

A TEST OF THE COMPENSATION AND CAPITALIZATION MODELS IN GROUP INTERPERSONAL
PSYCHOTHERAPY FOR ADOLESCENT GIRLS
AT RISK FOR OBESITY

By

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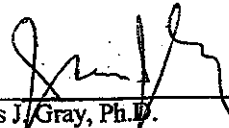
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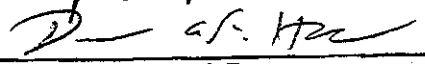
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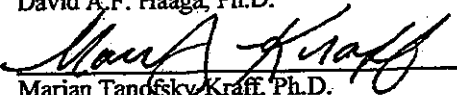
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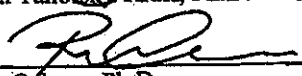
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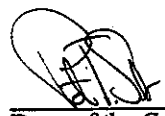
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DEDICATION

I dedicate this dissertation to my family, especially . . . to my parents for instilling within me the value of hard work, integrity, and service to others; to my husband, for his unwavering support, patience, and love; and to my children - may they find the courage, determination, and passion to follow their dreams.

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ABSTRACT

The current study investigated how preexisting social functioning, specifically understanding of and use of social skills and degree and frequency of social stressors, influenced treatment outcome in a sample of adolescent girls at risk of overweight participating in a randomized trial of group Interpersonal Psychotherapy (IPT-WG). The applicability of compensation and capitalization models was evaluated.

Thirty-eight adolescent girls randomized to a 12-week IPT-WG or a standard-of-care health education program participated in the current study. Prior to the start of the group, during the group, at the end of the 12-week group program, and again 6 months and 1 year after the start of treatment, all participants were administered physical assessments, as well as measures of social functioning and eating pathology.

Statistical analyses revealed preliminary support for a compensation model at work within IPT-WG. Significant positive correlations were found between several measures of social functioning and outcome variables, suggesting that those with poorer social functioning scores at baseline tended to have better outcomes.

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CHAPTER 1

INTRODUCTION

Adolescent Overweight: Definitions and Prevalence

In the United States, there has been an overwhelming increase in pediatric overweight over the last several decades (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010; Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006). Prevalence rates of obesity in 6 to 19 year-olds has tripled since 1980 (Ogden, Flegal, Carroll, & Johnson, 2002). According to the National Health and Nutrition Examination study (NHANES), 2007-2008, a large-scale study conducted by the Centers for Disease Control (CDC) that included a nationally representative sample of 3,281 children and adolescents, 18.7 percent of US children and adolescents ages 6-19 years old had body mass indexes (BMI) in the obese range, specifically at or above the 95th percentile of weight for height. Percentages of obese children among some minority groups were even higher (e.g., Hispanic children: 23.2 percent; non-Hispanic black children: 22.3 percent). Although these prevalence rates remain high, the recent NHANES study found that prevalence rates may have stabilized, in other words, the steady increase noted previously may have reached a plateau. Specifically, there were no statistically significant trends found in high weight for length or high BMI over the time periods between 1999-2000 and 2007-2008 across all groups, except among the boys 6-19 years-old at the highest cut point, BMI > 97th percentile (Ogden et al., 2010). From the NHANES data collected from 1963 to

1994, the CDC growth charts for children and adolescents ages 6 through 19 years were created (Ogden et al., 2006; Ogden, Fryar, Carroll, & Flegal, 2004). Data for the BMI for age charts were collected between 1971 and 1994 for children 2 to 6 years of age and between 1963 and 1980 for children 6 through 19 years. While the first growth curves used to define overweight were developed in 1977 based on this dataset, in 1994, the guidelines and cut points for childhood overweight were redefined by a U.S. Department of Health and Human Services expert committee (Hardy, Harrell, & Bell, 2004; Himes & Dietz, 1994) to increase generalizability to a broader population of children in the United States.

The definitions of overweight and at-risk for overweight used in the NHANES study were based on the definitions used at the time by the CDC (Centers for Disease Control and Prevention, 2000) as part of their sex-specific BMI for age growth charts. The at-risk for overweight category was defined for BMI for age at or above the sex-specific 85th percentile but less than the 95th percentile. Overweight was defined as a BMI for age at or above the sex-specific 95th percentile (Himes & Dietz, 1994; Ogden et al., 2006). In 2007, the Expert Committee on the Assessment, Prevention and Treatment of Childhood Overweight and Obesity recommended use of different terminology (Barlow & the Expert Committee, 2007). These changes were recommended for clinical accuracy, continuity with adult definitions, and clarity for providers and patients. Specifically, the committee suggested that the term obesity should be used when BMI is above the 95th percentile, and the term overweight should be used when BMI is within the 85th to 94th percentiles, replacing the at-risk for overweight category recommended

previously. The CDC has now adopted the definitions recommended by the Expert Committee (CDC, 2009), which were incorporated into this study.

The increase in prevalence of overweight among children and adolescents is concerning given the number of associated negative health and psychological effects. Health risks for youth include increased risk for high blood pressure and cholesterol and Type 2 diabetes, as well as rare but increasingly more common orthopedic, neurological and hormonal complications (Cali & Caprio, 2008; Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007; Must & Strauss, 1999). An additional risk factor associated with childhood overweight is the increased likelihood of becoming obese as an adult (Field et al., 2005; Freedman, Khan, Dietz, Srinivasan, & Berenson, 2001; Guo, Wu, Chumlea, & Roche, 2002; Wang, Chyen, Lee, & Lowry, 2008; Williams, 2001; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997), inasmuch as obesity in adulthood is an independent risk factor for a range of medical complications, including cardiovascular disease, diabetes, certain cancers, and reproductive complications (Li, Bowerman, & Heber, 2005; Must & Strauss, 1999).

Wang, Chyen, Lee, & Lowry (2008) analyzed data from the National Longitudinal Study of Youth 1979 and found that among a sample of 1,309, 16 or 17 year-old adolescents with a BMI > 85th percentile were more likely to be obese at the age of 37 or 38 years (odds ratio=7 for males, 11 for females). Among adolescents > 95th percentile, the likelihood of becoming obese was even higher (odds ratio = 18 for males, 49 for females). Specifically, among adolescents with a BMI in the 85th-<95th percentile, 62% of the males and 73% of the females became obese adults. Among those with a BMI ≥95th percentile, 80% of the males and 92% of the females became obese adults. The

likelihood of becoming obese adults not only increases with degree of obesity but also with age (Field et al., 2005; Guo, Wu, Chumlea, & Roche, 2002). In fact, Field et al. found that even being in the high normal range for weight status as a child (above the 50th percentile) increased the risk of becoming overweight as an adult. Research also suggests that children and adolescents who are overweight are at greater long-term risk of adult morbidity and mortality, even when controlling for adult weight status (Cali & Caprio, 2008; Must & Strauss, 1999; Gunnell, Frankel, Nanchahal, & Smith, 1998). Research suggests that overweight children experience more social stigmatization and isolation (Strauss & Pollack, 2003) and increased risk of psychological problems, including depression (Csabi, Tenyi, & Moinar, 2000), behavior problems, and lower body-esteem (Stradmeijer, Bosch, Koops, & Seidell, 2000). In addition, Tanofsky-Kraff et al. (2004) found that non-treatment seeking overweight children (ages 6 to 13) were more likely to experience eating-disordered cognitions in domains of restraint, weight concern, shape concern, and eating concern, and to report more subjective and objective binge episodes than normal weight children.

Adolescent Overweight: Correlates and Predictors

Given the well-documented increase in childhood and adolescent overweight, as well as the associated adverse health and psychological consequences, it is particularly important to examine the predictors of overweight and obesity. Risk factors implicated thus far include parental size (Whitaker, Wright, Pepe, Seidel, & Dietz, 1997; Williams, 2001), low socioeconomic strata in early life, birth weight, timing or rate of maturation, physical activity, and diet (Parsons, Power, Logan & Summerbell, 1999). A number of

behavioral and psychological risk factors have also been considered (Heinberg & Thompson, 2009). Binge eating, defined as eating in a discrete period of time a large amount of food and feeling a sense of loss of control (LOC) about the eating (DSM-IV TR; APA, 2000), is one such risk factor (Field et al., 2003; Stice, Agras, & Hammer, 1999; Tanofsky-Kraff et al., 2006). Recurrent binge eating is thought to be a predictor of obesity in adults (Fairburn, Cooper, Doll, Norman, & O'Connor, 2000).

Binge eating disorder (BED; DSM-IV TR; APA, 2000) is characterized by recurrent episodes of binge eating, dysfunctional eating behaviors (e.g., eating more rapidly than normal, eating until feeling uncomfortably full, eating alone because of being embarrassed by how much one is eating, etc.), and marked distress about the binge eating. A number of retrospective studies of adults with BED have been conducted and, when taken together, suggest that the onset of binge eating for these samples ranged from 10.6 (Binford, Pederson-Mussell, Peterson, Crow, and Mitchell, 2004) to 16 years (Mussell et al., 1995; Grilo & Masheb, 2000; Marcus, Moulton & Greeno, 1995; Spurrell, Wilfley, Tanofsky & Brownell, 1997). Tanofsky-Kraff, Faden, Yanovski, Wilfley, and Yanovski (2005) queried children 6-13 years in an interview format and found that they reported first experiencing LOC around 8 years old. Tanofsky-Kraff (2008a) suggests that the rise in pediatric obesity may, in part, be explained by a rise in binge eating among children and adolescents.

However, few children meet DSM-IV-TR criteria for BED (Decaluwe & Braet, 2003; Tanofsky-Kraff et al., 2004). This may be a result of difficulty assessing BED and binge eating episodes in ways that are understandable to children (Tanofsky-Kraff, Goosseens, et al., 2007). Research has demonstrated low agreement between child and

parent report of binge eating (Johnson, Grieve, Adams, & Sandy, 1999; Steinberg et al., 2004; Tanofsky-Kraff, Yanovski, & Yanovski, 2005). Specifically, Johnson et al. (1999) compared adolescent and parent responses to a self-report measure and categorized their responses into no diagnosis, nonclinical binge eating, and binge eating disorder groups. They found parents and adolescents' responses agreed regarding diagnostic category as follows: 81.6 percent agreement among the no diagnosis group, 15.5 percent agreement among the nonclinical binge eating group, and 25 percent agreement among the BED group (0.19 overall kappa). Additionally, researchers have consistently found discrepancies between interview and self-report assessment measures, particularly with regard to binge eating and compensatory behaviors (Field, Taylor, Celio, & Colditz, 2004; Decaluwe & Braet, 2004; Tanofsky-Kraff et al., 2003).

It is also possible that the DSM-IV-TR does not accurately represent binge eating behaviors in children. In response, Marcus and Kalarchin (2003) suggested provisional research criteria for DSM-V. They argue that LOC eating may be a more important construct compared to eating an objectively large amount of food as required for a BED diagnosis when assessing binge eating in children. In other words, the experience of LOC eating regardless of the amount of food consumed may be more relevant to conceptualizing binge eating behaviors in children and adolescents. Additionally, when assessing children, experiencing LOC is more relevant than the amount of food consumed because it is hard to determine objectively a large amount of food in growing kids of different ages (Tanofsky-Kraff, Marcus, Yanovski, & Yanovski, 2008). Tanofsky-Kraff, Marcus, Yanovski, & Yanovski (2008) compiled existing empirical data on LOC

eating, revised Marcus and Kalarchian's provisional criteria, and proposed criteria for LOC eating disorder in children.

The experience of LOC, feeling that one cannot stop eating or control what or how much one is eating, encompasses both binge eating episodes where the individual eats an unusually large amount of food, as well as eating episodes that do not involve a large amount. Individuals may experience LOC when eating independent of whether the amount is objectively large. Binge eating was first studied in children based on the adult literature, but research has shown that LOC eating episodes, regardless of the amount of food, is more relevant for describing disordered eating in children (Tanofsky-Kraff, Marcus, Yanovski, & Yanovski, 2008). LOC eating as used in the following study encompasses all experiences of loss of control, regardless of the amount of food consumed.

Supporting the shift in conceptualization, high rates of binge eating in the absence of full-threshold BED, eating either subjectively or objectively large amounts of food and feeling out of control while doing so, have been reported in adolescent community samples (Tanofsky-Kraff et al., 2008; Tanofsky-Kraff et al., 2004; Tzischinsky & Latzer, 2006). Binge eating and/or LOC eating has been associated with lower family connectedness and greater peer acceptance concerns (French et al.), depressive symptoms (Johnson et al., 2002), greater eating disordered cognitions (Glasofer et al., 2006; Tanofsky-Kraff, Goossens, et al., 2007), negative self-esteem related to depressive symptoms, and externalizing behaviors (Tanofsky-Kraff, Faden, Yanovski, Wilfley, & Yanovski, 2005).

