Interpersonal Problem Areas and Alexithymia in Adolescent Girls with Loss of Control Eating

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Abstract

This study investigated the links among interpersonal problem areas, depression, and alexithymia in adolescent girls at high-risk for excessive weight gain and binge eating disorder. Participants were 56 girls (M_{age} = 14.30, SD = 1.56; 53% non-Hispanic White) with a body mass index (BMI, kg/m^2) between the 75th and 97th percentiles ($M_{BMI\text{-}z}$ = 1.57, SD = 0.32). By design, all participants reported loss of control eating patterns in the past month. Adolescents were individually interviewed prior to participating in a group interpersonal psychotherapy obesity and eating disorder prevention program, termed IPT for the prevention of excessive weight gain (IPT-WG). Participants' interpersonal problem areas were coded by trained raters. Participants also completed questionnaires assessing depression and alexithymia. Primary interpersonal problem areas were categorized as interpersonal deficits (as defined in the eating disorders (ED) literature) (n = 29), role disputes (n = 22), or role transitions (n = 5). Girls with interpersonal deficits-ED had greater depressive symptoms and alexithymia than girls with role disputes (ps   0.01). However, girls with role transitions did not differ from girls with interpersonal deficits-ED or role disputes. Interpersonal problem area had an indirect association with depression via alexithymia; interpersonal deficits-ED were related to greater alexithymia, which in turn, was related to greater depressive symptoms (p = 0.01). Among girls at-risk for excess weight gain and eating disorders, those with interpersonal deficits-ED appear to have greater distress as compared to girls with role disputes or role transitions. Future research is required to elucidate the impact of interpersonal problem areas on psychotherapy outcomes.

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Keywords

adolescence; loss of control eating; interpersonal deficits; interpersonal psychotherapy; alexithymia

Binge eating, characterized by episodes of overeating accompanied by a lack of control over eating, is the hallmark behavior of binge eating disorder (BED) (1). BED is associated with a range of psychological problems including distress about shape and weight, poor social functioning, low self-esteem, mood and anxiety disorders (2), as well as poor physical health (3).

Although full-syndrome BED is rarely observed in children and adolescents, reports of infrequent (1 episodes in the past month) loss of control eating (LOC eating) are common. LOC eating is defined as the experience of being unable to control what or how much is being consumed, regardless of the amount of food reportedly eaten (4). Prevalence rates of LOC eating range from 4% to 45%, with higher estimates among overweight (versus non-overweight) youth, adolescents (versus pre-adolescents), and girls (versus boys). Youth with reported LOC eating are more likely to be heavier and to have greater fat mass than their peers without LOC eating episodes (4). Paralleling adult BED, pediatric LOC eating is associated with increased eating-related psychopathology, symptoms of depression and anxiety, and dysfunctional emotional regulation strategies (4–6). Notably, LOC eating in middle childhood is predictive of excess weight gain (7), the development of partial and full-syndrome BED, and worsening symptoms of depression (8).

Despite the adverse associations and consequences of LOC eating, not all youth reporting the behavior continue to experience episodes over time. In one naturalistic study, about half of children who endorsed LOC eating during childhood continued to report LOC eating four years later, and only youth with persistent LOC eating experienced the greatest increases in psychological distress (8). Therefore, identifying those youth who are at greatest risk for persistent LOC eating may elucidate those in greatest need of prevention and/or early intervention.

Interpersonal Psychotherapy Model as Applied to Binge Eating Disorder/ Loss of Control Eating

Group Interpersonal Psychotherapy for Eating Disorders (IPT-ED) was developed specifically for the treatment of adults with BED; the intervention targets improvements in interpersonal problem areas that purportedly lead to reductions in binge eating (16). The interpersonal model also has been applied to intervening with LOC eating in youth with a group program termed IPT for the Prevention of Excess Weight Gain (IPT-WG) (17). As with IPT-ED, IPT-WG focuses upon improving interpersonal problems that precipitate or maintain LOC eating. Reductions in LOC eating are anticipated to prevent the excessive weight gain linked to adolescents' LOC episodes and to prevent the development of BED (17). Unlike IPT-ED, which was developed as a treatment for adults with BED and often co-morbid clinical depression, IPTWG was designed as a selective, preventive intervention for adolescents at-risk for excessive weight gain and BED (17). The IPT-WG approach shares a number of features with IPT-Adolescent Skills Training (IPT-AST) (18). Like IPT-AST, IPT-WG is geared for adolescents in content and structure. Primary components of the IPT-WG include psycho-education about the interpersonal model of LOC eating, discussion of normative social developmental changes of adolescence – particularly as they pertain to eating- and weight-related issues – and interpersonal social skill-building through communication skills training and role-playing. Role-plays are tailored to assist group

members in working on personalized, interpersonal goals. The group facilitators formulate 1 to 3 specific goals with each adolescent during an interpersonal inventory conducted at a pre-group, individual session.

