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Observed Connection and Individuation: Relation to Symptoms in Families of Adolescents with Bulimia Nervosa

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Abstract

Objective—To examine the relation between observed familial connection and individuation and adolescent bulimia nervosa (BN) symptoms.

Method—As part of a treatment study for adolescent BN, adolescents ($n = 54$) and their parents participated in a videotaped semi-structured interview. Participants were rated on observed connection and individuation from these interviews using the Scale of Intergenerational Relationship Quality and two measures of connection.

Results—There was a significant negative relation between individuation from parents and adolescent BN symptoms. Connection both to and from mothers and adolescents was negatively associated with BN symptoms. Increased eating concern was significantly associated with a greater likelihood of expressing a desire for more connection with the family.

Discussion—Investigating and understanding family factors present at the time of adolescent BN may assist in providing treatment specific to the needs of the family to best aid the adolescent's recovery process.

Keywords

bulimia; adolescent; connection; individuation; family

The treatment of adolescent bulimia nervosa (BN) is an underdeveloped area of study in the field of eating disorders (EDs)(1). Family-based treatment for bulimia nervosa (FBT-BN) has been demonstrated to be more efficacious than supportive psychotherapy at symptom reduction (2), and requires a cooperative process among parents and adolescents as part of treatment (3). Of interest, yet understudied in adolescent BN families, are the associations between family functioning and symptoms. Uncovering parent-adolescent relationship characteristics associated with BN symptoms is one step towards not only increasing our understanding of effective treatments for adolescents with BN but also possibly elucidating the mechanisms by which the treatments work.

Historically, parent-adolescent relationships have been investigated from several perspectives: autonomy-relatedness in the attachment literature (4), communication styles such as expressed emotion (5), as well as family systems theory, well known in the ED literature through the work of Minuchin and colleagues on characteristics of families in

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which an individual has anorexia nervosa (AN)(6). One aspect of relationships, and a particular goal of adolescence, is to balance independence with closeness by forming meaningful connections with others while still maintaining one's individuality (4), constructs known as individuation and connection. Individuation refers to "mutual respect, clear interpersonal boundaries and validation of individuality"; connection is "mutual affection, warmth and supportive communication" (7, p. 472). In several observational studies, disturbances in these characteristics in parent-adolescent relationships have been associated with adolescent drug use (8, 9), externalizing behaviors (9), negative affect (10), and EDs (8). Individuals with EDs may have difficulty with both the separation and connection inherent in attachment relationships (11).

Many of the studies investigating relationship characteristics in EDs have focused on comparing diagnostic groups to one another and/or controls, finding that compared to control and AN families, families with a BN member report the family as less cohesive (12-15). Lower independence and cohesion in the family was related to increased risk for an ED in a sample of mostly nonclinical adolescents (16). Taken together, these results suggest that low perceived levels of cohesion and independence in the family are associated with increased risk for EDs, particularly for BN.

Demonstrating evidence for the importance of connection and individuation in family relationships, in the few studies that have investigated the association between adolescent/young adult BN eating pathology and family relationship qualities, both mother and father parenting style (17), parental care and bonding (18), and low participant-reported family cohesion (19) have been significantly related to ED pathology. In one treatment study (20), women with BN who reported at baseline low levels of perceived mutuality (PM), a construct similar to connection, with their fathers had more severe symptoms throughout treatment and post-treatment, relative to women who reported high PM. Participant-reported low PM from mother at baseline was associated with higher levels of depression throughout treatment and post-treatment, relative to women who reported high PM. Further, participant-reported high PM with father at baseline was associated with women's reported treatment improvement. These results provide support for the importance of investigating parent-adolescent dyads separately by mother and father (17, 20, 21).

The paucity of studies on the association between adolescent BN symptoms and family characteristics that include more than the patient-reported perspective of the relationships makes it difficult to understand what is happening in the family during the time of an adolescent ED. In order to study interpersonal interactions without perceptual bias that self-report may introduce in a family experiencing disturbances in functioning, an observational method is recommended (22). Prior studies of observed family interactions have used conflict scenarios and problem-solving tasks to behaviorally assess family interactions in relation to BN (13, 23), while other studies used highly detailed microanalytic coding systems, such as the Structural Analysis of Social Behavior (SASB) (24), to assess reciprocal parent-adolescent interactions and communication styles (8, 25). Although the richness of detail this method provides is a considerable strength, it does not have the cost-effectiveness of macroanalytic coding schemes (26), which are simpler but have more clinical utility (27).