LOC eating is more common in overweight youth compared to non-overweight youth (Neumark-Sztainer, Story, Hannan, & Rex, 1997; Tanofsky-Kraff et al., 2004). In fact, binge eating appears to be the most prevalent disordered eating pattern described in overweight youth (Neumark-Sztainer et al, 1997). Recent findings from longitudinal studies have provided additional support for the link between LOC eating and greater adiposity in children and adolescents, previously linked only with cross-sectional research. Longitudinal studies such as that conducted by Tanofsky-Kraff and colleagues (2006), as well as Stice, Agras, et al. (1999) and Field et al. (2003), suggest that binge eating predisposes youth to gain weight or body fat excessively as they grow. Specifically, Tanofsky-Kraff et al. (2006) found that among a sample of 146 children 6-12 years, dieting and binge eating significantly predicted increases in body fat over an average period of 4.2 years. Children who reported binge eating gained on average 15 percent more fat than children with no binge eating. Researchers have also found that children who reported LOC eating gained an additional 2.4 kg over a period of 4.5 ± 1.9 years compared to children without LOC eating (Tanofsky-Kraff et al., 2009). Given the evidence supporting the relationship between LOC eating and excessive weight gain, LOC eating seems like a reasonable intervention point to prevent excessive weight gain in children and adolescents (Tanofsky-Kraff et al., 2007).

Adolescent Overweight: Interventions and Prevention

The American Dietetic Association (ADA) in its 2006 position paper summarized research support for two specific overweight interventions: (1) multi-component, family-based programs for children between 5 and 12 years, and (2) multi-component, school-

based programs for adolescents. They include behavioral counseling, promotion of physical activity, parent training and modeling, dietary counseling, and nutritional education in multi-component programs. Jones et al. (2008) found that an internet-facilitated intervention, which focused on reducing binge eating, maintaining weight, increasing healthy eating and physical activity, and reducing sedentary activities, was moderately effective in short-term weight loss and weight maintenance and reduced binge eating. Epstein et al. (1995) found that participation in their weight loss and maintenance program led to significant, long-term reduction in weight, suggesting that loss of weight as a child or adolescent may decrease risk for adult obesity.

Wilfley et al. (2007) found in their meta-analysis of 14 randomized control trials comparing pediatric lifestyle interventions to no-treatment or education-only control groups that the lifestyle interventions were relatively more efficacious in the short-term. This suggests that such interventions may effectively lead to weight loss or maintenance among overweight children and adolescents, at least when compared to the average individual not receiving treatment. However, Wilfley et al. emphasize that more research needs to be done to better understand what produces long-lasting treatment effects. Given this need, as well as the mixed and limited results among weight loss treatment outcomes (Epstein, Valoski, Wing, & McCurley, 1994; Epstein, Valoski, Kalarchian, & McCurley, 1995; Jelalian & Saelens, 1999; Braet, et al., 2004), the ADA and others have suggested that pursuing prevention efforts is necessary to reduce the current rates of obesity (Styne, 2003; American Dietetic Association, 2006).

However, prevention studies to date have also met limited success (Gortmaker et al., 1999; Robinson et al., 2003; Neumark-Sztainer et al., 2003; Stice, Shaw, & Marti,

2006). For instance, Planet Health (Gortmaker et al., 1999), a school-based program that took place over 2 years in 5 schools (5 control schools were also included), focused on decreasing television viewing, decreasing consumption of high-fat foods, increasing vegetable and fruit intake and physical activity. The prevalence of obesity among girls in the intervention schools was reduced at the end of the study; however no difference was found among boys. In addition, baseline eating behaviors and eating-related pathology were not assessed. Stice, Shaw, & Marti reviewed obesity prevention programs and found that 79% did not produce statistically reliable weight gain prevention effects (average intervention effect size: $r = .04$). They found that programs that yielded larger effects tended to target children and adolescents and females, were relatively brief and intense, solely targeted weight control versus other health behaviors, were part of pilot trials, and involved participants who self-selected.

Some programs examined disordered-eating behaviors more directly. The Planet Health obesity program was found to reduce risk of self-induced vomiting and use of laxatives or diet pills to control weight. Specifically, girls in the intervention schools were less than half as likely to engage in these disordered weight-control behaviors (Austin, Field, Wiecha, Peterson, & Gortmaker, 2005). Stice, Shaw, Burton, & Wade (2006) examined two interventions, one aimed at reducing thin-ideal internalization, a dissonance-focused program, and one a healthy weight management program. The first of these programs significantly reduced risk for eating pathology onset and the second reduced risk for obesity onset in adolescent girls relative to assessment-only controls over the course of their 3-year follow-up. Stice, Presnell, Gau & Shaw (2007) found that their dissonance-focused prevention program reduced body dissatisfaction, dieting, negative

affect, and bulimic symptoms among a large sample of adolescent girls. Additionally, they found that thin-ideal internalization significantly mediated these findings. Although prevention programs have typically targeted behaviors associated with overweight or children who are already overweight, Stice et al.'s work suggest that prospectively identified risk factors, in their studies, thin-ideal internalization, may enhance prevention research. Since LOC eating has been found to predict excessive weight gain (Tanofsky-Kraff et al., 2009), LOC eating is another such prospectively identifiable risk factor that could be targeted to prevent excessive weight gain in children and adolescents (Tanofsky-Kraff et al., 2007).

Interpersonal Psychotherapy for the Prevention of Inappropriate Weight Gain (IPT-WG): Theory, Background, and Description

Interpersonal psychotherapy (IPT) stems from the work of interpersonal theorists such as Meyer (1957) and Sullivan (1953) who emphasized the idea that mental illness occurs in the context of interpersonal relationships. The development of IPT was also influenced by attachment theory (Bowlby, 1982) and its focus on early attachment as an influencing factor for the later development of interpersonal relationships. IPT was originally developed for the treatment of depression (Klerman, Weissman, Rounsaville, & Chevron, 1984; Weissman, Markowitz, & Klerman, 2000) and focuses on improving interpersonal functioning with the intention of decreasing depressed mood. The efficacy of IPT for depressed adults has been well demonstrated (Elkin et al., 1989; Klerman et al., 1974; Weissman et al., 1979).

IPT conceptualizes depression as having three component processes: symptom function, social and interpersonal relations, and personality and character problems. IPT

has since been successfully adapted for treatment of a variety of clinical disorders (Frank & Spanier, 1995; Markowitz, 2003; Markowitz, Skodol, & Bleiberg, 2006), but a number of basic concepts are common across all adaptations of IPT. In IPT, therapists and patients focus on the symptom function and social and interpersonal relations by identifying a specific problem area, discussing relevant communication and problem-solving techniques, and practicing these skills both in session and outside of sessions. The problem areas that are used to frame participants' individual goals are: role transitions (e.g., family change, graduation), interpersonal role disputes (e.g., conflicts with significant other), interpersonal deficits (e.g., social isolation, chronic unfulfilling relationships), and grief (e.g., death of a loved one, loss of important part of identity) (Klerman, Weissman, Rounsaville, & Chevron, 1984). IPT treatment is divided into three phases: the initial phase, the middle phase, and the end phase. The initial phase is dedicated to identifying the problem area(s) that will be the target for treatment. The intermediate phase is devoted to working on the target problem area(s). The termination phase is devoted to consolidating gains made during treatment and preparing patients for future work on their own.

IPT was adapted for adolescent depression (IPT-A; Moreau, Mufson, Weissman, & Klerman, 1991). Although similar to IPT for adults in theory, goals, and problem areas, IPT-A includes the following modifications: the concept of a limited sick role, 12-week duration, involvement of parents, use of the telephone, the liaison role between schools and families, and the use of grief problem area for normal grief reactions. Mufson, Weissman, & Moreau (1999) demonstrated empirical support for this application. They compared IPT-A to clinical monitoring in 48 adolescents ages 12-18

years with major depressive disorder. Those in the IPT-A group reported greater improvement of depressive symptoms, overall social functioning, and problem-solving skills.

More recently, IPT for adolescents has been adapted to a prevention program (IPT-AST) for teens at risk for full-syndrome depression (Young & Mufson, 2003; Young & Mufson, 2007). It was designed as a group intervention for adolescents, ages 12-16 years, with subthreshold depression. IPT-AST is an 8-week program that emphasizes psychoeducation and skill development and focuses on interpersonal issues common to teenagers. Preliminary evidence supports the effectiveness and acceptability of IPT-AST (Young, Mufson, & Davies, 2006).

IPT has also been adapted for individuals with bulimia nervosa (Fairburn et al., 1991) and BED (Wilfley, Agras, Telch et al., 1993; Wilfley, Frank, Welch, Spurrell, Rounsaville, 1998). In Fairburn et al.'s original adaptation, the initial four sessions were used to analyze the interpersonal context in which the eating disorder had developed and been maintained instead of depression. Otherwise, Fairburn's adaptation paralleled IPT for depressed adults. More recently, IPT for patients with bulimia nervosa has emphasized focusing on eating disorder symptomology throughout the course of treatment, specifically by linking interpersonal events, negative affect, and eating disorder behaviors (Tanofsky-Kraff & Wilfley, 2010a). Rieger, Van Buren, Bishop, Tanofsky-Kraff, Welch, and Wilfley (2010) proposed and evaluated an eating disorder-specific model of IPT that integrates the concept of negative social evaluation as a cause and consequence of eating disorder symptoms. Their model also incorporates the concept

of individual vulnerability factors, such as shape and weight-based self worth and outcome expectancies regarding eating, shape, and weight.

IPT for adults with BED (Wilfley et al., 1993; Wilfley, Frank, Welch, Spurrell, Rounsaville, 1998) is a 15 to 20 week, once a week treatment that targets binge eating by addressing interpersonal deficits. IPT for BED differs from IPT for depression in its group format and the focus on binge eating instead of depression. This focus involves frequent linking between interpersonal problems and binge eating symptoms and using different strategies to address interpersonal deficits and feelings of self-stigmatization common among individuals with BED. The group is used as a live social network to address the common experience of having chronically unfulfilling relationships and as an opportunity to feel understood and accepted (Tanofsky-Kraff & Wilfley, 2010a). IPT's effectiveness at reducing binge eating and its associated psychopathology has been demonstrated (Wilfley et al., 2002; Wilson, Wilfley, Agras, & Bryson, 2010).

Research suggests that IPT may be more acceptable and perhaps more effective for minority participants. In a multi-site study comparing individual IPT to behavioral weight loss treatment or cognitive behavioral therapy (CBT) guided self-help for the treatment of BED, attrition rates for minority participants in the IPT group were very low but were very high in the CBT guided self-help group (Wilfley et al., 2008, as cited in Tanofsky-Kraff & Wilfley, 2010b). Chui, Safer, Bryson, Agras, & Wilson (2007) found that IPT was particularly effective at reducing binge episodes in black participants in a randomized, controlled, multi-site study comparing the efficacy of CBT versus IPT for the treatment of bulimia. Tanofsky-Kraff & Wilfley (2010b) suggest that IPT allows for more personalization, allowing for modifications that better accommodate various

cultures and backgrounds. Research has found that among women with binge eating, black women had significantly lower scores on measures of eating concern, dietary restraint, shape concern, and weight concern compared to white women (Pike, Dohm, Striegel-Moore, Wilfley, & Fairburn, 2001). Among healthy controls, no racial differences were found on these same measures. The CBT model for eating disorders differs from the IPT treatment model in that it relies on the premise that dysfunctional beliefs about the importance of slimness drive and maintain eating disorder behaviors (Wright, Basco, & Thase, 2006). Given CBT's theoretical dependence on restraint and the finding that minority women are not as driven by thinness and restraint desires, IPT can better address the clinical needs of minority women struggling with binge eating.