The manifestation of adolescents' LOC eating symptoms can be conceptualized as falling within one of four primary interpersonal problem areas: a) interpersonal deficits, b) interpersonal role disputes, c) role transitions, and d) grief. IPT programs developed for BED treatment or prevention (i.e., IPT-ED or IPT-WG) conceptualize problem areas somewhat distinctly as compared to traditional IPT (16, 19, 20). From an eating disorder-specific approach, *interpersonal deficits* are used to designate individuals with either poor social skills that drive social isolation, or individuals with repeatedly difficult or ineffective social interactions that yield chronically unsatisfying relationships (16). The former (e.g., social isolation) *only* is considered the classic interpersonal deficit in IPT treatment for clinical depression when such problems occur in the absence of a significant life transition (21). The eating disorder-specific conceptualization of interpersonal deficits *also* encompasses individuals with many relationships that are superficial, unfulfilling, and/or characterized by ineffective communication or conflict. Conceptualized as such, interpersonal deficits affect a majority (>60%) of adults presenting for IPT-ED treatment for BED (16). *Interpersonal role disputes* refer to conflicts with one or two significant others (e.g., a parent, other family member, or peer) that emerge from differences in expectations about the relationship. *Role transitions* are a significant change in life status such as, for adolescents, a change in schools, graduation, moving, parental divorce, or having difficulty with the transition from pre-adolescent to adolescent types of relationships and the accompanying expectations and requirements of a different skill set. The problem area of *grief* is identified when the onset of the individual's symptoms is associated with either the recent or past loss of a close person. In IPT-WG, multiple interpersonal problem areas may apply. IPT-WG focuses on identifying and changing the maladaptive interpersonal context in which the LOC eating symptoms developed and have been maintained (17).

Link between Interpersonal Problem Area, Depression, and Binge Eating Disorder/Loss of Control Eating

To date, no study has examined whether problem area designation differentiates youth with LOC eating. In theory, individuals with LOC or binge eating who present with interpersonal deficits may constitute a vulnerable subset of individuals due to pervasive deficits in social functioning across multiple relationships and social domains. In contrast to other problem areas, a classification of interpersonal deficits in IPT-ED or IPT-WG may denote difficulties that impede an individual's ability to establish and maintain healthy relationships with others. Among adults, interpersonal deficits are highly correlated with depression (22). In obese adult women, those with social skills reflective of interpersonal deficits, such as low assertiveness, poor capacity to interact with strangers, and high distress in social situations, were more likely to have BED compared to obese women without such interpersonal characteristics (23). Although no study has examined adolescents, it has been hypothesized that those with the type of interpersonal deficits that parallel adult women with BED may be more vulnerable to depressive symptoms compared to youth with other types of interpersonal problems (24, 25). Taken together, adolescents with interpersonal deficits may represent a vulnerable subset of LOC youth who are more likely to exhibit severe eating-related and general psychopathology than youth with other interpersonal problem areas.

Mediating Role of Alexithymia between Interpersonal Problem Area, Depression, and Binge Eating Disorder/Loss of Control Eating

One construct hypothesized to explain communication difficulties among adolescents with LOC eating is "alexithymia." Alexithymia is defined as a set of cognitive–emotional deficits such as the inability to identify or express emotion and affect as well as avoidance in coping with conflicts or articulating emotions (26). Due to poor affective communication, individuals with alexithymia may lack the skills to seek support from individuals around them (27). Similarly, they may have difficulties recognizing when others are distressed or in need of empathy (28). It has been reported that alexithymia is related to poor social skills (29), less perceived social support, and smaller social networks (30). Not surprisingly, among adults, alexithymia has been related to lower self-esteem, greater depressive symptoms, more severe binge eating, presence of BED (31), and more frequent emotional eating (32).