Thus, although several studies have compared ED diagnostic groups and controls on connection and individuation, few have investigated the link between family relationship characteristics and BN symptoms, and to our knowledge no studies have used an adolescent-only patient sample. The purpose of the current exploratory study was to investigate the relation between parent-adolescent observed connection and individuation and BN symptoms, and as a preliminary aim to examine the utility of two new coding scales for

macroanalytic coding of parent and adolescent connection. Observational rating scales were created to assess connection between parents and adolescents. Similar to a study of parent-child interactions related to illness in the family (28), the connection scales were informed by both theoretical and empirical evidence of relational disturbances in EDs, included specific behavioral anchors in the ratings, and were designed for the rating of interactions and communications during a semi-structured interview. Given that perceptions of family functioning often differ between individuals with BN and their parents (12), it was important to have not only multiple informants in the present study but also bidirectional ratings. Further, to facilitate comparisons with other studies investigating family relations and eating pathology (17, 18, 20), we included several ED behavioral and attitudinal components, which to our knowledge have not been investigated in relation to observed interactions. Our first aim is to test the hypothesis that there will be an inverse relation between observed parent-adolescent connection and individuation and adolescent BN symptoms. Our second aim is to assess whether BN symptoms differentiate between adolescents who did and did not express a desire for more connection in their family.

METHOD

Participants and Procedure

The present study is a secondary analysis of a randomized controlled trial of FBT-BN versus supportive psychotherapy for the treatment of adolescent BN in which 80 adolescents and their families completed self-report and interviewer-administered measures at baseline to assess BN symptoms and family interactions (2). This study was approved by the Institutional Review Board of The University of Chicago. Participants were males and females between the ages of 12 and 19 who were living with a parent at the time of the study and who met criteria for BN according to the DSM-IV (29), or a strict definition of partial BN (i.e., EDNOS-BN): patients with EDNOS-BN met all the criteria for BN except for binge or purge frequency, which was reduced to once a week for the previous six months.

Of the 80 families who participated in the treatment study, 55 (one male, 54 females) took part in a videotaped interview at baseline: the Standardized Clinical Family Interview (SCFI, description below). Twenty-five families were excluded due to language barriers or unwillingness to be videotaped and one family was excluded because the adolescent completed the videotaped interview with an aunt, not a parent, thus reducing the sample size to 54 families.

Measures

Eating Disorder Examination (EDE) (30)—BN symptoms were assessed by the EDE, which is a semi-structured clinical interview used to measure ED psychopathology. The EDE is considered the “gold standard” of ED assessment (31, 32). The EDE has four subscales—Dietary Restraint (“Restraint”), Weight Concern, Shape Concern, and Eating Concern. Additionally, three of the behaviors measured by the EDE were assessed in the present study: objective binge episodes (OBE), subjective binge episodes (SBE), and vomiting, all measured as frequencies for the past 28 days. Height and weight were also obtained during the administration of the EDE and were used to calculate Body Mass Index (BMI).

Beck Depression Inventory (BDI) (33)—Adolescents completed the BDI, a commonly used 21-item self-report measure that assesses the physical and emotional symptoms of depression. The BDI has been demonstrated to be both a reliable and valid tool for measuring depression (34).

Standardized Clinical Family Interview (SCFI) (35)—The SCFI is a semi-structured interview that includes open-ended questions to assess family cohesiveness (i.e., how much time is spent together and how satisfied family members are with the level of togetherness), conflict, discipline, roles and responsibilities, and decision-making. All families were asked the same questions in the same order. After reliability between the first two authors (ST and RH) reached 80% agreement, the SCFI videotapes were rated by the first author (ST) according to the coding schemes described below.