For the current study, IPT for the prevention of excessive weight gain (IPT-WG; Tanofsky-Kraff, 2008b) was adapted from IPT-AST for prevention of adolescent depression (IPT-A) (Young & Mufson, 2003; Young & Mufson, 2007) and group IPT for BED in adults (IPT-BED) (Wilfley, MacKenzie, Welch, Ayres, & Weissman, 2000). The development of this application is supported by research linking poor interpersonal functioning and eating disorders (Wilfley, Stein, & Welch, 2005). In fact, recent research provides specific empirical support for the theoretical model applied in IPT-WG (Elliott et. al., 2010). Elliott and colleagues found significant positive relationships between social problems, LOC eating, and negative affect in their sample of 219 non-treatment seeking adolescents and children ages 8-17. Importantly, negative affect functioned as a mediator between social problems and LOC eating. In addition, there is evidence from laboratory paradigms that suggest that interpersonal distress may trigger overeating (Steiger, Gauvin, Jabalpurwala, Sequin, & Stotland, 1999; Tanofsky-Kraff, Wilfley, &

Spurrell, 2000). Research suggests that interpersonal difficulties, low self-esteem, and negative affect are inter-related and may combine to contribute to bulimic or binge eating patterns (Fairburn et al., 1998; Fairburn, Welch, Doll, Davies, & O'Connor, 1997; Gual et al, 2002; Herzog, Keller, Lavori & Ott, 1987). In IPT-WG, the target of the therapy is interpersonal relationships, which differs greatly from the goal of treatment, specifically weight maintenance and reduction in LOC eating. The rationale for this difference is rooted in Sullivan's interpersonal theory that posits that enduring patterns in relationships either encourage self-esteem or lead to psychopathology and vice-versa, that psychopathology impacts interpersonal relationships (Tanofsky-Kraff & Wilfley, 2009). Considering the interpersonal context of psychiatric symptoms (e.g., loss of control eating) or associated intrapsychic processes is critical to sustainable change, according to IPT theory.

The development of IPT-WG was also influenced by increased knowledge about LOC eating among youth, particularly the finding that LOC eating predicts excessive weight gain over time (Tanofsky-Kraff et al., 2009). Additionally, LOC eating is common among youth and increases the risk of developing clinical eating pathology (Shomaker, Tanofsky-Kraff, & Yanovski, 2010). Links between interpersonal factors and overweight have also been found. Lemenshow et al. (2008) found in a prospective cohort study that adolescent girls who rated themselves lower on subjective social standard were more likely to gain weight over time. Overweight teens are at increased risk for teasing, rejection, and social isolation (Hayden-Wade et al., 2005; Strauss & Pollack, 2003; Pearce, Boergers, & Pinstein, 2002), which may all be direct targets of IPT-WG.

Youth use peer relationships as a significant measure of social evaluation (Mufson, Dorta, Moreau, & Weissman, 2004). In fact, peer relationships during adolescence significantly impact the development of a sense of self-efficacy, self-esteem, and self-concept (Bandura, 1982). Additionally, meaningful connections with peers are one of the strongest indicators of psychological health and provide many psychological benefits (Boivin, Hymel, & Bukowski, 1995; Rubin & Mills, 1988; Rubin & Stewart, 1996; Qualter & Munn, 2002). In addition, social support has been found to improve weight maintenance in children, and low social problems have been found to predict better response to weight loss treatment in children (Wilfley et al., 2007). Given the importance of peer relationships developmentally and psychologically, IPT-WG may motivate teenagers to participate actively in this therapy and directly provide an avenue for peer connection and support through the group itself.

A number of factors support the potential effectiveness of IPT-WG among adolescents at high-risk for overweight. Although a gap in the literature exists about the treatment of adolescents with binge or LOC eating, Wilfley and colleagues found that reducing binges in adults via IPT leads to weight maintenance and loss (Wilfley et al., 1993; Wilfley et al., 2002; Wilson, Wilfley, Agras, & Bryson, 2010). IPT for BED has also demonstrated effectiveness at reducing eating in response to negative affect and disordered eating psychopathology in adults (Wilfley et al., 1993; Wilfley et al., 2002). Given Wilfley and colleagues' findings and the finding that LOC eating is predictive of excess weight gain among youth (Tanofsky-Kraff et al., 2009), it seems reasonable to hypothesize that targeting sources of negative affect such as interpersonal stress may result in a reduction of emotional eating and/or LOC eating among youth at-risk for

overweight. IPT has been shown to decrease negative affect and improve interpersonal and social functioning in youth samples with depression (Mufson, Dorta, Moreau, & Weissman, 2004). IPT also has been found to be acceptable to adolescents with depression and those at risk for depression (Moreau, Mufson, Weissman, & Klerman, 1991; Young, Mufson, Davies, 2006).

IPT-WG focuses on reducing interpersonal problems to decrease negative affect, LOC eating, and excessive weight gain over time. As with all adaptations of IPT, an interpersonal inventory is completed with each individual participant before the start of group. The interpersonal inventory allows the therapist(s) and participant to identify close relationships, to identify the person's primary problem area, and to set individual goals for the participant to work on over the course of the group (Weissman, Markowitz, & Klerman, 2000). IPT-WG is delivered over the course of 12 weeks in a group format to 4-6 adolescents ranging from 12-17 years, which requires therapists to gear the therapy toward the adolescents' appropriate developmental level (Tanofsky-Kraff & Wilfley, 2010b). For instance, therapists may need to use more hypothetical situations and games to help a younger adolescent feel more comfortable (Tanofsky-Kraff & Wilfley, 2010b). During the initial phase, the emphasis is placed on psychoeducation and teaching interpersonal communication skills. The skills include "strike when the iron is cold," "use I statements," "be specific," and "put yourself in others shoes" (Young & Mufson, 2003). Dr. Tanofsky-Kraff added the additional skill, "what you don't say speaks volumes" to address the need to attend to body language in communication into the IPT-WG adaptation of Young and Mufson's manual (Tanofsky-Kraff & Wilfley, 2010b). Structured activities and role plays are used more frequently during this phase. During the

middle phase, the participants are asked to bring in relevant interpersonal issues that relate to their goals to discuss with the group. The interpersonal skills are applied using role plays and communication analysis and assigning work-at-home. At times, the interpersonal laboratory of the group is particularly useful in addressing interpersonal goals. The end phase of the group is used to focus on changes the participants have made and ways of extending their work independently at the end of the group (Young & Mufson, 2003). Based on IPT for BED, IPT-WG also focuses on linking negative affect to LOC eating (Tanofsky-Kraff & Wilfley, 2010b).

Compensation and Capitalization Models

Analyzing how an individual's aptitude interacts with treatment effects can trace its modern roots to Cronbach (1957), whose work led to the development of an extensive research program within instructional psychology (Cronbach, 1967, 1975; Cronbach & Snow, 1977; Snow, 1977, 1987, 1989a, 1989b, 1991; Snow & Lohman, 1984). More recently this area of research has expanded to industrial and clinical psychology. Aptitude in this context refers to "any measurable person characteristic hypothesized to be . . . needed as preparation for [successful] response to treatment. In other words, individuals differ in their readiness to profit from a particular treatment at a particular time" (Snow, 1991, p.205). A capitalization treatment model focuses on enhancing strengths, while a compensation treatment model focuses on remediating weaknesses (Snow, 1991). A capitalization model predicts that individuals who can capitalize on preexisting strengths will show the greatest therapeutic improvement, whereas a compensation model predicts

that individuals with the greatest skills deficits will show the greatest improvement as the therapy in theory helps them remediate weaknesses (Snow, 1991).

Researchers have compared these concepts more extensively in the field of depression. Wingate, Van Orden, Joiner, Williams, & Rudd (2005) suggested that clinicians and researchers tend to conceptualize depression and depression treatment within a compensation framework, but data actually lends more support for a capitalization model when considering aptitude and cognitive behavioral therapy (CBT) or cognitive therapy (CT) treatment interactions (Gunthert, Cohen, Butler, & Beck, 2005; Hamilton & Dobson, 2002; Rude & Rehm, 1991; Simons, Gordon, Monroe, & Thase, 1995). Rude and Rehm reviewed the literature on the predictive role of specific pretreatment deficits that typically are targeted in CT. They concluded that there is evidence that patients who score in the more adaptive range tend to do better in CT, which is consistent with the capitalization model described above. Simons et al.'s findings also support a capitalization model for depressed patients receiving CBT. Specifically, they found that high levels of dysfunctional attitudes were associated with poorer response to treatment with the exception of those individuals who had also experienced a severe negative life event.

Interestingly, Wingate, Van Orden, Joiner, Williams, & Rudd (2005) found more support for the compensation model within their sample of depressed young adults (mean age = 22y) who had recently attempted or seriously considered suicide. They found that participants with poorer problem-solving appraisal at baseline responded better to problem-solving treatment at a 6-month follow-up.

Although little recent research has been done examining these models in other modes of therapy, Sotsky et al. (1991) investigated patient characteristics predictive of treatment response of 162 patients participating in the NIMH Treatment of Depression Collaborative Research program who were randomly assigned to CBT, imipramine with clinical management, IPT, or placebo with clinical management. They found that low social dysfunction predicted superior response to IPT. Low cognitive dysfunction predicted superior response to CBT and imipramine. High depression severity and impairment of functioning predicted superior response to both IPT and imipramine. In addition to Sotsky et al. (1991), other researchers have examined how variables such as social resources and social functioning influence the course of psychiatric illness and its treatment. Young, Berenson, Cohen, & Garcia (2005) examined the relationship between parent and peer support in predicting depression in a large community sample of adolescents 11-16 years old. They found that anticipated peer support protected adolescents with high parental support, but may in fact increase adolescents' risk for depression when combined with low parental support. Rounsaville, Weissman, & Prusoff (1981) found that higher baseline social adjustment predicted improved outcome at termination for depressed patients participating in IPT, but only on measures of social functioning, not depression scores. Billings and Moos (1985a) reported that pretreatment social functioning, as well as previous attainment of marital relationship, higher satisfaction with relationships, and heightened interpersonal sensitivity, predicted social functioning at IPT termination. The positive relationship between response to IPT and social adjustment, previous attainment of marital relationship, higher satisfaction with social relationships in general, and heightened interpersonal sensitivity is consistent with

reports in the general psychotherapy literature that various indicators of social competence or achievement, including social support, social satisfaction, and the ability to develop a solid relationship, are associated with good psychotherapy outcome (Billings & Moos, 1985b; Gonzales, Lewinsohn, & Clarke, 1985; McLean & Hakstain, 1978; Rosenbaum, Friedlander, & Kaplan, 1956; Steinmetz, Lewinsohn, & Antonuccio, 1983). Sotsky's study shows that low social dysfunction predicts favorable general prognosis for outcome from depression, but it also provides evidence for specific responsiveness to IPT for individuals with low social dysfunction compared to CBT.

These findings taken together raise a dilemma for treatment research. Hamilton and Dobson (2002) reflected in their review,

Evidence does suggest that pharmacotherapy alone is an insufficient treatment for [depressed individuals]. CT appears to be a necessary treatment component for identifying and modifying maladaptive schemas. Unfortunately, individuals with high pretreatment levels of dysfunctional attitudes seem to respond to typical CBT protocol more poorly than their more cognitively adjusted counterparts, and higher negative attitudes at posttest may also be predictive of relapse (Segal, Gemar, & Williams, 1999, p.887).

The authors then go on to suggest that more research in this area is needed in order to develop a treatment (or set of treatments) better designed to meet the needs of individuals with high levels of dysfunctional attitudes.

Researchers have found evidence to support the notion that IPT for eating disorders may be specifically appropriate for certain subgroups (Chui, Safer, Bryson, Agras, & Wilson, 2007; Hilbert et al., 2007; Wilfley et al., 2002; Wilson, Wilfley, Agras, & Bryson, 2010). For instance, Wilson, Wilfley, Agras, and Bryson (2010) recently found that poorer functioning, in particular lower self-esteem and higher eating disorder

pathology at baseline, predicted better response to IPT compared to guided self-help or behavioral weight loss in adults with BED.

Understanding what treatment best serves an individual or a group of individuals (e.g., those with high psychosocial stress) is important both for the individual in need of psychological services and for the efficacy of the field as a whole. Indeed, identifying predictors and moderators of treatment outcome is a research priority (Kraemer, Wilson, Fairburn, & Agras, 2002). The current study aims to expand this effort by examining whether high or low social functioning impacts treatment outcome among a sample of adolescents participating in group IPT-WG. Given IPT's designed intention of improving social functioning (Weissman, Markowitz, & Klerman, 2000), as well as the existing literature supporting the notion that higher social functioning and social adjustment relates to improved treatment outcome (Billings & Moss, 1985a; Rounsaville, Weissman, & Prusoff, 1981; Sotskey et. al., 1991), it seems reasonable to expect that a capitalization model may best describe IPT-WG. However, recently researchers found in a sample of adult BED patients that poorer functioning predicted better response to IPT (Wilson, Wilfley, Agras, & Bryson, 2010), suggesting that a compensation model may be more relevant to IPT-WG. The current study aims to examine both possibilities. Examining whether a compensation model, a capitalization model, or neither is at work within this application of IPT-WG may provide information that could help therapists understand the mechanism at work with IPT-WG. In addition, the findings may have important clinical implications. For instance, the findings may improve clinicians' ability to select treatments that have a greater likelihood of being effective for individual clients based on one's aptitudes, specifically baseline social functioning.

