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The Effects of Parental Mental Health and Social-Emotional Coping on Adolescent Eating Disorder Attitudes and Behaviors

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Abstract

This study examined whether social-emotional coping skills moderate the association between parental mental health symptoms and adolescent disordered eating attitudes and behaviors in a clinical sample of adolescents with internalizing and/or externalizing symptoms. Fifty-nine adolescent-parent dyads ($N = 118$ total participants) recruited from a metropolitan area in the Northeastern United States completed assessments at baseline and 12-month follow-up. Generally, higher parental depression and anxiety were only found to be associated with greater disordered eating attitudes and behaviors among adolescents who reported poorer (versus stronger) emotional awareness/expressions skills and less (versus greater) ability to regulate emotions. Results may suggest that adolescents who lack the ability to effectively recognize, express, and manage negative emotions that arise in the context of a challenging home environment may be at greater risk for engaging in maladaptive coping behaviors, such as disordered eating. Thus, bolstering adolescent social-emotional coping skills may help protect against adolescent disordered eating.

Keywords

disordered eating; dieting; parental depression; parental anxiety; adolescents; social-emotional coping

Eating disorders (ED) are often first diagnosed during adolescence and comprise the third most common chronic illness among adolescents, after obesity and asthma (Fisher, Golden, & Katzman, 1995). Just as concerning is the prevalence of sub-clinical ED pathology (e.g., desire to lose weight, fear of being overweight, guilt over eating, preoccupation with food and weight, undue influence of body shape and weight on self-evaluation). In a sample of over 1,600 adolescents, 61% of females and 28% of males reported disordered eating behaviors (e.g., fasting or skipping meals, consuming very little food, smoking cigarettes to lose weight) (Neumark-Sztainer, Wall, Larson, Eisenberg, & Loth, 2011). Sub-clinical ED pathology and maladaptive attitudes are associated with substantial psychological, social, and physiological disturbances (Moor, Vartanian, Touyz, & Beaumont, 2004; Schmidt et al.,

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2008) and are common precursors to EDs (Patton, Coffey, & Sawyer, 2003). These data suggest that adolescent ED behavior is an important public health problem that warrants significant study.

The purpose of the present study is to explore the potential role that parental mental health symptoms and social-emotional coping skills play in the development of maladaptive eating patterns and attitudes over time. It has been well documented that the family environment affects youth psychological and behavioral functioning. A recent review concluded that while families do not appear to play a *primary causal* role in eating pathology, dysfunctional family environments and unhealthy parenting can affect the genesis and maintenance of disordered eating (Le Grange, Lock, Loeb, & Nicholls, 2010). Parental mental health problems, such as depression and anxiety, can have a significant effect on the family environment. For example, depressed parents exhibit more negative (e.g., irritability, rejection, and inconsistent discipline practices) and less positive (e.g., warmth, praise, nurturing, healthy monitoring) parenting behaviors (Cummings, Keller, and Davies, 2005; Elgar, Mills, McGrath, Waschbusch, & Brownridge, 2007). Adolescents of depressed parents are also more likely to experience parental withdrawal (e.g., avoidance, unresponsiveness to needs) and/or intrusiveness (e.g., over-involvement in adolescents' lives), (Jaser et al., 2005; Langrock, Compas, Keller, Merchant, & Copeland, 2002). Similarly, research has identified many of the same negative parenting behaviors (i.e., rejection, low warmth, control/intrusive behavior) as correlates of parental anxiety (Ginsburg & Schlossberg, 2002; Wood, McLeod, Sigman, Hwang, & Chu, 2003). These negative parenting behaviors can lead to a stressful and unpredictable home environment.