Scale of Intergenerational Relationship Quality (SIRQ) (36)—The SIRQ is a global observational coding system used to assess relationship qualities in families through coding of communication between parents and adolescents during interactions. Although only the Individuation component of the SIRQ coding manual was used in the present study, this measure contains other behavioral observation scales used to assess relationships between family members (e.g., communication, emotional tone, and warmth and caring). The Individuation scale consists of three subscales for parents: Demandingness (Dem), Validation of Adolescent Perspective (Valid), and Assertive Self-Confidence (ASC). Demandingness assessed the degree to which the parent communicated expectations of mature behavior from the adolescent in terms of goals, responsibilities, and limits. Validation of Adolescent's Perspective measured the extent to which the parent was comfortable with and encouraging of the adolescent's individuality, through content that acknowledged appreciation of the adolescent's thoughts and validating behavior, such as active listening. Assertive Self-Confidence assessed how assertive and self-confident the parent was when expressing himself or herself. To be assertive, the parent must have made his or her needs and opinions known in a clear and appropriate manner, without silliness, passivity, mocking, or hostility. Parental self-confidence was measured by expressions of self-assurance in one's capabilities, decisions, and viewpoints. Ratings were made on a scale from 1 to 9, each with detailed behavioral anchors, with more specific and frequent incidences receiving higher ratings. Thirteen percent of the videotapes were rated by the second author for reliability analyses; intraclass correlations (ICCs) for the scales were as follows: Mother Demandingness = 0.86; Mother Validation = 0.71; Mother Assertive Self-Confidence = 0.44; Father Demandingness = 0.91; Father Validation = 0.29; Father Assertive Self-Confidence = 0.67.

Connection—The two measures used to assess Connection were created by the first author (ST). The Connection Scale was rating according to the level of warmth, interaction, mutual understanding, collaboration, and body language during the interview. Parents and patients were rated on a 9-point scale, similar to the method used to rate the SIRQ, with a rating of 1 indicating the lowest level of Connection and 9 indicating the highest. Ratings were made for both Parent Connection to Patient and Patient Connection to Parent. The second rating scale was Desire for Connection, which assessed on a 9-point scale the degree to which adolescents expressed a desire to spend more time with the family, with a rating of 1 indicating no such desire was expressed. Information about the development of these measurements is available as a supplement online.

Family Adaptability and Cohesion Scale III (FACES III) (40)—FACES III is a reliable, valid, and clinically useful (41) self-report measure completed at baseline by mothers, fathers, and adolescents. Participants rated statements about cohesion and adaptability in their family twice: for the current level (Perceived) and for their desired level (Ideal). A Satisfaction score was calculated by subtracting the Perceived score from the Ideal score; a higher Satisfaction score indicates greater dissatisfaction because it represents the discrepancy between perceived and ideal cohesion or adaptability. The findings regarding the full sample's cohesion and adaptability have been published elsewhere (42);

FACES cohesion scales in the current study were used for establishing validity. Table 1 provides the names, subscales, abbreviations, and method of administration for each measure. Because all participants were part of a treatment study for BN, the rater could not be blind to diagnosis and was also not blind to the study hypotheses; however, the rater was blind to the status of mood, and BN symptom severity.

Statistical Analyses

For the first study aim, Pearson Correlations (one-tailed) were computed to test the strength of associations between Individuation and Connection variables and BN symptoms. For the second study aim, a hierarchical logistic regression was conducted to assess whether BN symptoms differentiated between adolescents who expressed a desire for connection with the family and those who did not. Desire for Connection, originally rated on a 9-point scale, was recoded into a dichotomous variable, such that 1 indicated that a desire for more connection was expressed (to whatever degree, with either or both parents), and 0 indicated such desire was not expressed (coded as 0). In the first step of the regression we entered duration of illness and BDI because prior research found that there is an association of age of onset of BN and BN severity (18), and that perception of family functioning is affected by depression symptoms (43). In the second step, we entered BN symptoms (Restraint, Weight Concern, Shape Concern, Eating Concern, OBE, SBE, and Vomiting). Lastly, the variable SBE was found to be highly positively skewed; therefore, prior to analysis a square-root transformation of the variable was used to achieve normality. Biserial correlations, used when one variable is dichotomous with an underlying continuum, were used to compute the relation between DFC and other variables.

RESULTS

Among the 54 participants, 25 patients (46.3%) met full criteria for BN and 29 (53.7%) patients met criteria for EDNOS-BN. Patients had a mean age of 15.9 years ($SD = 1.67$; range 12-19), a mean duration of illness of 18.1 months ($SD = 15.9$; range 2-60), and a mean BMI of 22.1 kg/m^2 ($SD = 2.91$; range 18.2-34.6). Sixty-three percent of adolescents were from intact families. The mean on the BDI score was 27.4 ($SD = 13.5$; range 4-66), which falls in the *moderate-to-severe* range. As previously reported (42), in the full treatment sample the average adolescent, mother, and father family cohesion rating was “disengaged”, the lowest cohesion level, which was also the case for the subset of the full sample in the present study.