Current Study

The goal of the current study was to test the compensation and capitalization models within a sample of adolescent girls at risk of overweight participating in a randomized trial of IPT-WG. Specifically, these models were tested in reference to how preexisting social functioning, which entails understanding and use of social skills and degree and frequency of social stressors, influenced treatment outcome.

The following hypotheses were evaluated:

1. According to the capitalization model, girls with greater social functioning will show the greatest improvement over the course of the IPT-WG group (according to the self-reported treatment progress) and at the end of the group, as well as at the 6-month and 12-month follow-ups (according to relative BMI gain, LOC, and the Emotional Eating Scale adapted for Children and Adolescents, EES-C). OR

2. According to the compensation model, girls with poorer social functioning will show the greatest improvement over the course of the IPT-WG group (according to self-reported treatment progress) and at the end of the group, as well as at the 6-month and 12-month follow-ups (according to relative BMI gain, LOC, and EES-C).

3. Test whether interpersonal factors are more predictive of treatment outcome (according to relative BMI gain, LOC, and EES-C) in IPT-WG group compared to Health Education at the end of the group, as well as at the 6-month and 12-month follow-ups.

4. Higher self-reported treatment progress scores over the course of the group will be negatively correlated with relative BMI gain, LOC eating, and emotional eating at the end of group, as well as at 6-month and 12 month follow-ups.

5. Evaluate need to control for distress (Children's Depressive Inventory; CDI) and LOC eating (LOC) in IPT-WG groups. Evaluate influence of distress and LOC on self-reported treatment progress and on outcome at the end of the group, at the 6-month and 12-month follow-ups.

CHAPTER 2

METHODS

Participants

Thirty-eight girls, between the ages of 12 to 17 years, recruited for a group obesity prevention program and randomized to a 12-week IPT-WG or a standard-of-care health education program participated in the current study. The nineteen of the thirty-eight adolescent girls who were randomized into IPT-WG participated in the portion of the study described in hypotheses 1-4. To be eligible, it was required that teens have a BMI between the 75th and 97th percentile for age and sex according to the 2000 CDC growth charts (Ogden et al., 2002). Inclusion criteria for the prevention study included: good general health and cognitive ability to complete study measures and participate in the group. Participants who did and did not endorse loss of control (LOC) eating were included in the prevention trial. Exclusion criteria included: major medical complications, regular use of prescription medication (with the exception of oral contraceptives), current involvement in psychotherapy or a structured weight loss program, history of or current eating disorder (with the exception of BED), recent weight loss exceeding 3% of body weight, pregnancy or breastfeeding, and the presence of a full threshold DSM-IV-TR disorder (American Psychiatric Association, 2000).

For the current study, participants with a BMI between the 75th and 97th percentile for age, sex, and race were included. Adolescents with BMIs between the 75th

and 84th percentile were included despite the fact that they technically fell outside the current at-risk for overweight definition described above. Research suggests that children within this range are also at increased risk for becoming overweight as adults. For instance, Field et al. (2005) found that children 8 to 15 years between the 50th and 74th percentiles were approximately five times more likely to become overweight as adults compared to children <50th percentile. Children between the 75th and 84th percentiles were up to 20 times more likely. Only adolescents up to the 97th percentile were included as those with more severe overweight likely required more intensive treatment and were at greater risk of obesity-related health complications (Weiss et al., 2004) that would exclude them from participating.

Measures

Psychosocial Stress and Interpersonal Functioning

The Interpersonal Inventory (Weissman, Markowitz, & Klerman, 2000; Young & Mufson, 2003) was administered individually to each participant before the start of the IPT-WG groups. The Interpersonal Inventory was an opportunity for the group leaders to learn about each IPT-WG group member's significant peer and familial relationships. During this interview, the group leaders asked participants about the nature of their relationships, including positive and negative aspects and changes that the participant would like to see made in their relationships. The therapists and teens collaboratively set one to two interpersonally-related goals to address during the course of the program. For the current study, the Interpersonal Inventory was used to measure social functioning. All identifying information was removed from the data before two independent raters

reviewed each Interpersonal Inventory and rated the degree of social functioning on a scale from one to seven, with seven indicating greater social functioning. See rating scheme (Appendix A).

The Impact of Weight on Quality of Life - Kids (IWQOL-Kids; Kolotkin et al., 2006) was based on the IWQOL-Lite (de Zwann et al., 2002) and designed for adolescents aged 11 to 19 years. The IWQOL-Kids contained 27 items that addressed the impact weight has on physical comfort, body esteem, social life, and family relations. The IWQOL-Kids was used in this study as a general measure of social functioning, but particular attention was paid to questions related to social life and family relations. The instructions directed participants to answer based on what “best applie[d] to you in the past seven days.” Each item contained five response options ranging from “always true” to “never true,” scaled from 5 to 1 respectively. Higher total scores indicate better greater social functioning. Sample items included: “Because of my weight it is hard for me to move around,” “Because of my weight people tease me and make fun of me,” and “Because of my weight family members talk about me behind my back.” Kolotkin et al. (2006) found that the measure demonstrated good internal consistency (coefficients ranged from 0.88 to 0.95 for the domain scores and equaled 0.96 for the total score). The measure also demonstrated strong convergent validity with the Pediatric Quality of Life Inventory (Varni, Seid, & Kurtin, 2001) ($r = 0.76, p < 0.01$). The measure demonstrated reasonable sensitivity by discriminating among different BMI groups and between clinical and community samples. In addition, Kolotkin et al. found that the IWQOL-Kids scores of participants enrolled in a weight loss camp improved over the course of a

weight loss/social support intervention, suggesting that the measure was sensitive to change (Quinlan, Kolotkin, Fuemmeler, & Costanzo, 2009).

The Social Adjustment Scale – Self-Report (SAS-SR; Weissman, & Bothwell, 1976), a widely used self-report measure, assessed social functioning in four domains: school, friends, family, and dating. Sample questions included: “Have you been able to talk about your feelings and problems with at least one friend during the last two weeks?” and “Have you had arguments with your parents in the last two weeks?” Each item was answered by selecting one frequency-based choice, arranged along a six-point, Likert-scale. Lower total scores indicate greater social functioning. Weissman & Bothwell (1976) found agreement between social adjustment self-report and interview assessments ($t = 4.0, p < 0.01$). They also found agreement between patients, informants, and interviewers when asked to report social adjustment of the patient, patient: informant ($r = 0.74, p < 0.01$); patient: interviewer ($r = 0.70, p < 0.01$); informant: interviewer ($r = 0.54, p < 0.05$). The measure’s sensitivity to change in social adjustment has also been demonstrated ($t = 10.24, p < 0.01$). The measure was originally designed for adults but has since been adapted for adolescents (Garber, Kriss, Koch, & Lindholm, 1988; Mufson & Fairbanks, 1996).

The Family and Adaptation and Cohesion Evaluation Scales Inventory-II (FACES-II; Olson, Portner, & Bell, 1982) measured perceived conflict and cohesion in parent-child relationships, an indicator of social functioning. Adolescents were asked to rate how their family works together as a group by responding to a series of statements on a scale of 1 to 5 (almost never, once in a while, sometimes, frequently, almost always). Greater total scores indicate greater social functioning. Sample items include: “We

approve of each other's friends.”; “Family togetherness is important.” Then adolescents were asked to rate the same statements but in response to how they think the perfect family acts. The FACES-II has been widely used with various clinical and ethnic groups and has demonstrated evidence of reasonable reliability and validity (Knight, Tein, Shell, & Roosa, 1992; Pratt & Hansen, 1987; Schmid, Rosenthal & Brown, 1988; Wisotsky et al., 2006).

The Loneliness and Social Dissatisfaction Scale (LSDS; Asher, Hymel, & Renshaw, 1984), a 24-item questionnaire, assessed the degree to which children and adolescents feel satisfied with peer relationships, another indicator of social functioning. Sixteen of the 24 items focused on children's feelings of loneliness (e.g., “I feel alone”), feelings of social adequacy versus inadequacy (e.g., “I am good at working with other children”), or subjective estimations of peer status (e.g., “I have a lot of friends”). The other eight items focused on children's hobbies or preferred activities (e.g., “I like to read”; “I watch TV a lot”) and were included to help children and adolescents feel more relaxed about completing the questionnaire. Responders completed each item by indicating on a five-point scale how much each statement was a true description of themselves (e.g., always true, true most of the time, true sometimes, hardly ever true). Nine of the items required reverse scoring. Lower total scores indicate greater social functioning. LSDS has demonstrated good internal consistency ($\alpha = 0.90$) and internal reliability (Guttman split-half $r = 0.91$) (Asher, Hymel, & Renshaw, 1984). Researchers also found a significant negative correlation between loneliness and both friendship nominations and play ratings received from same-sex peers, suggesting that the LSDS

demonstrated reasonable construct validity (Asher, Hymel, & Renshaw; Asher & Wheeler, 1985).

Outcomes Measures

Self perceptions of treatment progress were measured over the course of the IPT-WG group using the Treatment Process Questionnaire (TPQ). Participants were asked to rate the following items on a scale ranging from not at all (0) to very much (6) based on their experiences over the previous week. Lower total scores indicate better treatment progress. The TPQ items included: (1) consciously trying to restrict, (2) confidence regarding ability to resist LOC/binge eating, (3) confidence in ability to resist overeating, (4) confidence regarding ability to resist eating when in a negative mood, and (5) overall quality of social interactions.

Weight was obtained to the nearest 0.1 kg using a calibrated digital scale (Scale-Tronix, Wheaton, IL). Height was obtained in triplicate to the nearest 1 mm using a stadiometer calibrated before each set of measurements (Holtain Ltd., Crymoych, Wales). Body mass index (BMI, kg/m^2) was then calculated. Percentile and a z-score were then generated based on BMI and the 2000 CDC growth charts. The CDC growth charts used were based upon data from five national health examination surveys collected from 1963 to 1994 and five supplementary data sources (Ogden et al., 2002). These growth curves were the most up-to-date revised growth chart data set available (Centers for Disease Control, 2000).

The Eating Disorder Examination version 12.0D/C.2 (EDE; Fairburn & Cooper, 1993), a widely used measure of eating pathology that was considered highly reliable and

valid, was administered in part to diagnose DSM-IV-TR eating disorders (APA, 2000) that would exclude potential participants. In addition, it was used to measure eating behaviors and attitudes and to determine baseline level of LOC eating. Responses from the EDE were coded via the following subscales: restraint, eating concern, shape concern, and weight concern. The EDE measured the frequency of eating related behaviors such as objective binge eating (LOC with objective overeating), subjective binge eating (LOC without objective overeating as viewed by interviewer but perceived as excessive by participant), and objective overeating (objective overeating without LOC) over the course of the previous 6 months.

Graduate clinical psychology students and post-undergraduate research associates who attended 15-20 hours of training administered and scored the interviews. Before administering interviews, each interviewer was trained by listening to audiotapes of sample interviews, conducting a practice EDE, observing the trainer conducting an EDE, and then conducting an EDE while the trainer observed. Training continued until a 95% agreement rate was reached between trainer and trainee. Each EDE interview was taped and randomly selected to be co-rated by an independent rater to verify accuracy of the interview.

Tests of the EDE's interrater reliability, internal consistency, discriminant and concurrent validity (Fairburn & Cooper, 1993; Williamson et al., 1995), as well as its test-retest reliability (Rizvi, Peterson, Crow, & Agras, 2000), have all provided support for its continued use. In addition, Fairburn, Peveler, Jones, Hope, and Doll (1993) found that the EDE was sensitive to change in their sample of bulimic patients 1-year post-

treatment. The EDE has also been shown to discriminate between groups of adolescents based on frequency and recency of LOC episodes (Glasofer et al., 2007).

The Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) was also administered and was used in the current study since it was administered more frequently over the course of the study. The EDE-Q, a 38-item measure that assessed eating disorder psychopathology, contained the same subscales as the EDE, restraint, eating concern, shape concern, and weight concern. To calculate the subscale and total scores, the relevant items were averaged. The resulting scores ranged from 0 to 6, with higher scores reflecting greater pathology. Some items on the EDE-Q also measured the frequency of certain related behaviors, such as binge eating and compensatory behaviors for the previous 28 days.