Though relatively more well studied in relation to the development of internalizing and externalizing disorders among offspring (Burstein, Ginsburg, & Tein, 2010; Van Loon, Van de Ven, Van Doesum, Witteman, & Hosman, 2014), parental depression and anxiety have also been associated with youth ED behavior. A large population-based study that included over 150,000 adolescents and young adults, followed for an average of 5.4 years, found that parental depression and anxiety was associated with heightened risk for an ED (Bould et al., 2015). Similar effects have been found for subclinical eating symptoms. Specifically, pre-adolescents with subclinical eating pathology, or loss of control eating (i.e., eating a large amount of food accompanied by a sense of loss of control over eating), report higher rates of parental depression than youth with normal eating patterns (Hartmann, Czaja, Rief, & Hilbert, 2012). Similarly, college women at risk for an ED (as per scores on the Eating Disorder Inventory-2; Garner, 1991) have been found to report greater perceived parental anxiety than age and SES matched controls (McGrane & Carr, 2008).

Though parental mental health can impact disordered eating among offspring, not all children of parents with depression or anxiety develop eating pathology. Thus, it is important to examine factors that may increase or decrease the likelihood of this outcome, such as social-emotional coping skills. Two major domains of social-emotional coping skills that may increase vulnerability for disordered eating are: 1) emotional awareness and expression (i.e., self-awareness of what one is feeling and the ability to express these emotions); and 2) emotion regulation (i.e., ability to manage and control difficult emotions through affect regulation skills). An individual who lacks these skills will be unable to understand, express,

and manage emotions in an adaptive way, and struggle to flexibly cope with environmental stressors and changes; hence, will likely be more vulnerable to developing maladaptive coping mechanisms, such as disordered eating.

A number of studies have found an association between emotional self-awareness and expression, and disordered eating among adolescents. For example, adolescent girls from the community with high levels of disordered eating have been found to report poorer emotional awareness than those with low or no disordered eating (Sim & Zeman, 2006). Poor emotional awareness was also found to be positively associated with drive for thinness (Sim & Zeman, 2006). Similar to emotional awareness, two studies conducted with community-based samples of females found lower emotional expression to be associated with higher ED symptoms (Buchholz et al., 2007; Zaitsoff, Geller, & Srikameswaran, 2002). Relatedly, alexithymia, which is a personality construct characterized by difficulty identifying and describing one's emotions, has been associated with ED and symptoms among adolescents (Karukivi et al., 2010; Zonnevijlle-Bendek, Goozen, Cohen-Kettenis, and Van Elburg, 2002).

Similar to emotional awareness and expression, the ability to manage and regulate ones emotions in the face of stress has also been associated with disordered eating in adolescents. In a study conducted by McLaughlin, Hatzenbuehler, Mennin, and Nolen-Hoeksema (2011), poor emotion regulation was found to predict increases in eating pathology over the course of seven months in a community-based sample of adolescents. Poor emotion regulation skills have also been associated with more ED symptoms in cross-sectional research with a community-based adolescent sample (Weinberg & Klonsky, 2009). In a study that compared adolescents and young adults (ages 15–25 years) diagnosed with an ED to same aged healthy controls, Pierrehumbert et al. (2002) found that those with an ED had poorer emotion regulation skills than healthy controls.

As suggested above, there exists ample evidence for an association between emotional awareness, expression, and regulation skills, and disordered eating, among adolescents. There is also some preliminary evidence for an association between parental depression and anxiety and disordered eating in adolescents. Therefore, it stands to reason that adolescents who have parents with depression or anxiety may be at greater risk for developing eating pathology if they have difficulty recognizing, expressing, managing, and/or controlling difficult emotions in the face of familial stress, than those with better social-emotional coping skills.

The present study examined whether parental depression and anxiety interact with social-emotional coping skills, to influence change in level of adolescent disordered eating attitudes and behaviors over the course of one year. Specifically, we hypothesized that greater parental depression and anxiety would predict more maladaptive eating attitudes and behaviors among adolescent offspring over the course of one year. Further, we hypothesized that the association between parental depression and anxiety, and adolescent maladaptive eating and body attitudes and behaviors, would be stronger among individuals with weaker (versus stronger) social-emotional coping skills, including emotional awareness/expression and emotion regulation skills.