To determine whether participants who completed the videotaped interview differed from the participants who did not participate in this part of the study, the two groups were compared. Using independent samples *t*-tests for continuous variables and chi-square analyses for categorical variables, no differences were found between the two groups on age, gender, race, duration of illness, diagnosis, family composition, diagnostic comorbidity, EDE, or BDI.

Reliability

Our preliminary aim was to investigate the utility of two observational rating scales for assessing connection between parents and adolescents. To assess interrater reliability, the second author coded thirteen percent of the videotapes; ICCs were computed: Connection Patient to Mother = 0.82; Connection Mother to Patient = 0.93; Connection Patient to Father = 0.73; Connection Father to Patient = 0.86. Due to zero variance among the raters, ICCs for DFC could not be computed. Instead, percent agreement for the raters was determined to be 85.7%. These reliability ratings are considered satisfactory.

Validity

The two rating scales were designed as macro-level coding scales with specific behavioral anchors; as such, they were expected to have high face validity (44). Additionally, to establish convergent and discriminant validity, the authors investigated whether family members' ratings on the observed Connection scale correlated with scores on the Cohesion subscale of the FACES III self-report measure. To establish convergent validity, observed Connection was expected to be related to FACES III Perceived Cohesion because Perceived Cohesion represents current family characteristics. To establish discriminant validity, observed Connection is not expected to be related to FACES III Ideal Cohesion because it is representative of optimal, and not current, characteristics. As expected, correlations between Connection to and from patients and parents with Perceived Cohesion ratings were significant for Patient Perceived Cohesion (Mother to Patient, $r(52) = .37, p = .007$ and Patient to Mother, $r(52) = .41, p = .002$). Correlations were marginally significant for Father to Patient, $r(27) = .31, p = .10$ and Patient to Father, $r(27) = .34, p = .07$. Therefore, there was support for convergent validity of the observed Connection scales. Also as expected, correlations between Connection to and from patients and parents with the Ideal Cohesion ratings were not significant for Patient Ideal Cohesion (Mother to Patient, $r(52) = .00, p = .99$; Patient to Mother, $r(52) = .01, p = .95$; Father to Patient, $r(27) = .15, p = .44$; Patient to Father, $r(27) = .17, p = .37$), providing support for discriminant validity. To establish convergent validity for the DFC scale, DFC ratings were expected to be significantly associated with how dissatisfied adolescents reported they were with cohesion in their family. Higher FACES Satisfaction scores indicate greater dissatisfaction, so a positive relation between Satisfaction and expressing a Desire For Connection was expected. To assess this, a biserial correlation was computed with adolescent FACES III Cohesion Satisfaction rating and as expected, there was support for convergent validity of the DFC scale: greater dissatisfaction with cohesion in the family was related to expressing a desire for connection ($r_b(54) = .41, p = .05$).

Aim 1: Individuation, Connection, and BN Symptoms

Table 2 provides the descriptive statistics for the Individuation and Connection variables for all mothers and fathers. As shown in Table 3, there were several significant associations between Individuation variables and BN symptoms: frequency of vomiting was negatively correlated with Father Demandingness, $r(27) = -.34$, and Father Assertive Self-Confidence, $r(27) = -.37$ (one-tailed $p < .05$). Father Assertive Self-Confidence was also negatively correlated with Restraint, $r(27) = -.35$ (one-tailed $p < .05$). Father Demandingness was negatively correlated with SBEs, $r(27) = -.32$ (one-tailed $p < .05$). Mother Validation was significantly negatively associated with Restraint, $r(52) = -.24$ (one-tailed $p < .05$). Mother Assertive Self-Confidence was negatively associated with SBEs, $r(52) = -.23$ (one-tailed $p < .05$). Similar to another study using an observational method (45), it is recommended that because interrater reliability was low for Mother Assertive Self-Confidence and Father Validation, results with those two variables should be interpreted with caution.

As shown in Table 4, there were several significant associations between Connection variables and BN symptoms: SBEs were significantly related to Patient Connection to Mother, $r(52) = -.33$, and Mother Connection to Patient, $r(52) = -.34$ (one-tailed $p < .01$). Eating Concern was significantly negatively correlated with Patient Connection to Mother, $r(52) = -.36$ (one-tailed $p < .01$) and Mother Connection to Patient, $r(52) = -.28$ (one-tailed $p < .05$).