The EDE-Q was based on the structured EDE interview (EDE; Fairburn & Cooper, 1993). Fairburn and Beglin (1994) concluded that in general the EDE-Q appears to be a reasonable substitution for the EDE, in particular for the assessment of unambiguous behavioral features (i.e. laxative abuse, purging frequency). In addition, Luce and Crowther (1999) found that in a sample of undergraduate females the EDE-Q demonstrated excellent internal consistency and test-retest reliability.

The Emotional Eating Scale adapted for Children and Adolescents (EES-C; Tanofsky-Kraff et al., 2007) assessed the urge to cope with negative affect by eating along the following subscales: anger/anxiety/frustration (AAF), depression (DEP), and feeling unsettled (UNS). Higher scores indicated a greater reported desire to eat in response to negative mood. The 26-item self-report measure has demonstrated good internal consistency and test-retest reliability (Tanofsky-Kraff et al., 2007). Additionally,

the EES-C has demonstrated good convergent validity with measures of LOC eating, even after controlling for BMI-z score or percentile, as well as reasonable discriminant validity (Tanofsky-Kraff et al., 2007).

Distress

The Children's Depression Inventory (CDI; Kovacs, 1985, 1992), a 27-item questionnaire, was used to measure cognitive, affective, and behavioral signs of depression in children ages 6-17 years. The CDI generated a total score and five subscales, negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem. Greater scores indicated greater distress. The CDI has demonstrated adequate internal consistency, test-retest reliability, and discriminant validity (Costello & Angold, 1988; Curry & Craighead, 1993; del Barrio, 1993).

Procedure

Adolescents were recruited through physicians' offices and advertisements posted on public bulletin boards and electronic list serves. The advertisements read, "Parents of Teens! Do you worry your daughter is gaining too much weight?" and invited parents to contact the NIH for additional information about the study and eligibility requirements. In addition, adolescent girls enrolled in previous studies who were at risk for adult obesity by virtue of their current weight (BMI of 75th – 97th percentile for age and sex) were invited to be evaluated for eligibility. Participants who met initial eligibility requirements were scheduled for two in-person screening appointments at NIH. The purpose of the study, procedures, and potential hazards of the study were reviewed at the first appointment.

After parents and adolescents provided written consent and assent, participants underwent the physical measures described above and completed self-report questionnaires regarding eating behaviors and emotional eating. Additionally, researchers administered interviews to assess psychopathology and LOC eating during these screening visits. After determining eligibility, each participant was randomized to a 12-week IPT-WG or Health Education (HE) program. Randomization was stratified by the presence or absence of LOC eating in the month before assessment.

Prior to the start of the program, participants randomized to the HE program met with group leaders for one individual session to review family health history and how to effectively participate in the group. These participants received the “Hey-Durham” health program for teens (Bravender, 2005), designed by researchers at Duke University, for 12 weeks. The curriculum topics included topics related to alcohol, drug and tobacco use, depression and suicide, nutrition and body image, nonviolent conflict resolution, sun safety, love and relationships, racism, exercise, and sexual harassment. For the current study, topics addressing sexuality were removed. Audio-tapes of the classes were reviewed to assure that subjects do not receive any aspects of the IPT-WG intervention.

Prior to the start of the program, each girl randomized to the IPT-WG program met with group leaders for an individual session. During this individual meeting, the group leaders administered the Interpersonal Inventory to assess psychosocial functioning and to develop individualized goals for group work. The TPQ was administered five times over the course of 12-week IPT group program described above, specifically at the pregroup meeting, session 3, session 6, session 9, and session 12. The developers of IPT for the prevention of adolescent depression (J.F. Young) and IPT for BED (D.E. Wilfley)

regularly reviewed audiotapes of IPT-WG group sessions to ensure that the program was delivered as designed. Additionally, HE session tapes were reviewed regularly by Marian Tanofsky-Kraff, Ph.D., principal investigator, to ensure that these participants did not receive elements of IPT-WG.

At the end of the 12-week group program and again 6 months and 1 year after the start of treatment, all participants were administered the physical assessments, as well as the EDE-Q and the EES-C. At the 6-month follow-up appointment, the EDE interview was administered. Because adolescents had to be general good health to participate in the study, they were compensated for their time and inconvenience with \$40 for completing all pre-program assessments, \$40 for attending the 12-week follow-up visit, \$40 for the 6-month follow-up visit, and \$40 for the 1-year follow-up. A \$50 bonus was also offered for attending >80% of sessions, for a total of \$210. Table 1 outlines the study's assessment schedule.

Table 1

Construct and Measure Schedule of Administration

Construct	Measure	Group	Time ^b
Social functioning	The Interpersonal Inventory (IPI)	IPT-WG	Pre-group
Social functioning	Impact of Weight on Quality of Life-Kids (IWQOL-Kids)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos
Social functioning	Social Adjustment Scale – Self-report (SAS-SR)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos

Construct	Measure	Group	Time
Social functioning	The Loneliness & Social Dissatisfaction Scale (LSDS)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos
Outcome/Perceptions of treatment progress	Treatment Process Questionnaire (TPQ)	IPT-WG	Pre-group, post-tx, 6 mos, 12 mos
Outcome/Physical measures	Weight, height (BMI ^a)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos
Outcome/Loss of control eating	Eating Disorder Examination (EDE)	IPT-WG & HE	Baseline, 6-mos
Outcome/Loss of control eating	Eating Disorder Examination – Questionnaire (EDE-Q)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos
Outcome/Emotional eating	Emotional Eating Scale adapted for Children (EES-C)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos
Distress	Children's Depression Inventory (CDI)	IPT-WG & HE	Baseline, post-tx, 6 mos, 12 mos

Note. Baseline: During 1 of 2 screening appointments; Pre-group: Before group starts, meeting with IPT-WG leaders; Post-treatment: Within 1 week of groups ending; 6 mos: 6-month follow-up; 12 mos: 12-month follow-up.

^a Body Mass Index (kg/m²).

^b IPT-WG = Interpersonal Psychotherapy for the prevention of weight gain; HE = Health Education.

Statistical Procedures

Descriptive statistics were used to examine sample demographics and baseline social functioning, distress, emotional eating, and loss of control eating of the sample.

Demographic characteristics, baseline social functioning, distress, emotional eating, and LOC eating among groups were compared using t-tests for independent means and chi-square analyses.

To statistically analyze Hypotheses 1 and 2, Pearson correlations between social functioning measures were calculated. Scores from the social functioning measures that correlated with each other consistently were converted into z-scores and combined into a single social functioning composite variable. The z-scores for each of these measures were combined into one social functioning variable based on the measures' directions of scores (FACES-Adaptability + FACES-Cohesion + IWQOL-Family Relations – LSDS). The social functioning composite variable represented preexisting social functioning, which entails understanding and use of social skills and degree and frequency of social stressors. Among the IPT-WG group, the relationship between social functioning composite scores and EES-C, BMI, and LOC eating at 12 weeks, 6 months, and 12 months post-treatment were analyzed by running partial correlations that controlled for baseline EES-C, BMI, and LOC eating.

Pearson correlations were used to estimate interrater reliability between the two independent reviewers asked to rate the degree of social functioning reflected in the interpersonal inventories of the participants randomized to the IPT-WG. The two sets of ratings were combined into one composite variable by adding the two ratings and dividing by two. The relationship between IPI composite scores and EES-C, BMI, and LOC eating at 12 weeks, 6 months, and 12 months post-treatment were analyzed by running partial correlations that controlled for baseline EES-C, BMI, and LOC eating.

To examine aspects of the psychometrics of the TPQ measure, correlations and repeated measures ANOVAs were used. Partial correlations of 12-week TPQ responses with social functioning and IPI, while controlling for baseline TPQ, were computed.

Correlations were used to analyze Hypotheses 3 and 4. Partial correlations were also used to compare Health Education outcomes at the end of the group, as well as at the 6-month and 12-month follow-ups with IPT-WG outcomes (Hypothesis 5).

A post-hoc analysis was conducted to evaluate if there was a subgroup that specifically benefited, in terms of preventing weight gain, from IPT-WG or from HE. The hypothesized interaction of treatment condition (IPT-WG vs. HE) x social functioning was tested using BMI change data within the Generalized Estimating Equations (GEE) framework, as recommended by Hall et al. (2001). GEE was implemented using SPSS 17.0 with robust covariance estimator, the Log link function, and unstructured correlation matrix specified. The within-subject effect was time (6 months and 12 months after the group), and the dependent variable was change in BMI. Predictor variables in the model were social functioning composite (median split: > 11.44 vs. < 11.34), treatment condition (IPT-WG vs. HE), and the interaction of social functioning composite and treatment condition.

Formal power analyses were not conducted since this study was designed as a pilot study. In other words, the study was not powered to detect statistically significant group differences. The necessarily small sample size for a pilot study precluded use of comprehensive regression analyses, which would have been the most conservative approach. However, the analyses described above were conducted to evaluate the possibility of preliminary patterns, which if found would support further study.

CHAPTER 3

RESULTS

Thirty-eight adolescent girls participated in the current study. The sample was racially diverse and ranged in age from 12.13 – 17.12 ($M = 14.56 + 1.27$). On average, the participants were in the 88th percentile for BMI (88.00 ± 7.07 percentile, range: 75th-97th percentiles). See sample demographics in Table 2 and Table 3.

Table 2

Age, BMI, BMI Z-score, BMI Percentile of the Sample

Variable	Mean (SD)	Range
Age (years)	14.56 (1.27)	12.13 - 17.12
BMI	25.34 (2.93)	20.13 - 31.30
BMI Z-score	1.27 (0.39)	0.75 - 2.01
BMI Percentile	88.00 (7.07)	75.00 – 98.00

Note. BMI = Body Mass Index (kg/m^2).

Table 3

Race and BMI Percentile Range of the Sample

Variable	n (%)
African American	18 (47.0%)

Variable	n (%)
Arabic	1 (2.6%)
Asian	2 (5.3%)
Hispanic	2 (5.3%)
Indian	2 (5.3%)
White	13 (13.0%)
75 th -84 th	15 (39.5%)
85 th -94 th	12 (31.6%)
95 th -97 th	11 (28.9%)

Note. BMI = Body Mass Index (kg/m²).

There were no significant differences between the IPT-WG and HE groups on demographic variables. This suggests that the randomized program assignments used in this study successfully created approximately equivalent groups. See Table 4 and Table 5.

Table 4

Treatment Group Comparisons of Age, BMI, BMI Z-score, and BMI Percentile

Variable	<u>IPT-WG</u> Mean (SD)	<u>HE</u> Mean (SD)	Statistic
Age (y)	14.24 ± 1.22	14.89 ± 1.26	$t(36) = 1.62$
BMI	25.12 ± 2.84	25.56 ± 3.08	$t(36) = 0.45$
BMI Z-score	1.27 ± 0.39	1.27 ± 0.40	$t(36) = -0.004$
BMI Percentile	88.00 ± 0.07	88.00 ± 0.07	$t(36) = 0$

Note. IPT-WG = Interpersonal Psychotherapy for the prevention of weight gain; HE = Health Education; BMI = Body Mass Index (kg/m²).

Table 5

Treatment Group Comparisons of Race, BMI Percentile Range, and Endorsement of Loss of Control

Variable	<u>IPT-WG</u> n (%)	<u>HE</u> n (%)	Statistic
Race			
African American	8 (42.11%)	10 (52.63%)	
Arabic	1 (0.05%)	0 (0.00%)	
Asian	1 (0.05%)	1 (0.05%)	
Hispanic	1 (0.05%)	1 (0.05%)	
Indian	2 (11.00%)	0 (0.00%)	
White	6 (31.58%)	7 (36.84%)	
Child BMI %ile			
75 th – 84 th	7 (36.84%)	8 (42.11%)	
85 th -94 th	7 (36.84%)	5 (26.32%)	
95 th – 97 th	5 (26.32%)	6 (31.58%)	
Loss of control	11 (57.89%)	9 (47.37%)	$\chi(1) = 0.42$

Note. IPT-WG = Interpersonal Psychotherapy for the prevention of weight gain; HE = Health Education; BMI = Body Mass Index (kg/m²).

See Table 6 for mean scores of baseline measures of distress, social functioning, LOC, and emotional eating of the sample. When available, sample means were compared

to available normative data (See Table 6). The CDI normative data was drawn from a sample of 658 females with ages ranging from 8 to 16 and a combined mean age of 11.67 years $\pm$ 1.91 (Smucker, 1986). The data for the FACES-II norms was based on a national survey of 416 adolescents (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1992). The normative data for the IWQOL-Kids was drawn from a sample of 642 11 to 19 year-old males and females with BMIs between the 85th and 94.9th percentiles and recruited from weight loss programs/studies and community samples (Kolotkin et al., 2006). The IPT-WG and HE groups did not differ on any of these baseline factors (See Table 7).

