight or obese compared to the general population (Allison et al., 2009; Bly et al., 2014; De Hert et al., 2009; Fagiolini et al., 2005; Faulkner et al., 2007; Newcomer and Hennekens, 2007; Scott et al., 2008; Simon et al., 2006; Trief et al., 2014; Wildes et al., 2006), research on behavioral weight loss interventions has been extremely limited in this population (Bartels et al., 2013; Daumit et al., 2013; Faulkner et al., 2007; Frank et al., 2014). Individuals with MH disorders represent a wide spectrum of diagnoses that differ considerably with respect to symptomology, treatments, and cognitive and functional impairments. This diversity may influence the amount, rate, and pattern of weight loss in individuals diagnosed with specific MH disorders such as schizophrenia, schizoaffective disorders, bipolar disorders, depression and/or anxiety.

To date, weight loss studies with patients with MH diagnoses have been limited and conflicting. With regard to depression, secondary analyses have reported mixed findings regarding the influence of depression on behavioral weight loss. Some studies have reported significantly less weight loss among individuals with depression or depressive symptomology (Littman et al., 2015; Trief et al., 2014),

Abbreviations: MH, Mental health; SMI, Severe mental illness; VHA, Veterans Health Administration; BMI, Body mass index; AD, Affective disorder; MHD, Mental health disorders; SUD, Substance use disorder; PTSD, Post-traumatic stress disorder; DD, Depressive disorders

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while other studies have not (Wing et al., 2004). Interestingly, improvement in depressive symptomatology has been associated with greater weight loss (Busch et al., 2013; Elder et al., 2012; Ludman et al., 2010). To the best of our knowledge, the influence of generalized anxiety disorders on behavior weight loss interventions has yet to be studied or reported. Perhaps most concerning is that individuals with SMI (serious mental illness: schizophrenia, schizoaffective disorder, and bipolar disorders) have historically and systematically been excluded from randomized clinical trials conducted in the general population. However, recognizing the elevated risk of obesity and associated medical comorbidities in this population, a number of weight loss interventions have been adapted for individuals with SMI (Bartels et al., 2013; Bonfioli et al., 2012; Brar et al., 2005; Cabassa et al., 2010; Daumit et al., 2013; Frank et al., 2014). Consistently, this small but growing body of research has reported that behavioral treatments tailored for SMI populations were welcomed and well received, but average weight loss was less than the recommended 7–10% (Alvarez-Jimenez et al., 2010; Bonfioli et al., 2012; Brar et al., 2005; Cabassa et al., 2010; Daumit et al., 2011, 2013; Frank et al., 2014; Ludman et al., 2010; Trief et al., 2014; Verhaeghe et al., 2011). However, little is known about how individuals with SMI would fare with weight loss programs not specifically tailored for individuals with MH diagnoses, and how outcomes would compare to outcomes for individuals without SMI (Allison et al., 2009; Appel et al., 2011; Ball et al., 2001; Bartels et al., 2013; Bennett et al., 2012; Frank et al., 2014; Kalarchian et al., 2005; Menza et al., 2004; Verhaeghe et al., 2011).

A group disproportionally affected by both increased rates of obesity and MH diagnoses are U.S. Veterans. With over 80% of Veterans overweight or obese (Koepsell et al., 2009), compounded by rates of MH diagnoses in over 25% (Trivedi et al., 2015); there is a paucity of studies among this population. Clearly understanding how we can best help them lose weight with or without MH diagnoses is critically important. One study of administrative data showed that Veterans with SMI were just as likely to lose weight, if not more weight, across... 12 months in VHA's evidence-based MOVE! weight management program. However, engagement was low, with over 40% of Veterans engaging in only one session across the year, limiting any clear conclusions about the role of MH in weight loss success.

The purpose of the present study was to determine whether MH diagnoses predicted the effectiveness of weight loss interventions among Veterans who were overweight/obese and referred for weight management services in the Veterans Health Administration (VHA). In a randomized clinical trial (ASPIRE-VA), 481 Veterans enrolled and participated in one of three weight management programs. Given significant, but equal, weight losses between all 3 randomized groups at 24-months (Lutes et al., 2017), we were interested in examining the impact of MH diagnoses on weight outcomes across time. We hypothesized a priori that Veterans with MH diagnoses would lose significantly less weight and have a different weight loss pattern than Veterans without MH diagnoses. Specifically, weight gaining psychotropic medications, depressive symptoms and mood disturbances (Trief et al., 2014; Elder et al., 2012), sleep disturbances (Janney et al., 2016), poorer health status (Cabassa et al., 2010) and sedentary lifestyle (Janney et al., 2015, 2014) may deter weight loss and/or change the weight loss pattern over time in Veterans with MH diagnosis compared to those without MH diagnosis. Clinical data available through VHA electronic health records linked with the ASPIRE-VA study-collected assessment data (Damschroder et al., 2014; Lutes et al., 2013) provided a unique opportunity to test these hypotheses.