Aim 2: Desire for Connection and BN Symptoms

To investigate if BN symptoms differentiated between adolescents who did and did not express a desire for more connection in their family, we conducted a hierarchical logistic

regression with DFC as the criterion variable (Yes or No), duration of illness and BDI entered in the first step, and BN symptoms (Restraint, Weight Concern, Shape Concern, Eating Concern, OBE, SBE, and Vomiting) entered in the second step. When all explanatory variables are considered together, the overall model is significant ($\chi^2 (df = 9, n = 54) = 23.69, p = .005$, Nagelkerke $R^2 = .60$), correctly explaining the categorization of 88.9% of the participants (95.6% of the adolescents who did not indicate a desire for more connection and 55.6% of the adolescents who did express a desire for more connection). Further, greater Eating Concern was significantly associated with a greater likelihood of expressing a desire for connection ($B = 2.62, OR = 13.73, p = .044$; see Table 5).

Results from this study provide preliminary support for the association between observed parent-adolescent interactions of connection and individuation and adolescents' BN symptoms. These results are similar to and extend the findings of a study linking perceived relationship characteristics to BN symptoms (20) in two ways: by including both mothers and fathers in the assessment and using an observational method. The first hypothesis was confirmed, indicating that low connection and individuation during parent-adolescent interactions were significantly associated with more severe BN symptoms. Given that participants had mean ratings for both observed connection and individuation in the middle of the 9-point scales, this is a notable finding. That is, our sample was not characterized by very low levels of observed connection and individuation, and yet findings were still significant for the inverse relationship with BN symptoms.

Regarding the study's second aim, results indicated that BN symptoms significantly differentiated adolescents who expressed a desire for more connection with their families from those who did not. Adolescents with increased Eating Concern had a greater likelihood of expressing a desire for more connection. These results suggest the importance of taking into account adolescents' feelings and perspectives about connection in the family. As reported in another study on connection (46), it is possible that the *lack* of connection is more strongly associated with disordered eating than the *strength* of a connection.

A preliminary aim of the study was to explore the utility of two Connection observation rating scales. The Connection scale and DFC scale, designed for macro-analytic coding and to have high face validity (44), had ICCs for Connection ratings between 0.73-0.93, and 85.7% rater agreement for DFC, which is considered acceptable. The validity for these measures was acceptable, demonstrating convergent and discriminant validity. We are confident that neither these results nor the main findings are due to shared method variance, as separate informants provided each dimension of information: adolescents and parents completed the FACES III measures, assessors diagnosed adolescents using the EDE, and raters blind to symptom severity determined observational scores of connection and individuation.

Lastly, it is interesting to note that ratings of mothers' Individuation and Connection were correlated with BN symptoms in different ways than fathers' Individuation and Connection ratings. Generally speaking, mothers' Connection ratings were related to BN symptoms, while fathers' Individuation ratings were related to BN symptoms. These differing results on parental characteristics may represent each parent's unique way of reacting to such a serious disorder in the context of the family and are supported by results from another observational study in which mothers and fathers differed in their interactions with their adolescent daughters (25), as well as other studies in which participants report different characteristics for each parent. For example, adolescent ED patients' perceptions of fathers' authoritative parenting style, but not perceptions of mothers' parenting styles, were associated with drive for thinness and body dissatisfaction (17), and adult BN patients' perceptions of father relationship characteristics were found to be related to symptom severity but perceptions of

mother characteristics were related only to depression (20). Previous studies often include only the patient's perspective (20, 21). Although there were not as many fathers in the study as mothers, there were still several significant associations of father variables with BN symptoms; therefore, the inclusion of both mothers' and fathers' perspectives are strengths of this study.

Treatment Implications

Similar to other research studies, we included several indicators of BN attitudes and behavior, both to allow for comparisons to other studies and to identify mechanisms that could be targeted in future studies of relational treatments for BN. Previous studies have found that BN individuals report their families as less cohesive than either AN or control individuals (12-15), and that self-reported family relationship characteristics are related to ED symptoms in adults (20, 47) and adolescents (17), but to our knowledge BN symptoms have not been investigated in relation to observed interactions with adolescents and parents. Including several indicators of BN pathology can possibly help inform studies of BN treatments by further elucidating the mechanisms by which relational treatments are successful. As will be discussed below, the results of this study enable hypothesis-generation for components of BN pathology that could be targeted in future treatment studies.

