Correlates of weight-related quality of life among individuals with binge eating disorder before and after cognitive behavioral therapy ☆

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ABSTRACT

Individuals with obesity and binge eating disorder (BED) report poorer weight-related quality of life (WRQOL) compared to individuals with obesity alone. Cognitive behavioral therapy (CBT), the best available treatment for BED, does not consistently produce weight loss or improvements in weight QOL. The purpose of the current study was to examine baseline and longitudinal associations between eating-related and psychosocial variables and dimensions of weight QOL. We examined associations between predictor variables, including body mass index (BMI), eating disorder (ED) psychopathology, and psychosocial factors, in relation to three dimensions of WRQOL among 171 patients whom received CBT for BED. Participants completed interviews and self-report measures at baseline prior to CBT and at end of treatment. At baseline the following associations were significant: BMI, ED psychopathology, and self-esteem were associated with weight-related self-esteem; gender, BMI, and self-esteem were associated with weight-related public distress (i.e., stigma and worry in public because of one's weight); and age, BMI, and ED psychopathology were associated with weight-related physical function. At end of treatment, the following associations were significant: changes in ED psychopathology and coping predicted weight-related self-esteem; changes in coping and self-esteem predicted weight-related public distress; and changes in BMI and subjective binge eating predicted weight-related physical function. Overall, changes in a number of ED and associated symptoms were associated with improvements in WRQOL.

Binge eating disorder (BED), the most prevalent eating disorder (ED), is strongly associated with severe obesity (Hudson, Hiripi, Pope, & Kessler, 2007). The prevalence of BED among individuals with obesity seeking weight-loss treatment ranges from 1.3% to 30.1% (Dingemans, Bruna, & Van Furth, 2002; Kalarchian et al., 2007). Both obesity and BED are associated with substantially decreased health-related quality of life (QOL) (Andersen, Karlsen, & Kolotkin, 2014; Hassan, Joshi, Madhavan, & Amonkar, 2003; Masheb & Grilo, 2004). For example, individuals with obesity, regardless of BED status, report poorer physical health-related QOL compared to U.S. norms (de Zwaan et al., 2002). However, those with obesity only reported lower mental health-related QOL if they had co-occurring BED. Furthermore, individuals with both obesity and BED report the lowest physical and mental health-related QOL in comparison to individuals with only obesity, only BED, or neither obesity nor BED. In general, obesity is more strongly associated with impaired physical health-related QOL, whereas BED is more strongly associated with impaired mental health-related QOL (Perez & Warren, 2012).

Weight-related QOL (WRQOL) involves the impact of one's weight or size on several domains including physical function, self-esteem, sexual life, public distress (i.e., stigma and worry in public because of one's weight), and work (Kolotkin, Crosby, Kosloski, & Williams, 2001). Individuals with BED and obesity report poorer WRQOL than individuals with obesity and no BED (de Zwaan et al., 2002; Kolotkin et al., 2004; Rieger, Wilfley, Stein, Marino, & Crow, 2005). A study of individuals with BED and obesity reported poorer scores in WRQOL domains, except physical function, as well as total WRQOL compared to individuals with only obesity (Rieger et al., 2005). Therefore, evidence suggests that having comorbid BED and obesity is associated with greater QOL impairment than having obesity alone, which may be due, in part, to the fact that individuals with BED typically present with high rates of psychiatric disorders (e.g., mood and anxiety disorders), somatic symptoms, and body image concerns (Grilo, White, & Masheb, 2009; Hrabosky, Masheb, White, & Grilo, 2007; Hudson et al., 2007; Thornton et al., 2017).

Weight loss has been found to be effective for improving WRQOL among individuals with obesity without co-existing EDs (Astrup et al., 2008; Kaukua, Pekkarinen, Sane, & Mustajoki, 2002; Kolotkin, Chen, Klassen, Gilder, & Greenway, 2015; Kolotkin, Crosby, Williams, Hartley, & Nicol, 2001; Kolotkin, Gadde, Peterson, & Crosby, 2016). Achieving weight loss in individuals with BED has been difficult (Blaine & Rodman, 2007) although certain psychological treatments have been shown to reduce binge eating and associated ED psychopathology (Grilo, 2017; Iacovino, Gredysa, Altman, & Wilfley, 2012; Wilson, Grilo, & Vitousek, 2007). Cognitive behavioral therapy (CBT), the best-established psychotherapeutic treatment for BED (Iacovino et al., 2012), generally produces robust reductions in binge eating but does not result in weight loss (Grilo, Masheb, & Wilson, 2005; Grilo, Masheb, Wilson, Gueorguieva, & White, 2011; Peterson, Mitchell, Crow, Crosby, & Wonderlich, 2009). Little is known regarding treatment effects on WRQOL in BED. One randomized clinical trial examining CBT for BED found that individuals who received CBT did not report significantly different WRQOL at end of treatment (EOT) compared to a wait list control group (Peterson et al., 2009). However, CBT has been shown to lead to improvement in a variety of psychological and behavioral symptoms including cognitive and behavioral ED symptoms, mood, self-esteem, and coping (Grilo et al., 2005; Peterson et al., 2009). Improvement in these symptoms may be associated with improved WRQOL independent of weight, by improving self-image, weight and shape concerns, mood, and binge eating.