Table 6

Baseline Distress, Social Functioning, Emotional Eating of the Sample, and Normative Data Comparison

Variable	Mean (SD) n = 38	Range	Normative data Mean (SD)
CDI	6.05 (4.90)	0 - 20	8.99 (7.10) ^a
FACES Adaptability	40.74 (10.76)	21 - 65	45.40 (7.90) ^b
FACES Cohesion	61.16 (12.48)	30 - 85	56.30 (9.20) ^b
IWQOL Family (n = 34)	95.66 (6.13)	80 - 100	96.98 (7.68) ^c
IWQOL Social life (n = 34)	98.11 (3.96)	88 - 100	94.66 (11.02) ^c
SAS Total	2.04 (0.41)	1.40 - 3.40	-
LSDS	27.11 (8.56)	16 - 53	-
IPI Composite (IPT-WG only) (n = 19)	4.42 (1.77)	1.00 - 6.50	-

Variable	Mean (SD) n = 38	Range	Normative data Mean (SD)
EES-C Total	0.79 (0.71)	0-2.75	-

Note. CDI = Children's Depression Inventory. FACES = Family Adaptability and Cohesion Evaluation Scale. IWQOL = Impact of Weight on Quality of Life. SAS = The Social Adjustment Scale – Self-Report. LSDS = The Loneliness and Social Dissatisfaction Scale. IPI = The Interpersonal Inventory. EES-C = The Emotional Eating Scale. IPT-WG = Interpersonal Psychotherapy for prevention of weight gain.

^a Smuker, M., Craighead, W., Craighead, L., & Green, B. (1986). Normative and reliability data for the Children's Depression Inventory. *Journal of Abnormal Child Psychology*, 14, 25-39.

^b Olson, D., McCubbin, H., Barnes, H., Larsen, A., Muxen, M., & Wilson, M. (1992). *Family Inventories*, 2nd ed. Minneapolis, MN: Life Innovations, Inc.

^c Kolotkin, R., Zeller, M., Modi, A., Samsa, G., Quinlan, N., Yanovski, J., et. al. (2006). Assessing weight-related quality of life in adolescents. *Obesity*, 14, 448-457.

Table 7

Group Comparisons of Baseline Distress, Social Functioning, LOC, and Emotional Eating

Variable	<u>IPT-WG</u> <i>Mean (SD)</i>	<u>HE</u> <i>Mean (SD)</i>	Statistic
CDI	5.26 (4.96)	6.84 (4.84)	$t(36) = 0.99$
FACES Adaptability	41.89 (12.33)	39.58 (9.11)	$t(36) = -0.66$
FACES Cohesion	62.74 (12.21)	59.58 (12.87)	$t(36) = -0.78$
IWQOL Family	96.25 (4.66)	95.14 (7.30)	$t(32) = -0.52$
IWQOL Social life	98.70 (3.31)	97.59 (4.49)	$t(32) = -0.81$
SAS Total	2.10 (0.45)	1.99 (0.37)	$t(36) = -0.77$

Variable	<u>IPT-WG</u> <i>Mean (SD)</i>	<u>HE</u> <i>Mean (SD)</i>	Statistic
EES-C Total	0.80 (0.82)	0.79 (0.61)	$t(36) = 0.09$

Note. CDI = Children's Depression Inventory. FACES = Family Adaptability and Cohesion Evaluation Scale. IWQOL = Impact of Weight on Quality of Life. SAS = The Social Adjustment Scale – Self-Report. LSDS = The Loneliness and Social Dissatisfaction Scale. IPI = The Interpersonal Inventory. EES-C = The Emotional Eating Scale. IPT-WG = Interpersonal Psychotherapy for prevention of weight gain.

Evaluation of Hypotheses

Comparison of Capitalization and Compensation Models

Pearson correlations on all social functioning measures used in the study for the entire sample are displayed in Table 8.

Table 8

Correlations Between Baseline Measures

Measure	FACES Adapt	IWQOL Family	IWQOL Social	SAS	LSDS	IPI
FACES Cohesion	0.34*	0.08	0.45**	-0.02	-0.08	0.02
FACES Adapt		0.21	0.25	0.28	0.33*	-0.09
IWQOL Social				0.13	-0.06	-0.15
SAS					0.21	-0.40
LSDS						0.24

Note. FACES = Family Adaptability and Cohesion Evaluation Scale. IWQOL = Impact of Weight on Quality of Life. SAS = The Social Adjustment Scale – Self-Report. LSDS = The Loneliness and Social Dissatisfaction Scale. IPI = The Interpersonal Inventory.

* $p < 0.05$, ** $p < 0.01$.

The following measures correlated with each other consistently ($r \geq 0.1$) and in the expected direction and were retained for further analysis: FACES-Adaptability, FACES-Cohesion, IWQOL-Family Relations, and LSDS. The data for these variables were converted into z-scores. The z-scores for each of these measures were combined into one social functioning variable based on the measures' directions of scores (FACES-Adaptability + FACES-Cohesion + IWQOL-Family Relations – LSDS).

Among the IPT-WG group, the relationship between social functioning composite scores and body mass index (BMI) at 12 weeks, 6 months, and 12 months post-treatment were analyzed. In addition, due to the research linking LOC eating with excessive weight gain, social functioning composite scores and the EES-C scores and LOC eating at 12 weeks, 6 months, and 12 months post-treatment were analyzed. These analyses were completed by running partial correlations that controlled for baseline BMI, EES-C, and LOC eating. Specifically, the relationship between social functioning composite scores and BMI outcomes, controlling for baseline BMI, was analyzed, yielding the following: BMI-12 week ($r = -0.06$, $p = 0.84$, $df = 13$), BMI-6 month ($r = -0.03$, $p = 0.91$, $df = 13$), and BMI-12 month ($r = -0.34$, $p = 0.22$, $df = 13$). Additionally, the relationship between social functioning composite scores and EES-C outcomes, controlling for baseline EES-C, was analyzed, yielding the following: EES-C-12 week ($r = 0.42$, $p = 0.13$, $df = 12$), EES-C-6 month ($r = 0.51$, $p = 0.05$, $df = 13$), and EES-C-12 month ($r = 0.67$, $p = 0.01$, df

= 13). Finally, the relationship between social functioning composite scores and LOC outcomes, controlling for baseline LOC, was analyzed, yielding the following: LOC total 12 weeks ($r = 0.58, p = 0.02, df = 13$), LOC total 6 months ($r = 0.25, p = 0.40, df = 13$), and LOC total 12 months ($r = 0.69, p = 0.004, df = 13$). Overall, these findings provide support for the compensation theory. Specifically, greater baseline social functioning significantly predicted more emotional eating 6-month post-treatment, more emotional eating 12-months post-treatment, more LOC eating 12-week post-treatment, and more LOC eating 12-month post-treatment. Although the remaining comparisons did not reach significance, two of the five yielded moderate, positive correlations, which suggest trends that would also provide support for the compensation theory. However, there was one moderate, negative correlation between baseline social functioning and BMI scores at 12 months post-treatment, suggesting greater social functioning predicted lower BMIs. This finding, although not statistically significant, was consistent with a capitalization model.

The IPI ratings between the two independent reviewers were significantly correlated ($r = 0.81, p = 0.01$), indicating good interrater reliability. Subsequently, the two sets of ratings were combined into one composite variable by adding the two ratings and dividing by two. The relationship between IPI composite scores and BMI, as well as the EES-C and LOC eating, at 12 weeks, 6 months, and 12 months post-treatment were analyzed by running partial correlations that controlled for baseline BMI, EES-C, and LOC eating. The relationship between IPI composite scores and BMI outcomes, controlling for baseline BMI, was analyzed, yielding the following: BMI-12 week ($r = 0.18, p = 0.50, df = 16$), BMI-6 month ($r = 0.45, p = 0.06, df = 16$), and BMI-12 month ($r = 0.50, p = 0.04, df = 16$). Additionally, the relationship between IPI composite scores

and EES-C outcomes, controlling for baseline EES-C, was analyzed, yielding the following: EES-C-12 week ($r = 0.33$, $p = 0.20$, $df = 15$), EES-C-6 month ($r = 0.17$, $p = 0.51$, $df = 16$), and EES-C-12 month ($r = -0.31$, $p = 0.90$, $df = 16$). Finally, the relationship between IPI composite scores and LOC outcomes, controlling for baseline LOC, was analyzed, yielding the following: LOC total 12 weeks ($r = 0.17$, $p = 0.51$, $df = 16$), LOC total 6 months ($r = 0.20$, $p = 0.43$, $df = 16$), and LOC total 12 months ($r = 0.19$, $p = 0.45$, $df = 16$). Most of the comparisons suggest no relationship between social functioning measured by the IPI; however, two of the comparisons resulted in significant positive correlations. Specifically, greater social functioning measured by the IPI predicted greater BMI at 6-month post-treatment and BMI 12-month post-treatment, after controlling for baseline BMI. These findings provide some support for the compensation theory as well.

Group Comparisons of Interpersonal Factors

Among the HE group, the relationship between social functioning composite scores and BMI, EES-C, and LOC eating at 12 weeks, 6 months, and 12 months post-treatment were analyzed by running partial correlations that controlled for baseline EES-C, BMI, and LOC eating. The relationship between social functioning composite scores and BMI outcomes, controlling for baseline BMI, was analyzed, yielding the following: BMI-12 week ($r = -0.11$, $p = 0.69$, $df = 15$), BMI-6 month ($r = -0.10$, $p = 0.71$, $df = 15$), and BMI-12 month ($r = -0.08$, $p = 0.75$, $df = 15$). Additionally, the relationship between social functioning composite scores and EES-C outcomes, controlling for baseline EES-C, was analyzed, yielding the following: EES-C-12 week ($r = 0.05$, $p = 0.83$, $df = 15$),

EES-C-6 month ($r = -0.30, p = 0.27, df = 14$), and EES-C-12 month ($r = -0.43, p = 0.10, df = 14$). Finally, the relationship between social functioning composite scores and LOC outcomes, controlling for baseline LOC, was analyzed, yielding the following: LOC total 12 weeks ($r = 0.17, p = 0.51, df = 15$), LOC total 6 months ($r = -0.17, p = 0.51, df = 15$), and LOC total 12 months ($r = 0.21, p = 0.43, df = 15$). Overall, these findings did not provide support for either the compensation or capitalization theories at work among the HE group. See Table 9 for group comparisons of outcome correlations.

Table 9

Group Comparisons of Correlations between Outcome Measures and Social Composite Scores

Variable	<u>IPT-WG</u> $r (p)$	<u>HE</u> $r (p)$
BMI-12 week	-0.06 (0.84)	-0.11 (0.69)
BMI-6 month	-0.03 (0.91)	-0.10 (0.71)
BMI-12 month	-0.34 (0.22)	-0.08 (0.75)
EES-C-12 weeks	0.42 (0.13)	0.06 (0.83)
EES-C-12 months	0.67 (0.01)*	-0.43 (0.10)
LOC-12 weeks	0.58 (0.02)*	0.17 (0.51)
LOC-6 months	0.25 (0.38)	-0.17 (0.51)
LOC- 12 months	0.69 (0.004)*	0.21 (0.43)

Note. BMI =Body Mass Index (kg/m^2). EES-C = The Emotional Eating Scale. LOC = loss of control eating. IPT-WG = Interpersonal Psychotherapy for prevention of weight gain. HE = Health Education.

* $p \leq 0.05$

To further evaluate the role of having a history of LOC eating at baseline in IPT-WG and HE groups, the sample was divided into four groups, specifically IPT-WG with baseline LOC eating, IPT-WG without baseline LOC eating, HE with baseline LOC eating, and HE without baseline LOC eating. Among these groups, the relationship between social functioning composite scores and body mass index (BMI) at 12 weeks, 6 months, and 12 months post-treatment were analyzed. Additionally, the relationship between social functioning composite scores and emotional eating at 12 weeks, 6 months, and 12 months post-treatment were analyzed. These relationships were calculated by running a series of partial correlations, which allowed for controlling of baseline BMI and EES-C scores. Two of the correlations reached statistical significance. These findings suggest that those with greater social functioning scores at baseline in the IPT-WG with baseline LOC group reported more emotional eating at 6 months and 12 months follow-up. See Table 10.