First, it is interesting to note that Restraint and Eating Concern were significantly related to the parent-adolescent interactions, while Shape and Weight Concern were not. This does not rule out the importance of Shape and Weight Concern, but results from this study do suggest that Restraint and Eating Concern may be preferred areas in which to focus interventions for this particular sample. From the larger treatment study from which this study was conducted, it was found that lower Eating Concern at baseline was the best predictor of treatment outcome, regardless of whether patients received FBT-BN or supportive psychotherapy (48). Patients with high baseline Eating Concern, however, were less likely to remit post-treatment. Further, maternal cohesion, as measured by FACES III, was a significant univariate moderator of treatment, such that the patient's perception of maternal cohesion increased the odds for remission. Because Connection was significantly related to these robust treatment predictors, it is possible that by increasing parent-adolescent connection, treatment improvement may be more likely to occur. Indeed, research on response covariation with regard to treatment supports this idea (49). Previous studies have found that low cohesion not only differentiated ED groups from controls (38), but also differentiated BN participants from AN participants (14), while in another treatment study patient-reported high perceived mutuality (similar to connection) was associated with patient-reported treatment outcome (20). Taken together, these results suggest that focusing on family closeness and cohesion may be a particularly salient goal of treatment for adolescents with BN.

Second, as adolescence progresses, an important feature of optimal parent-adolescent interactions is collaboration (26). Collaboration also maps onto the goals of FBT-BN as parents and adolescents must work together during the treatment process to restore weight and regain control over eating; this collaboration differentiates FBT-BN from FBT with an AN adolescent (50). The results of the current study, demonstrating the link between connection and individuation and BN symptoms, coupled with what is known about BN treatment outcome for adolescents, may suggest that families in which there are close yet autonomous parent-adolescent relationships will be optimally positioned for remittance of the disorder.

Limitations

There were several limitations to the present study. A large portion of the original study either was not eligible to complete the videotaped portion or declined to participate, and almost half of the families ($n = 25$) who were interviewed did not have both parents present, although in some cases these were single-parent households. Additionally, moderating and mediating variables, such as depression and anxiety diagnoses, were not taken into account. It is possible that the distress experienced from comorbid diagnoses may also account for the disruption in parent-adolescent relationships. Neither parents nor adolescents completed personality assessments, so it is unknown whether personality traits might have explained the relation between connection and individuation with BN symptoms, particularly because it has been suggested that personality factors may set the stage for the development of EDs in the context of problematic family functioning (51). Lastly, the study is a correlational design, so causality cannot be inferred.

Conclusion

Connection to others can be an important component of the process of recovery from an ED, and has been integrated into some treatment programs (52, 53). The importance of involving families in the treatment of adolescents with eating disorders has already been established (54). Results from the current study suggest that it may be helpful to create and facilitate parent-adolescent collaboration and support during treatment. By investigating family dynamics that are present during the ED, methods of treatment can be better tailored to improve the recovery process and assist the family in helping the adolescent defeat the ED and get back on track with normal development.

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Table 1
Names, Subscales, Abbreviations, and Method of Administration for all Measures

Measure	Abbrev.	Self-Report	Obs./Int	Patient	Mother	Father
<i>Connection</i>						
Connection			X	X	X	X
Desire for Connection	DFC		X	X		
<i>Individuation</i>						
Demandingness	Dem		X		X	X
Validation	Valid		X		X	X
Assertive Self-Confidence	ASC		X		X	X
<i>Eating Disorder Examination</i>						
EDE	EDE					
Dietary Restraint	Res		X	X		
Shape Concern	Shp		X	X		
Weight Concern	Wgt		X	X		
Eating Concern	Eat		X	X		
Objective Binge Episodes	OBE		X	X		
Subjective Binge Episodes	SBE		X	X		
Vomiting	Vom		X	X		
Beck Depression Inventory	BDI	X		X		

Note. Abbrev. = Abbreviation; Obs. = Observational; Int. = Interviewer.

Table 2

Means and Standard Deviations by Parent on the Measures of Individuation and Connection

Variable	Mother ^a		Father ^b	
	M	SD	M	SD
Dem	5.22	1.92	4.41	1.82
Valid	5.61	1.91	5.86	1.48
ASC	5.72	1.34	5.97	1.32
Connection from Patient	5.07	2.14	4.48	2.12
Connection to Patient	5.59	2.01	4.97	1.90

Note. Dem = Demandingness; Valid = Validation; ASC = Assertive Self-Confidence.