The ways in which changes in weight, ED psychopathology, and psychosocial factors are associated with WRQOL during and after treatment are also poorly understood. In individuals with both obesity and BED, small-to-moderate correlations between body mass index (BMI) and all WRQOL domains have been found, but only correlations between BMI and public distress and physical function reached statistical significance (Rieger et al., 2005). In a sample of patients with obesity (17% of which had co-occurring BED) evaluated for bariatric surgery, greater eating psychopathology was associated with lower scores on all dimensions of WRQOL (de Zwaan et al., 2002). Dimensions of WRQOL are also associated with more depressive symptoms, psychological problem severity, and lower self-esteem (Kolotkin & Crosby, 2002; Kolotkin et al., 2004). However, most research has only examined baseline correlates of WRQOL or changes in WRQOL after obesity treatment. One prospective naturalistic study of bariatric surgery patients found that improvements in depressive symptoms were significantly related to improvements in QOL (Masheb et al., 2007). Also, in a clinical trial for obesity management, changes in depressive symptoms were significant mediators of improved WRQOL (Kolotkin et al., 2016).

The extant research shows that psychosocial variables are related to WRQOL and changes in psychosocial variables after obesity treatment are related to improved WRQOL. However, there is a paucity of research examining correlates of WRQOL in BED after CBT for BED. The

purpose of this study was to examine associations among BMI, BED symptoms, and psychosocial variables in relation to WRQOL in adults with BED. We also sought to examine how changes in BMI, BED symptoms, and psychosocial factors are associated with changes in WRQOL at EOT. We hypothesized that: (1) more severe obesity and BED symptoms (i.e., higher objective binge eating, subjective binge eating, and global ED psychopathology) would be associated with lower WRQOL scores at baseline; (2) treatment-related changes in BMI and BED symptoms would be related to greater change in WRQOL scores at EOT; (3) psychosocial factors (i.e., more depressive symptoms, lower self-esteem, and poorer coping skills) at baseline and changes at EOT would be associated with lower WRQOL scores at baseline and more changes in WRQOL at EOT.

1. Method

1.1. Participants and procedure

Data were derived from a randomized clinical trial that evaluated the efficacy of CBT for BED. Participants ($n = 259$) were randomized to one of three active treatment groups (therapist-led, therapist-assisted, or self-help) or a wait list control (Peterson et al., 2009). Eligibility required meeting full criteria for *DSM-IV* BED and having a BMI ≥ 25 kg/m^2. Participants completed measures at baseline, midpoint assessment, and EOT (20 weeks). Details regarding the study have been described previously (Peterson et al., 2009). This study was reviewed and approved by Institutional Review Boards at each site.

Because we were interested in examining associations among predictors and QOL after CBT for BED, data for the wait list control group was not used in the current analyses ($n = 69$). For both baseline and longitudinal analyses, the final analytic sample was 171 after exclusion of 19 individuals who did not complete the primary outcome variable (Impact of Weight on Quality of Life-Lite [IWQOL-Lite]). The final sample consisted of 158 (92.4%) women and 13 men (7.6%), with mean age = 47.14 (SD = 10.20; Range = 21–65). The majority were White (96.5%). Slightly more than half of participants had a bachelor's degree or higher. The mean BMI at baseline was 39.47 kg/m^2 (SD = 8.41) and the mean BMI at EOT was 39.61 kg/m^2 (SD = 8.65).

1.2. Measures

1.2.1. IWQOL-Lite (Kolotkin et al., 2001)

The IWQOL-Lite measures five dimensions of QOL related to one's weight. In order to minimize statistical tests, we used three subscales in the current study related to psychological and physical function: self-esteem, public distress, and physical function; the work and sexual life subscales were not used. The 7-item self-esteem subscale assesses self-esteem in relation to one's weight (e.g., "Because of my weight, I don't like myself"). The 5-item public distress subscale measures stigma and worry in public because of one's weight (e.g., "Because of my weight, I experience ridicule, teasing, or unwanted attention"). The 11-item physical function subscale assesses day-to-day physical function/mobility (e.g., "Because of my weight, I have difficulty getting up from chairs"). Scores range from 0 to 100, with higher scores indicating better WRQOL on all subscales. Thus, similar to other subscales, higher scores on public distress indicate better WRQOL: specifically, *less* worry and stigma when out in public, despite the name of this subscale. The IWQOL-Lite demonstrates adequate psychometric properties among individuals with obesity (Kolotkin et al., 2001). Cronbach's alphas were 0.93, 0.91, and 0.91 for physical function, self-esteem, and public distress, respectively, at baseline and 0.93, 0.93, and 0.92 for physical function, self-esteem, and public distress, respectively, at EOT.

1.2.2. BMI

Anthropometric measurements of height and weight were collected. BMI was calculated using the standard formula for BMI (Keys, Fidanza,