Table 10

Partial correlations among IPT-WG and HE groups with and without baseline LOC eating

Variable	IPT-WG		HE	
	LOC <i>n</i> = 11	No LOC <i>n</i> = 8	LOC <i>n</i> = 9	No LOC <i>n</i> = 10
BMI-12 week	0.30	-0.65	0.09	-0.43
BMI-6 month	0.06	0.07	-0.13	-0.42
BMI-12 month	0.00	-0.16	-0.04	-0.23

Variable	IPT-WG		HE	
	LOC <i>n</i> = 11	No LOC <i>n</i> = 8	LOC <i>n</i> = 9	No LOC <i>n</i> = 10
EES-C-12 weeks	0.58	0.46	-0.19	0.39
EES-C - 6 months	0.77*	-0.24	-0.29	-0.33
EES-C – 12 months	0.84*	0.16	-0.41	-0.51

Note. BMI =Body Mass Index (kg/m²). EES-C = The Emotional Eating Scale. LOC = loss of control eating. IPT-WG = Interpersonal Psychotherapy for prevention of weight gain. HE = Health Education.

**p*<0.05

Regardless of treatment group, all participants endorsing baseline LOC eating reported a decrease of LOC episodes by 12-month follow-up. Among the girls who reported LOC eating, those in IPT-WG demonstrated a significant reduction in the number of LOC episodes at the 12-month follow-up visit compared to those who participated in HE. As expected with growing children, both groups on average gained BMI points compared to their baseline BMI. However, more girls in IPT-WG experienced less than expected BMI growth at follow-up compared to girls in HE (Tanofsky-Kraff et al., 2010). Although reviewing the mean changes in weight are not as meaningful in measuring excessive weight gain due to the need to account for expected growth, changes in BMI, BMI z-scores, and BMI percentiles were considered. Girls in the IPT-WG experienced a greater relative increase in BMI points at 6-month follow-up compared to HE girls. However, girls in the IPT-WG experienced a decrease in BMI at 12-month follow-up while girls in the HE group experienced a considerable increase in

BMI at 12-month follow-up compared to 6-month follow-up. BMI percentiles and z-scores stayed relatively stable or went down for the IPT-WG group. See Table 11.

Table 11

Treatment Group Comparisons of Change in BMI and LOC Eating Episodes

Variable	<u>IPT-WG</u> <i>Mean (SD)</i>	<u>HE</u> <i>Mean (SD)</i>	Statistic
BMI change, 12w	0.39 (0.65)	0.30 (0.88)	$t(36) = -0.36$
BMI change, 6m	0.87 (0.50)	0.31 (1.59)	$t(36) = -1.47$
BMI change, 12m	0.81 (1.25)	0.68 (2.13)	$t(36) = -0.22$
BMI z score, 12w	1.28 (0.39)	1.25 (0.44)	$t(36) = -0.27$
BMI z score, 6m	1.32 (0.41)	1.20 (0.48)	$t(36) = -0.81$
BMI z score, 12m	1.24 (0.50)	1.19 (0.52)	$t(36) = -0.29$
BMI %ile, 12w	0.88 (0.07)	0.87 (0.08)	$t(36) = -0.47$
BMI %ile, 6m	0.89 (0.07)	0.86 (0.10)	$t(36) = -1.11$
BMI %ile, 12m	0.87 (0.10)	0.85 (0.11)	$t(36) = -0.36$
LOC total, screening	0.74 (1.94)	0.89 (1.85)	$t(36) = 0.26$
LOC total, 12 mos	0.11 (0.46)	0.16 (0.50)	$t(36) = 0.34$

Note. BMI =Body Mass Index (kg/m^2). LOC = loss of control eating. IPT-WG = Interpersonal Psychotherapy for prevention of weight gain. HE = Health Education.

To learn more about the psychometrics of the TPQ measure, correlations between the TPQ items were analyzed. See Table 12.

Table 12

Correlations Between Baseline Treatment Process Questionnaire Items

Item	Confidence in ability to resist binge eating	Confidence in ability to resist overeating	Confidence in ability to resist eating in response to negative mood	Quality of social interactions
Consciously restrict	-0.13	-0.12	0.29	0.49*
Confidence in ability to resist binge eating	1	0.63**	0.27	0.20
Confidence in ability to resist overeating		1	0.62**	0.03
Confidence in ability to resist eating in response to negative mood			1	0.09

* $p < 0.05$, ** $p < 0.01$.

The effect of time on each item of the TPQ was analyzed with repeated measures ANOVAs. Time had a significant effect on how participants responded to the item assessing restriction, $F(1, 4) = 20.41$, $p < 0.001$. Pairwise comparisons showed that participants' conscious attempts at restricting the amount of food they ate significantly increased over the course of the 12-week group. See Table 13. Time did not have a significant effect on how participants responded to the item assessing confidence in ability to resist binge eating, $F(1, 2.77) = 1.51$, $p = 0.23$, or on how participants responded to the item assessing confidence in ability to resist overeating, $F(1, 2.62) =$

1.24, $p = 0.13$. Of note, the condition of sphericity was not met for the last two comparisons (resisting binge eating and resisting overeating), suggesting that there were significant differences between the conditions' variances. The Greenhouse-Geisser estimation of sphericity was used for these comparisons. Time did not have a significant effect on how participants responded to the item assessing confidence in ability to resist eating in response to negative mood, $F(1, 4) = 1.54$, $p = 0.20$ or on how participants responded to the item assessing quality of social interactions, $F(1, 4) = 1.12$, $p = 0.36$.

Table 13

Pairwise Comparisons

Comparison	Mean Difference
Session 12 - Pretreatment	4.27**
Session 12 – Session 3	3.93**
Session 12 – Session 6	3.47**
Session 12 – Session 9	3.80**

** $p < 0.001$

Partial correlations of 12-week TPQ responses with social functioning and IPI, while controlling for baseline TPQ, were computed. Overall, self-reported treatment progress scores did not relate significantly to either measure of social functioning. See Table 14.

Table 14

Correlations Between 12-week TPQ Responses and Social Functioning

Measure	Confidence in ability to resist binge eating	Confidence in ability to resist overeating	Confidence in ability to resist eating in response to negative mood	Quality of social interactions
Social functioning composite	-0.13 (13)	-0.16 (13)	0.21 (13)	0.31 (13)
IPI composite	0.03 (16)	0.11 (16)	0.24 (16)	0.05 (16)

Note. TPQ = Treatment Process Questionnaire. IPI = Interpersonal Inventory.

**Self-Reported Treatment Progress and Relative BMI gain,
LOC Eating, and Emotional Eating**

For use in the following analyses, additional variables were created to reflect the change in BMI from baseline to 12 weeks, 6 months, and 12 months post-treatment. The change variables were created by subtracting the participants' BMIs at 12 weeks, 6 months, or 12 months post-treatment from the participants' baseline BMI.

Then the relationship between 12-week TPQ responses with relative BMI gain, LOC eating, and EES-C scores were evaluated at all time points. As expected, confidence in ability to resist binge eating was significantly, negatively correlated with LOC eating and emotional eating at 12-week post-treatment. Additionally, confidence in ability to resist overeating was significantly, negatively correlated with LOC eating and emotional eating at 12-week post-treatment and confidence in ability to resist eating in response to

negative mood was significantly, negative correlated with LOC eating at 12-week post-treatment. Although most comparisons did not reach significance, most correlations were negative, as expected. See Table 15.

Table 15

Correlations Between 12-week TPQ Responses with LOC Eating, EES-C, and Relative BMI gain at 12-week, 6-months, and 12-month Post-Treatment

Measure	LOC 12 w	LOC 6m	LOC 12m	EES 12w	EES 6m	EES 12m	BMI 12w	BMI 12m	BMI 6m
Restrict	0.26	-0.08	0.05	0.24	-0.11	-0.23	0.24	-0.03	-0.05
Confidence in ability to resist binge eating	-0.61**	-0.09	-0.09	-0.47*	-0.06	0.02	-0.45	-0.04	0.12
Confidence in ability to resist overeating	-0.63**	-0.03	-0.24	-0.51*	-0.17	-0.13	-0.34	0.18	0.25
Confidence in ability to resist eating in response to negative mood	-0.75**	-0.37	-0.37	-0.41	-0.26	-0.33	-0.38	0.19	0.08
Quality of social interaction	0.05	-0.30	0.19	0.01	-0.33	-0.39	0.23	0.38	0.13

Note. TPQ = Treatment Process Questionnaire. LOC = Loss of control eating. EES-C = Emotional Eating Scale. BMI = Body Mass Index.

* $p < 0.05$, ** $p < 0.01$.

Influence of Distress and LOC Eating

To evaluate the need to control for distress, correlations between CDI scores and 12-week TPQ item scores were analyzed. The relationship between baseline CDI scores and 12-week TPQ responses were as follows: 12-week conscious restriction, $r = -0.02$, $p = 0.94$, 12-week confidence in ability to resist binge eating, $r = 0.01$, $p = 0.96$, 12-week confidence in ability to resist overeating, $r = 0.05$, $p = 0.84$, 12-week confidence in ability to resist eating in response to negative mood, $r = -0.11$, $p = 0.65$, and 12-week quality of social interactions, $r = -0.08$, $p = 0.76$. Thus, baseline depressive symptoms were not significantly or strongly predictive of later confidence ratings or quality of social interactions. Accordingly, the main analyses were conducted without controlling statistically for depressive symptoms.

To evaluate the need to control for baseline LOC eating, correlations between LOC eating and 12-week TPQ item scores were analyzed. The relationship between baseline LOC scores and 12-week TPQ responses were as follows: 12-week conscious restriction, $r = 0.02$, $p = 0.94$, 12-week confidence in ability to resist binge eating, $r = 0.05$, $p = 0.83$, 12-week confidence in ability to resist overeating, $r = -0.18$, $p = 0.47$, 12-week confidence in ability to resist eating in response to negative mood, $r = -0.46$, $p = 0.05$, 12-week rating of quality of social interactions, $r = -0.09$, $p = 0.71$. LOC eating symptoms at baseline significantly predicted participants' ratings of their confidence in their ability to resist eating in response to negative mood at the end of the IPT-WG group, but otherwise, LOC eating was not significantly or strongly related to later confidence ratings.

Additionally, correlations between baseline CDI scores and baseline LOC eating and LOC eating, EES-C, and relative BMI gain at 12-week, 6 months, and 12 months post-treatment were analyzed. Correlations between baseline CDI scores, baseline LOC eating, and outcome measures are displayed in Table 16. With the exception of a significant and positive relationship between baseline LOC and EES-C scores at 12 week post-treatment, the remainder of the comparisons was not significantly or strongly related to each other.

Table 16

Correlations Between Baseline CDI and LOC eating with LOC Eating, EES-C, and Relative BMI gain at 12-week, 6-months, and 12-month Post-Treatment

Measure	LOC 12 w	LOC 6m	LOC 12m	EES 12w	EES 6m	EES 12m	BMI 12w	BMI 12m	BMI 6m
CDI	0.12	-0.10	0.08	0.16	0.15	0.19	0.25	0.17	0.18
LOC	0.12	0.02	0.30	0.12	0.26	0.45**	-0.09	-0.19	0.07

Note. CDI = Children's Depression Inventory. EES = The Emotional Eating Scale. BMI = body mass index (kg/m²)

** $p < 0.01$

Post-Hoc Analysis: Moderator Effect of Social Functioning on Efficacy of IPT-WG

Overall, since IPT-WG did not prevent weight gain, moderation was evaluated in a different way, specifically to see if there was a disordinal interaction. In other words, to determine if there was a subgroup who did better in IPT-WG and a subgroup who did better in HE, the social composite variable was used to evaluate post-hoc whether or not

certain groups specifically benefited from IPT-WG or HE. The GEE analysis described in the Method section yielded the following results. The main effect of treatment condition was not significant, Wald chi-square ($df = 1$) = 0.08, $p = 0.79$. Additionally, the main effect of social functioning was not significant, Wald chi-square ($df = 1$) = 0.42, $p = 0.52$. The interaction of treatment condition and social functioning was not significant, Wald chi-square ($df = 1$) = 1.18, $p = 0.28$.