^a
n = 54

^b
n = 29.

Table 3

Correlations Among Adolescent Bulimia Nervosa Symptom Variables and Individuation

	EDE					
	<i>Res</i>	<i>Shp</i>	<i>Wgt</i>	<i>Eat</i>	<i>OBE</i>	<i>Vom</i>
1. Mother Dem ^a	.03	.14	.03	.16	.05	-.10
2. Mother Valid ^a	-.24 [*]	.04	-.05	-.23	.09	-.15
3. Mother ASC ^a	-.20	.03	.05	-.01	.15	-.23 [*]
4. Father Dem ^b	.13	-.04	.21	.10	.12	-.32 [*]
5. Father Valid ^b	-.21	-.16	-.15	-.20	.17	-.06
6. Father ASC ^b	-.35 [*]	-.15	-.10	.01	-.10	-.20

Note. Dem = Demandingness; Valid = Validation; ASC = Assertive Self-Confidence; EDE = Eating Disorder Examination; Res = Restraint; Shp = Shape Concern; Wgt = Weight Concern; Eat = Eating Concern; OBE = objective binge episodes; SBE = subjective binge episodes; Vom = frequency of vomiting.

^a
n = 54

^b
n = 29.

^{*}
p < .05, one-tailed.

^{**}
p < .01, one-tailed.

Table 4
Correlations Among Adolescent Bulimia Nervosa Symptom Variables and Connection

	EDE						
	Res	Shp	Wgt	Eat	OBE	SBE	Vom
1. Ma→Pt ^c	-.19	-.03	-.07	-.28*	-.03	-.34**	-.07
2. PtC→M ^a	-.21	-.18	-.18	-.36**	-.07	-.33**	-.15
3. Fb→Pt ^c	-.22	-.26	-.21	-.18	.12	-.13	-.18
4. PtC→F ^b	-.06	-.25	-.15	-.08	.15	-.15	-.12
5. DFC ^d	.43*	.09	.31	.60**	.09	.37*	-.12

Note. M = Mother; F = Father; Pt = Adolescent Patient; DFC = Desire for Connection; EDE = Eating Disorder Examination; Res = Restrained; Shp = Shape Concern; Wgt = Weight Concern; Eat = Eating Concern; OBE = objective binge episodes; SBE = subjective binge episodes; Vom = frequency of vomiting.

^a n = 54

^b n = 29

^c n = 54

^d Biserial correlations.

^{*} p < .05, one-tailed.

^{**} p < .01, one-tailed.

Logistic Regression Examining Unique Relations Among Bulimia Nervosa Symptoms in Adolescents Who Did (n = 9) or Did Not (n = 45) Express a Desire for Connection

Table 5

	Model χ^2	R ²	B	SE	Wald	OR ^a	95% CI
Step 1	5.53	0.16					
BDI			-0.08	0.06	1.85	0.93	0.83-1.03
Duration of illness			-0.15	0.11	1.81	0.86	0.70-1.07
Step 2	18.16 [*]	0.60 [*]					
Res			0.28	0.60	0.23	1.33	0.41-4.31
Shp			-1.05	0.75	1.94	0.35	0.08-1.53
Wgt			-0.21	0.97	0.05	0.81	0.12-5.39
Eat			2.62 [*]	1.30	4.06	13.73	1.07-175.71
OBE			-0.03	0.05	0.48	0.97	0.88-1.06
SBE			0.04	0.29	0.02	1.04	0.60-1.83
Vom			-0.02	0.03	0.34	0.98	0.93-1.04

Note. Desire for connection is coded Did Not Express a Desire for Connection = "0" and Did Express a Desire for Connection = "1". Regression terms for variables entered at steps 1 and 2 are displayed, based on terms observed for these variables in step 2 of the model.

BDI = Beck Depression Inventory; Res = Restraint; Shp = Shape Concern; Wgt = Weight Concern; Eat = Eating Concern; OBE = objective binge episodes; SBE = subjective binge episodes; Vom = frequency of vomiting; OR = odds ratio; 95% CI = 95% confidence interval; R² = Nagelkerke R².

^aOdds ratios below 1.0 should not be interpreted (Reference 55; Osborne, 2006).

^{*}p < .05