Rationale for Examining Links between Interpersonal Problem Area, Depression, and Alexithymia among Adolescents with Loss of Control Eating

Evidence within the adult depression and BED literature suggests that interpersonal deficits (16, 23) and alexithymia (31, 32) are associated with more severe pathology. It has been suggested that individuals with BED use binge episodes to regulate depression (2, 33, 34). Accordingly, individuals with interpersonal deficits, due to the pervasive nature of their social difficulties, may experience more severe binge eating patterns, which may, in part, be explained by alexithymia. Despite these notable vulnerabilities, the relationships among interpersonal problem areas, negative mood, and alexithymia in adolescents with LOC eating, who may represent a target group for prevention efforts (5, 8, 35), are not well understood. Notably, youth with LOC eating often report a sense of "numbing" during such eating episodes (36) that may be reflective of alexithymia. Exploring the interpersonal and psychological factors that may put adolescents at risk for LOC eating, psychological distress, and potential development of BED could have important implications for intervention.

Therefore, the purpose of this study was to investigate the relationships among interpersonal problem areas, depression, and alexithymia among adolescent girls with LOC eating behaviors. Given the link between poor social skills, depression, and alexithymia, we hypothesized that girls with interpersonal deficits would report greater depression and alexithymia than girls with other problem areas. Further, we expected that alexithymia would mediate the relationship between interpersonal deficits and depression.

Methods

Procedures

Participants were drawn from a randomized controlled clinical trial (ClinicalTrials.gov ID: #NCT00680979) for the prevention of excessive weight gain and BED. Letters were sent to area healthcare providers and families with 12–17 year old daughters, and flyers were posted on public and internet bulletin boards and parent listservs for middle schools and high schools in the greater Washington, DC metropolitan area. Materials requested participation of adolescent girls who were "above average weight, but not yet obese." Interested families were informed that the study was aimed at preventing excess weight gain and that girls would be randomly assigned to an IPT-WG program focused on relationships, mood, and eating or a health education program focused on healthy living skills. Girls with a body mass

index (BMI, kg/m^2) between the 75th and 97th percentile reporting at least one episode of LOC eating in the month prior to assessment were included. One-hundred thirteen adolescent girls were randomized to participate in the trial. Due to the current study's focus on interpersonal problem areas, only data from the girls randomly assigned to IPT-WG (n = 56) were applicable and, therefore, included in the present analyses. All data for this study was collected prior to initiation of IPT-WG group sessions. Participants underwent two screening visits to determine study eligibility. The study was approved by the Uniformed Services University of the Health Sciences (USUHS) and *Eunice Kennedy Shriver* National Institute of Child Health and Human Development institutional review boards. Parents and daughters were provided with written, voluntary, informed consent and assent, respectively.

Measures

Anthropometrics—Following an overnight fast, weight was measured using a calibrated scale, and height was measured in triplicate by stadiometer and averaged. BMI was computed by dividing weight (kg) by the square of height (m). BMI-z scores were calculated using the Centers for Disease Control and Prevention 2000 growth standards (37).

Loss of control (LOC) eating—The Eating Disorder Examination (EDE) version 14.0D (38) was administered to determine the presence of LOC eating in the month prior to assessment. Based on their responses to the EDE, participants were categorized as having the presence (or absence) of objective binge episodes (overeating with loss of control), subjective binge episodes (LOC eating without objective overeating as assessed by the interviewer, but viewed as excessive by the interviewee), and/or objective overeating (overeating without loss of control) in the month prior to assessment. In adolescents, the EDE has demonstrated excellent inter-rater reliability for eating episodes (39).

Beck Depression Inventory, Second Version (BDI-II) (40), is a 21-item self-report measure that assesses depressive symptoms. Each response was assigned a score between 0 and 3; thus, the total score ranged from 0 to 63. Although the BDI-II is not a diagnostic tool for major depressive disorders and its total score is frequently considered dimensionally, scores from 0 to are thought to represent minimal depressive symptoms, scores of 10 to 16 may be indicative of mild depression, scores of 17 to 29 may be a sign of moderate depression, and scores of 30 to 63 could reflect severe depression. The BDI-II has well-established psychometric properties with adolescents (41).