2. Methods

This study was a secondary data analyses comparing weight loss by MH diagnosis among overweight/obese Veterans. Data was obtained from the ASPIRE-VA randomized clinical effectiveness trial (Damschroder et al., 2014; Lutes et al., 2013) that enrolled 481 Veterans. The trial was designed to evaluate the effectiveness of a small changes weight loss intervention (ASPIRE-VA) delivered via phone or in-person groups compared to the VHA's usual care national weight management program (MOVE!®). All participants received patient manuals with session content and were encouraged to self monitor by logging dietary intake using the Stoplight Guide, (Epstein et al., 2008; Janicke et al., 2008) adapted for Veterans (Damschroder et al., 2010). For nutritional monitoring, we modified the Veteran's stoplight food recording system (originally developed by Dr. Len Epstein for children) by adjusting the children's food intake to adult's food intake. This simplified logging tool categorized foods as Red (high-calorie foods with relatively low nutritional value); Yellow (high-calorie foods with relatively high nutritional value); or Green (low-calorie foods with relatively high nutritional value).

Participants were recruited from two Midwestern VA medical centers and were randomized into one of three treatment arms, stratified by site and baseline body mass index (BMI): 1) the ASPIRE weight loss program delivered individually over the phone (ASPIRE-Phone); 2) the ASPIRE weight loss program delivered via in-person group sessions (ASPIRE-Group); or 3) MOVE!, the VHA's national weight management program as delivered at these two sites from 2010 to 2013. Institutional Review Board approval was obtained at both sites.

ASPIRE-VA lifestyle coaches worked with the participants to set small, self-selected goals to create an energy deficit as small as 200–300 kcal/day that may be sufficient to promote weight loss and maintenance over time (Lutes et al., 2013). ASPIRE-Phone participants had individual sessions with a coach and ASPIRE-Group participants were assigned to a closed group (individuals were not able to join the group after it started). A total of 28 ASPIRE phone or group sessions were planned for the first 12 months (12 weekly sessions then 13 bi-weekly visits and then 3 monthly visits). A second year was added to the trial after the study was started and written informed consent was obtained to examine the long-term impact of minimal follow-up support for continued weight loss, consisting of an additional six bi-monthly visits. ASPIRE-VA participants were provided with a manual, a pedometer to track walking steps, and a self-monitoring log for recording dietary intake using a modified stoplight system and total daily step counts each day.

The usual care MOVE! program (Kahwati et al., 2011; Kinsinger et al., 2009; VHA National Center for Health Promotion & Disease Prevention), was evidence-based following clinical practice guidelines for obesity treatment disseminated by the VHA in 2006. Despite the national guidelines, there was substantial variation in how MOVE! was delivered across VHA sites. At the two study sites, MOVE! utilized an open-group format (i.e., participants could join the group at any time). MOVE! participants were provided with informational handouts on health behavior change topics each week and sessions were led by a multi-disciplinary team of clinicians (e.g. health psychologists, dietitians). A total of 22–35 MOVE! sessions (length varied by site) were offered for the first 12 months (11–12 weekly sessions followed by ad hoc and monthly maintenance sessions). In the second year, bi-weekly or monthly (depending on site) drop-in groups were offered.

2.1. Participants and procedures

Eligible Veterans were primary care patients or self-referred to MOVE! and had a BMI > =30 kg/m^2 or between 25 and 30 kg/m^2 plus at least one obesity-related health condition (e.g., type 2 diabetes). Other inclusion criteria included an ability to communicate in English and ability to provide informed consent, and reliable access to a telephone. Exclusion criteria were: current enrollment in another weight loss, nutrition, or physical activity study; current involvement in another weight loss treatment or medication; inability to complete a six-minute walking test; or pregnancy. Notably, no MH diagnoses or severity of symptoms were used as exclusion criteria for the present study. Enrollment began January