CHAPTER 4

DISCUSSION

It was hypothesized that according to the capitalization model, girls with more social functioning at baseline would show more improvement over the course of the IPT-WG group, at the end of the group, as well as at the 6-month and 12-months follow-ups. Or, according to the compensation model, girls with poorer social functioning or more dysfunction at baseline would show greater improvement over the course of the IPT-WG group and at the end of the group, as well as at the 6-month and 12-month follow-ups. The results of the current study provide preliminary support for a compensation model at work within IPT-WG. Specifically, significant positive correlations were found between baseline social functioning, as indicated by the social functioning composite score, and emotional eating at 6-months post-group, emotional eating at 12-months post-group, LOC eating at the end of the group, and LOC eating at 12-months post-group. In other words, those with greater social functioning at baseline tended to experience more emotional eating 6 and 12 months after the IPT-WG group and more LOC eating at the end of the group program and 12 months after the group. This suggests that girls with poorer social functioning or more dysfunction at baseline improved more than girls with greater baseline social functioning, which is consistent with the compensation model.

Additionally, the influence of social functioning in the IPT-WG group was compared to the influence in HE at the end of the group, as well as at the 6-month and

12-month follow-ups. The randomized program assignments used in this study successfully created approximately equivalent groups, based on comparisons of all demographic variables, baseline distress, LOC, and social functioning. The comparisons between baseline social functioning, according to the social functioning composite scores, and outcome measures among HE participants were not significant, suggesting that it is less likely that a relationship exists that would support either the compensation or capitalization models at work in the HE intervention.

Another indicator of baseline social functioning among IPT-WG participants, the IPI, was examined in this study. IPI ratings were significantly positively related to BMI at 6-month and 12-month follow-ups. In other words, greater social functioning at baseline, according to IPI ratings, indicated significantly greater BMIs at 6-month and 12-month follow-ups. This too provides support for the compensation model as it indicates that girls with poorer social functioning or more dysfunction at baseline were more likely to have lower BMIs at later follow-ups.

To examine how social functioning related to perceptions of treatment progress over the course of the IPT-WG group, partial correlations were calculated between 12-week TPQ responses, the IPI, and the social functioning score. The findings in this study suggest that a significant relationship does not exist between social functioning and participants' perceptions of treatment progress. Although social functioning may not relate to perceptions of treatment process, further understanding of the psychometrics of the TPQ may be warranted. The data generated in this study provides preliminary support for its internal consistency and sensitivity to change over time. However, due to the small

sample size, more research is needed to assess whether or not the TPQ is reliably and validly measuring treatment progress as was intended.

Although little research exists examining compensation and capitalization models within applications of IPT, the current findings are somewhat surprising after a review of the existing literature. Hilbert et al. (2007) found that among a sample of 162 overweight patients with BED randomized to group cognitive behavioral psychotherapy or group IPT, more interpersonal problems at baseline predicted lower likelihood of achieving abstinence from binge eating. Hilbert et al. did not find treatment-specific mediators or moderators. Sotsky et. al. (1991) found that individuals with low social dysfunction responded better to all treatments in terms of decreasing depression symptoms, but individuals with low social dysfunction did particularly well in IPT, compared to CBT. In other words, IPT specifically capitalized on baseline social functioning skills in their sample. Two studies also found that higher baseline social adjustment predicted improved social functioning at IPT termination (Billings & Moos, 1985a; Rounsaville, Weissman, & Prusoff, 1981). Additionally, research found in the general psychotherapy outcome literature provides support for a positive relationship between measures of social competence and good psychotherapy outcome (Rosenbaum, Friedlander, & Kaplan, 1956; Billings, & Moos, 1985b; Steinmetz, Lewinsohn, & Antonuccio, 1983; McLean & Hakstain, 1978; Gonzales, Lewinsohn, & Clarke, 1985).

Like Sotsky et al. (1991), Wilson, Wilfley, Agras, and Bryson (2010) found evidence to support the idea that IPT may be specifically appropriate for certain subgroups. However, unlike Sotsky et al., they found that poorer functioning predicted better response to IPT among adults with BED. Although, the aspects of functioning

Wilson et al. examined, low self-esteem and level of eating disorder psychopathology, were different than those examined in this study, like the current study, their findings suggest that a compensation model may have been at work within their application of IPT. It may be that IPT for eating disorder behaviors lends itself more appropriately to a compensation model.

Interestingly, it seems that the literature thus far suggests that depression treatments capitalize on pre-existing strengths or utilize a capitalization model (Billings & Moos, 1985a; Rounsaville, Weissman, & Prusoff, 1981; Sotsky et al., 1991); while eating concern treatments compensate for pre-existing weaknesses or utilize a compensation model. It is possible that this is the case because depression treatment works to change a person's morale and does not require development of new skills. Depression treatment may alleviate the depression to allow for access to existing strengths.

The hypothesis, higher self-reported treatment progress scores over the course of the group would be negatively correlated with relative BMI gain, LOC eating, and emotional eating at the end of group, as well as at 6-month and 12 month follow-ups, was not significantly supported. Most of the generated correlations were negative, as expected, but they failed to reach significance. Five of the comparisons were statistically significant. Specifically, greater confidence in one's ability to resist binge eating at the end of the group significantly predicted less LOC eating and emotional eating at the end of the group. Additionally, greater confidence in one's ability to resist overeating significantly predicted less LOC eating and emotional eating at the end of the group. Finally, greater confidence in one's ability to resist eating in response to negative mood

significantly predicted less LOC eating at the end of the group. This is consistent with expectations because restriction grew over the course of therapy and we would expect participant's perceptions of progress to mirror outcome, particularly due to the thematic overlap between the items incorporated in the significant relationships and the associated outcomes, particularly LOC and emotional eating.

The influence of distress on self-reported treatment progress and on outcome at the end of the group, at the 6-month follow-up, and 12-month follow-up was also examined. Baseline depressive symptoms were not strongly predictive of later confidence ratings or quality of social interactions nor were they strongly predictive of outcome. The correlations between baseline CDI scores and outcome measures were all not significant. Therefore, it was determined that the main analyses did not need to control statistically for depressive symptoms. It seems reasonable to conclude that it would not be necessary to control for depressive symptoms in future similar studies, assuming that the samples have lower levels of depressive symptomology as this sample did. This finding may have varied had the sample included individuals' with more severe depressive symptomology.

Overall, LOC eating was not strongly related to later confidence ratings or outcome at the end of the group, at the 6-month follow-up, and 12-month follow-up. However, LOC eating at baseline significantly predicted participants' ratings of their confidence in their ability to resist eating in response to negative mood at the end of the IPT-WG group. The correlations between baseline LOC eating and most outcome measures were not significant, except the relationship between baseline LOC and EES-C scores at 12-week post-treatment which was significant and positive. Overall, based only on the data generated here, one may conclude that it may not be necessary to control for

LOC eating. However, given the existing research that LOC eating predicts weight gain in children (Tanofsky-Kraff et al., 2009), as well as the research supporting the role of LOC eating in the theory backing IPT-WG (Elliott et. al., 2010), it is likely that the lack of findings is a result of methodological issues. The relatively lower levels of baseline LOC eating, in part due to the small sample size and since not all participants endorsed LOC, likely limited the power to detect true differences.

Further study is needed to understand potential differences in these programs, not only in terms of differences in outcomes but also to understand differences in fit of compensation or capitalization models. Although this was not the focus of the current study, it was expected that adolescent girls in IPT-WG would reduce LOC eating and gain less weight than girls in the HE group, particularly over the course of the follow-up period. Regardless of treatment group, all participants endorsing baseline LOC eating reported a decrease of LOC episodes by 12-month follow-up. Additionally, participants reporting LOC in the IPT-WG reported greater reductions in LOC episodes compared to participants in the HE group (Tanofsky-Kraff et al., 2010). Additionally, more girls in IPT-WG experienced less than expected BMI growth at follow-up compared to girls in HE.

Both groups on average gained BMI points compared to their baseline BMI, as expected due to growth. However, the pattern of BMI change reveals a trajectory similar to the trajectory of weight change reported in adults participating in IPT groups (Wilfley et al., 1993) and in individual IPT with eating-disordered adults (Fairburn, Jones, Peveler, Hope, & O'Connor, 1993). In Wilfley et al.'s sample of women with non-purging bulimia nervosa participating in a trial of IPT and CBT, no differences in weight were

found at 6-month follow-up; however, at 1-year follow-up, women in the IPT group lost significantly more weight than those in the CBT group. It has been hypothesized that IPT may take longer to achieve its effects because positive changes in interpersonal relationships take time to evolve and the consequences of these changes may not be measurable immediately (Fairburn, Jones, Peveler, Hope, & O'Connor, 1991) but may lead to more pervasive, sustained change. Although girls in the IPT-WG experienced a greater relative increase in BMI at 6-month follow-up compared to HE girls, the pattern shifted in such a way that suggests the possibility of delayed effects at work in this sample. Girls in the IPT-WG experienced a decrease in BMI at 12-month follow-up while girls in the HE group experienced a considerable increase in BMI at 12-month follow-up compared to 6-month follow-up. In other words, girls in the IPT-WG group achieved weight maintenance or weight loss, compared to HE group at 12-month follow-up (Tanofsky-Kraff et al., 2010).

It is possible that common therapeutic factors, including the instillation of hope, universality, and group cohesiveness, may best explain similarities in outcomes in the groups (Yalom, 1995). Additionally, participants with deficits in social functioning may have responded to such common factors more than their counterparts with fewer social functioning deficits regardless of group assignment. Future studies should further evaluate the possibility of a disordinal interaction to determine if there is a subgroup who does better in IPT-WG. Additionally, researchers should incorporate a wait list control group to determine if the current study lacked adequate power to detect differences in treatments or if the treatments are truly not differentiable from each other.

The primary limitation of the study is the small sample size. The small sample size may have impaired the study's power to detect significant differences and utilize stable estimates of social functioning as it relates to the outcome measures described above. This study was not powered to detect group differences but was designed to determine feasibility and acceptability and evaluate if patterns exist in this dataset. Such patterns were found in this study, suggesting that further study is warranted. An adequately powered trial is currently underway.

Additionally, in this study, the correlation cut-off for inclusion in the social functioning composite score was somewhat low ($r > .1$). Many of the correlations among social functioning measures were lower than expected, perhaps due to the small sample size. The decision to include these measures was made due to the exploratory nature of the study and the value of creating a composite variable instead of analyzing each measure independently. In future studies, using a cut-off in the moderate range ($r = 0.2-0.3$) would be preferable.

An additional limitation was that the results may not generalize to other populations, treatments, and treatment settings. For instance, it would be useful to evaluate the validity of the measures of social functioning used in this study from the perspective of different cultural groups (e.g., does the social functioning composite variable represent healthy social functioning to different minority groups?). Future studies could examine the role of various diversity factors in evaluating IPT-WG's acceptability and effectiveness, as well as how these factors impact IPT-WG's fit with compensation and capitalization models.

Additionally, it would be useful to formalize the ratings of the HE session tapes to better evaluate the absence of IPT-WG content from these sessions. Future studies should consider the possibility that pressure resulting from what participants deemed socially desirable in the group may have blunted sharing and/or self-report of LOC episodes. Finally, although research assistants who conducted post and follow-up assessments were not aware of perceptions of treatment progress by treatment providers, they were not masked to treatment condition, which may mean that bias was introduced into the measures, particularly interview measures.

Despite these limitations, this study furthers our understanding of the potential for IPT-WG as a specialty treatment for adolescent girls at risk of overweight, particularly those with more social dysfunction. This study evaluated outcome in a variety of ways across several time points and used treatment groups that were equivalent in terms of demographics and all other psychologically relevant factors at baseline. Additionally, the sample was diverse in terms of race, culture, and socioeconomic status. An adequately powered trial will garner a fuller understanding of IPT-WG's potential efficacy, particularly among adolescent girls with deficits in social functioning.

APPENDIX A

RATING SCHEME FOR INTERPERSONAL INVENTORY

Please rate the degree of social functioning (e.g., knowledge of and use of social skills, number and type of social stressors) as you see reflected in the individual participant's Interpersonal Inventory.

1

Demonstrates significant deficit in social skills, significant interference or inability to use social skills, &/or several social stressors or one significant and severe social stress (e.g., parents in jail, high conflict divorce, abusive relationships, recent death in family, parental/caregiver mental health issues)

2

3

Demonstrates moderate deficit in social skills, moderate interference or inability to use social skills, &/or moderate social stressor(s) (e.g., mild to moderate conflict divorce or separation, one parent absent)

4

5

Demonstrates mild deficits in understanding of social skills and ability to use the skills &/or moderate social stressors (e.g., frequent arguments with parents, friends, or other significant figures, moderate stress associated with changes in psychosocial situations like recent move, changing schools, etc.)

6

7

Demonstrates appropriate understanding and use of social skills &/or mild to moderate social stressors (e.g., infrequent arguments with parents, friends, or other significant figures; mild stress associated with changes in psychosocial situations)

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