Toronto Alexithymia Scale (TAS-20) a 20-item self-report questionnaire, was used to assess alexithymia. Responses are rated on a 5-point Likert scale whereby 1 = *strongly disagree* and 5 = *strongly agree*, with total scores ranging from 20 to 100. In addition to a total score, the TAS-20 produces three subscale scores. The 'identifying feelings' subscale consists of seven items assessing the ability to identify feelings and distinguish them from bodily sensations that accompany emotions (e.g., "I am often confused about what emotion I am feeling"). The 'describing feelings' subscale consists of five items assessing the ability to describe feelings to other people (e.g., "It is difficult for me to reveal my innermost feelings, even to close friends"). The 'externally oriented thinking' subscale consists of eight items assessing the tendency of individuals to focus their attention externally over internal events (e.g., "I prefer to just let things happen rather than to understand why they turned out that way"). The identifying feelings and describing feelings subscales have been associated with greater depression and somatic symptoms (42–45). Given the complexities of the alexithymia construct (42) and to elucidate the different components of this construct, we examined all three subscales in relation to interpersonal problem areas and depressive symptoms in the current study. The TAS-20 has demonstrated good internal consistency, test-retest reliability, convergent validity, and discriminant validity (46). While the TAS-20

scales often are considered continuously, clinically-relevant cut-off scores have been proposed for the TAS-20 such that scores between 20 to 51 may be indicative of no alexithymia, 52 to 60 representative of possible alexithymia, and 61 to 100 reflective of alexithymia (33, 47). In the only existing study, to our knowledge, examining prevalence rates of categorical alexithymia in healthy adolescents, 10% were categorized as alexithymic (48).

IPT problem areas—Prior to participation in IPT-WG group sessions, all girls met with their group leaders for an individual assessment termed the 'interpersonal inventory' (16, 21), during which interpersonal relationships and their links to LOC eating patterns were assessed. Based upon data obtained during the interpersonal inventory, the group leaders developed one to three intervention goals with each adolescent. Goals were based upon the interpersonal problems that seemed most tightly connected to LOC eating symptoms. Goals could encompass more than one interpersonal problem area. Although only data from the pre-group interpersonal inventory are considered here, goals were revisited and occasionally revised mid-way through the group program as the group progressed and as each adolescent's interpersonal, mood, and LOC eating problems were further elucidated. However, for the present study, only baseline goals were considered in coding the interpersonal problem area.

For the purposes of the current investigation, two independent raters coded interpersonal problem areas by rating all goals developed during the interpersonal inventory. Only the goals were used to determine problem areas; any other documentation from the pre-group meeting remained blind to the raters. Consistent with IPT-ED, goals related to remediating pervasive interpersonal difficulties and social isolation or chronically ineffective relationships were assigned the problem area of interpersonal deficits (e.g., "share my emotions with others in a way that gets my needs met"). Since interpersonal deficits are conceptualized more broadly in IPT-WG and IPT-ED (16, 19, 20) compared to IPT treatment for depression, we refer to this problem area as "interpersonal deficits-ED." Goals related to more effectively handling conflicts with one or two specific significant others were coded as role disputes (e.g., "work towards developing a more positive communication with my mom"). Goals were classified as role transitions if they reflected interpersonal problems pertaining to a transition (e.g., "figure out ways to talk to my mom about how she can best support me in trying to find ways to be more independent"). As might be expected in a prevention rather than treatment-seeking sample, no goals pertained to grief.

Inter-rater reliability for problem area assignment was very good (Kappa = 0.77, $p < 0.001$, 95% C.I. 0.62, 0.94). In cases where the raters were discrepant with regard to the assigned problem area(s) (n = 6), a third rater reviewed the goals and identified the problem area(s) so that agreement could be reached. The discrepant cases did not significantly differ across problem area.

Data Analyses

Analyses were conducted using SPSS for Windows, 18 (SPSS, Inc., 2009, Chicago, IL). All variables approximated a normal distribution as indicated by skewness < 3 and kurtosis < |10|. Analyses of variance (ANOVA) were used to compare the independent variable of interpersonal problem area (interpersonal deficit, role dispute, role transition) on the continuous dependent variables of depressive symptoms and alexithymia (total score and subscales). For descriptive purposes and as a secondary analysis, we also examined dichotomous values for depression and alexithymia based upon recommended clinical cut-offs (reported above). Chisquare analyses were used to describe the association between interpersonal problem area and depression or alexithymia considered categorically.

A product of coefficients approach was used to determine whether alexithymia total score (considered continuously) acted as a mediator of interpersonal problem area and depressive symptoms (measured continuously). This approach has better statistical power and less likelihood of Type 1 error than traditional measures of mediation analysis (49). The product of two coefficients was derived: α = the effect of the independent variable (i.e., interpersonal problem area) on the intervening variable (alexithymia), and β = the effect of the intervening variable (alexithymia) on the dependent variable (depressive symptoms). The estimate of αβ was divided by its standard error and compared to a standard distribution (50). Consistent with recommendations for estimating mediation (51), estimates for α, β, and standard error were derived from linear regression analyses.

We considered BMI-z score, age, and race as covariates in all analyses; however, none of these variables significantly contributed to any model so they were not included in the results presented here. Differences were considered significant when *p* values were < .05. All tests were two-tailed.

Results

The vast majority of girls had at least two IPT-WG goals (98%). Of the 56 girls, 1 had only one goal, 48 had 2 goals, and 7 had 3 goals. Of the girls who had more than one goal, about half (49%) had goals that were coded as the same interpersonal problem area: 6 (22%) had interpersonal deficits-ED, 21 (78%) had role disputes, and 0 (0%) had role transitions. The other half (51%) had goals that reflected two different problem areas: 24 (86%) had interpersonal deficits-ED and role disputes, 2 (7%) had interpersonal deficits-ED and role transitions, and 2 (7%) had role disputes and role transitions.

Given the adult BED literature supporting the relevance of interpersonal deficits-ED for psychological functioning and treatment outcome (16, 19, 20), adolescents who had at least one goal that reflected interpersonal deficit-ED were designated as interpersonal deficit-ED. Although this differs from IPT treatment approaches for depression (21, 25), this approach is consistent with the BED-specific IPT treatment approach (i.e., IPT-ED)(16, 19, 20). Given the small number of youth with role transitions, we coded these adolescents as either interpersonal deficits-ED or role disputes. Table 1 presents descriptive information about the 29 girls (52%) with interpersonal deficits-ED and the 27 (48%) with role disputes.

Adolescents with interpersonal deficits-ED reported greater symptoms of depression (*M* = 13.25, *SD* = 7.43) than adolescents with role disputes (*M* = 7.93, *SD* = 5.29, t (54) = 3.13, *p* = 0.003). Rates of elevated depressive symptoms (defined as > 13) differed significantly by problem area (67% among those with interpersonal deficits-ED vs. 40% among those with role disputes, *p* = 0.054). Girls with interpersonal deficits-ED reported significantly higher total alexithymia scores (t (54) = 2.41, *p* = 0.02) and externally orienting thinking scores (t (54) = 2.68, *p* = 0.01). Girls with interpersonal deficits-ED showed a trend toward greater difficulty with identifying feelings compared to girls with role disputes (t (54) = 1.94, *p* = 0.06). There was no difference with regard to the describing feelings subscale based on interpersonal problem area, t (54) = 1.043, *p* = 0.30. Similarly, rates of clinically relevant alexithymia (defined as a score of > 60 on the TAS-20) did not differ significantly by problem area (*p* = 0.12). Fifteen percent of girls with role disputes reported alexithymia scores greater than 60 and 32% of girls with interpersonal deficits-ED reported clinically relevant alexithymia. In exploratory analyses, role transitions did not differ from either interpersonal deficits-ED or role disputes with regard to symptoms of depression (*ps* > 0.11 or alexithymia (*ps* > 0.41).

Test of the Problem Area-Alexithymia-Depressive Symptom Model

Using a product of coefficients approach, we explored whether there was an indirect effect of adolescent girls' interpersonal problem area on depressive symptoms via alexithymia (total score). Interpersonal problem area was significantly indirectly associated with depressive symptoms via these variables' joint association with total alexithymia score ($z = 2.15$, $p = 0.03$): interpersonal deficits-ED (versus role disputes) were associated with greater alexithymia, which in turn, was related to greater symptoms of depression. However, when adolescent girls' interpersonal problem area and total alexithymia were both regressed on symptoms of depression, interpersonal problem area (B = 46.33, $p = 0.019$) and alexithymia (B = 0.37, $p < 0.01$) both remained significantly associated with depressive symptoms, suggesting that the relationship between adolescent girls' interpersonal problem area and depressive symptoms was not entirely accounted for by individual differences in alexithymia.

Discussion

This study examined the relationships among interpersonal problem area, alexithymia, and depressive symptoms in a prevention-seeking sample of adolescent girls at risk for excessive weight gain and binge eating disorder (BED). Youth whose problem area(s) included interpersonal deficits-ED, defined in IPT for the prevention of excess weight gain (IPT-WG) and IPT for BED (IPT-ED) as being socially isolated or exhibiting a pervasive pattern of difficult or unfulfilling relationships, were distinguished from those with role disputes. Adolescents with interpersonal deficits-ED reported greater symptoms of depression and higher levels of alexithymia than adolescents whose interpersonal problem area was a role dispute. Interpersonal problem area was indirectly associated with depressive symptoms via alexithymia, suggesting that difficulty with emotion may partially explain the relationship between interpersonal deficits- ED and greater symptoms of depression.

The finding that girls with interpersonal deficits-ED experience more distress than those with role disputes has not been examined previously, but it is consistent with interpersonal theories of depression suggesting that individuals who have persistent impairments in interpersonal relationships are more vulnerable to depression (9–12). These maladaptive interpersonal behaviors may include excessive reassurance seeking (52, 53) or ineffective interpersonal problem-solving (12, 54). It is important to consider that the relationship between interpersonal deficits-ED and symptoms of depression is likely bi-directional. Depressive symptoms may interfere with an individual's ability to engage in satisfying relationships (24, 25, 55) and difficulty in relationships may lead to isolation, loneliness, and/or symptoms of depression (56).

Notably, none of the girls in our sample presented with a problem area of grief and only five with role transitions. Grief is reserved for complicated bereavement or distress resulting from a significant loss that typically does not occur during childhood (e.g., losing a parent). Given that few adults with BED present with the problem area of grief (2) and that girls in our study were a prevention-seeking as opposed to a treatment sample, it is not surprising that none were affected by grief. By contrast, given the commonality of transitions and developmental changes during adolescence (57), it might have been anticipated that more girls would have presented with role transitions. We identified five girls for whom at least one program goal could be classified as pertaining to a role transition. Indeed, this number was so few that we grouped these youth according to their other problem area. In secondary analyses we found no differences between girls with role transitions and either interpersonal deficits-ED or role disputes. One possibility is that LOC eating among adolescent girls at-risk for excessive weight gain and BED more commonly arises and is maintained by interpersonal conflict in a relationship, social isolation, or chronically problematic

relationships as opposed to difficulties triggered by a stressful life transition. Alternatively, because the study sample was comprised exclusively of adolescents, all girls were in the midst of developmental transitions and therefore other problem areas were more prominently linked to their LOC eating. Indeed, one thematic component of the IPT-WG program itself is to provide psycho-education on the nature of interpersonal changes in relationships during adolescence such as shifts in autonomy and intimacy with parents and peers. The classification of participants' interpersonal problem areas could have also been affected by the low-symptomatology of the sample and the preventative nature of the program as well as a function of the interview process specific to the current study. Therefore, while the results provide valuable information on understanding interpersonal problem areas among adolescent girls at-risk for excessive weight gain and BED, it is important to note that the findings might not generalize to children or adults or to populations receiving preventive interventions or treatment for different types of psychopathology.

Our findings are consistent with prior studies suggesting that alexithymia is associated with poor interpersonal relationships (58) and depression (44, 59–61) and extends on prior studies by examining all three of these constructs within a single model, among adolescents. As hypothesized, interpersonal deficits-ED had an indirect association with symptoms of depression via alexithymia such that difficulty identifying or expressing emotions partially explained the relationship between interpersonal problem area and depressed mood. Although these data are cross-sectional and require replication with longitudinal samples, theoretically, interpersonal deficits-ED may promote alexithymia, which in turn, increases symptoms of depression. However, it is also possible that symptoms of depression promote alexithymia, which may lead to greater interpersonal difficulties. Rearranging the variables in the model may warrant testing. In particular, longitudinal and intervention outcome studies are required to better elucidate the directionality and temporal nature of these constructs.

Notably, the externally oriented thinking subscale of the TAS appeared to be most relevant in distinguishing girls with interpersonal deficits-ED from those with role disputes. This subscale assesses the tendency of individuals to focus their attention externally rather than using emotions to help guide one's life. Items include, for example, "I prefer to just let things happen rather than understand why they turned out that way;" "Being in touch with emotions is essential" (reverse scored); and "I find examination of my feelings useful in solving personal problems" (reverse scored). It is possible that this scale may reflect emotional avoidance as opposed to a lack of understanding or recognizing emotions per se. Alexithymia is traditionally defined as "a reduction or absence of the tendency to think about emotions or a deficit in the ability to consciously experience, describe, and identify emotions" (61). Many individuals who score high on measures of alexithymia also endorse elevated depressive symptoms (42–44), suggesting that they are able to identify negative mood states. Indeed, among the girls in our sample, avoidance of thinking about or addressing affective states appeared to be the most clinically-relevant component of alexithymia. Among adults with BED, "experiential avoidance," referring to the process of avoiding, escaping or otherwise altering unwanted private events (e.g. thoughts, feelings, memories), mediated the relationship between depressive symptoms and binge eating in one study (62). Similarly, in adolescents, LOC eating may serve as a mechanism by which those with interpersonal deficits-ED engage in emotional avoidance. As suggested by others (62), it is likely that the construct of alexithymia requires clarification. For individuals with binge eating and high levels of alexithymia, only the first component of the alexithymia definition (i.e., "a reduction or absence of the tendency to think about emotions") may be accurate rather than the latter (i.e., "a deficit in the ability to consciously experience, describe, and identify emotions"). Reduced tendency to think about emotions might best be captured by an

alternative term to alexithymia such as "experiential avoidance" or "external locus of control," which both also have been linked with LOC eating (62, 63).

The interpersonal model of BED proposes that the interaction between difficult relationships and mood triggers a cycle of binge eating behavior to cope with distress. It is possible that interpersonal problem areas may be informative for identifying those at greatest risk for adverse outcomes. Given that those individuals with interpersonal deficits-ED may present with greater symptoms of depression in addition to reporting LOC eating patterns, they may be at higher risk for persistent depressive symptoms or full-syndrome eating disorders and obesity than those with what may be a more normative problem area of role disputes. Indeed, both LOC eating and depressive symptoms confer risk for exacerbated disordered eating (8, 64, 65) and excessive weight gain (7, 65–68). The linkage of interpersonal problem area with symptoms of depression and alexithymia suggests that clinicians should be aware that individuals with interpersonal deficits-ED and disordered eating symptoms may have additional psychopathology that could affect the process or course of treatment. An intervention emphasis on improving the expression of emotion in relationships may help improve affect and decrease LOC eating.

Strengths of this study include the use of qualitative information about interpersonal problem area collected during a semi-structured interview by trained psychologists or graduate students in clinical psychology. The sample was also racially and ethnically diverse. Study limitations include the relatively small sample. However, all hypothesized relationships were statistically significant, suggesting that our study was adequately powered. In addition, the use of cross-sectional data does not allow for causal interpretations about the relationships identified among interpersonal problem area, depressive symptoms and alexithymia. Notably, the generalizability of the findings is limited to adolescent girls at-risk for excessive weight gain and BED. The conceptualization of interpersonal problem areas for eating disorder versions of IPT differs somewhat from the traditional IPT treatment approach to defining problem areas as the focus of treatment, especially in the definition of interpersonal deficits. IPT programs for BED (i.e., IPT-ED) or those at-risk for BED and obesity (i.e., IPT-WG) define interpersonal deficits more broadly than traditional IPT treatment for depression by including not only those who are socially isolated, but also those with pervasive relationship difficulties. The use of the eating disorder conceptualization of interpersonal deficits-ED may limit generalizability to samples struggling with other psychiatric problems. Finally, it is possible that role transitions figured more prominently in interpersonal problems than was accounted for by the coding system, since all girls were undergoing the adolescent transition.

In conclusion, IPT may be an ideal intervention for adolescents with LOC eating as it focuses on helping patients identify, manage, and communicate their feelings. Future research is needed to determine the impact of interpersonal problem areas on intervention outcome, both within the eating disorders field and IPT in general. Moreover, naturalistic prospective research is required to elucidate the impact of interpersonal problem areas on eating patterns and weight to elucidate those individuals most vulnerable to adverse outcomes.

Acknowledgments

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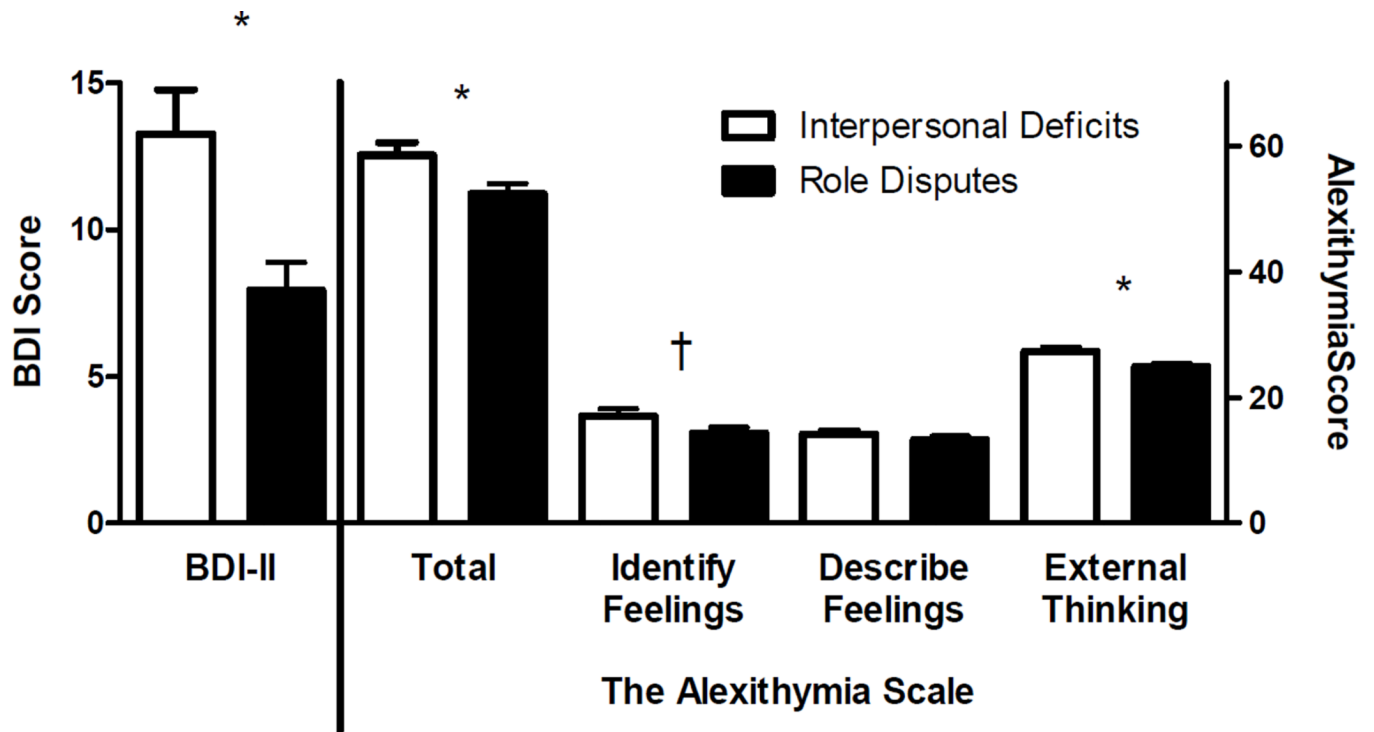
Figure 1.
Depression and Alexithymia by Primary Interpersonal Problem Area. BDI-II: Beck Depression Inventory-II. *$p<0.05$; † $p=.058$.

Table 1

Participant Demographics by Problem Area

Variable	Interpersonal Deficits (n = 27)	Role Disputes (n = 29)	Statistic	*p* value
Age (years)	14.17 ± 1.42	14.24 ± 1.68	t = 0.17	0.871
BMI-z score	1.54 ± 0.30	1.59 ± 0.33	t = 0.63	0.532
Race (%)	54% non-Hispanic White 20% African American	53% non-Hispanic White 25% African American	χ = 0.01	0.943
Number of LOC episodes	3.12 ± 3.10	4.47 ± 7.60	t = 0.82	0.420
BDI-II total score	13.25 ± 7.43	7.93 ± 5.29	t = 3.13	0.003*
TAS Total score	58.54 ± 9.82	52.44 ± 9.03	t = 2.41	0.019*
Identifying Feelings score	17.08 ± 5.40	14.38 ± 5.03	t = 1.94	0.058
Describing Feelings score	14.17 ± 3.14	13.19 ± 3.70	t = 1.04	0.301
Externally-Oriented Thinking score	27.29 ± 3.74	24.88 ± 3.01	t = 2.68	0.010

Note: Values are means ± standard deviation unless otherwise indicated; BMI z-score: BMI accounting for age and sex according to Centers for Disease Control and Prevention (Kuczmarski, et al., 2002). LOC: loss of control eating. Number of LOC episodes indicates number of loss of control eating episodes in the past month. BDI-II: Beck Depression Inventory II. TAS: Toronto Alexithymia Scale.