Method

Participants

Participants included 87 adolescents, ages 13 through 18, and their primary caregiver (174 total individuals). These families participated in a pilot trial (6 dyads) or randomized clinical trial (81 dyads) that examined the efficacy of a suicide, substance abuse, and HIV prevention program for adolescents in mental health treatment. Inclusion criteria for this parent study included: adolescent enrollment in mental health treatment; parent and adolescent proficiency in English; and parent and adolescent residing in the same home. Exclusion criteria included: diagnosis of drug or alcohol dependence; current enrollment in a drug or alcohol treatment; HIV infection; pregnancy; or adolescent cognitive level that would prohibit understanding of study material.

Approximately one-third of participants did not complete the 12-month follow-up; hence, a total of 59 dyads ($n = 118$ total participants) completed both baseline and 12-month follow-up and were included in analyses. This adolescent sample was primarily female (59.3%, $M_{\text{age}} = 15.4$, $SD = 1.5$), and was racially (49.2% White, 32.2% African-American, 1.7% Asian, 1.7% American Indian/Alaskan Native, 6.8% Biracial, and 8.5% other race), and ethnically (15.3% Hispanic, 84.7% non-Hispanic) diverse. Primary caregivers were also primarily female (86.4%) with a mean age of 44.9 ($SD = 6.9$). The caregivers were also racially (52.6% White; 36.8% Black/African-American; 3.5% Asian, 7.0% other race) and ethnically (10.2% Hispanic, 88.1% non-Hispanic) diverse. Most were biological mothers (69.5%) and fathers (11.9%). Other primary caregivers included adoptive mothers (5.1%), step-mothers (3.4%), step-fathers (1.7%), or other guardians (e.g., grandparents) (8.5%). Marital status varied (50.0% married, 32.8% separated/divorced, 3.4% widowed, 10.3% single/never married, 3.4% single/living with partner). The average annual family income range was 70K–80K ($SD = 30$ –40K; range of less than \$10,000K to greater than \$100,000K).

Adolescents were primarily seeking mental health treatment for internalizing and externalizing disorders/symptoms. As per the Diagnostic Interview Schedule for Children (C-DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), 25.6% of adolescents met diagnostic criteria for an internalizing disorder(s) (10.3% major depressive disorder, 10.3% dysthymia, 3.4% panic disorder, 8.5% generalized anxiety disorder, 5.1% social phobia, and 3.4% PTSD), 55.8% for an externalizing disorder(s) (27.1% ADHD, 32.2% oppositional defiant disorder, 23.7% conduct disorder), and 20.9% for a substance abuse diagnosis (11.9% alcohol abuse, 8.5% marijuana abuse). Though EDs were not assessed with the C-DISC, only 5.1% of adolescents reported clinically significant ED symptoms (≥ 20) on the Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982).

No statistically significant differences were found between those who did versus did not complete both assessments on adolescent socio-demographics [age, $p = .62$; gender, $p = .82$; race (White, Black/African American, Other), $p = .72$; ethnicity (Hispanic, Non-Hispanic), $p = .55$], adolescent clinical history [internalizing disorder, $p = .93$; externalizing disorder, $p = .53$; substance abuse disorder, $p = .23$; intervention condition, $p = .60$; minutes in outpatient mental healthcare, $p = .25$], caregiver socio-demographics [age, $p = .72$; gender, $p = .15$; race

(White, Black/African American, Other), $p = .97$; ethnicity (Hispanic, Non-Hispanic), $p = .30$; marital status (married, unmarried), $p = .43$], or any study variables at baseline (parent depression, $p = .99$; parent anxiety, $p = .31$; emotional awareness/expression, $p = .44$; emotion regulation, $p = .19$; maladaptive eating and body attitudes and behaviors, $p = .20$). Only a trend was evident for those with a higher annual family income to complete both assessments ($p = .07$).

Procedure

Participants were recruited from a metropolitan area in the Northeastern United States via clinical referral from counselor or administrative staff at community mental health centers (27%), a youth shelter (43%), private mental health practices (10%), high school counselors (2%), or juvenile court staff (10%), as well as advertisements (via newspapers, Craigslist, university listserves) (10%) (3% did not specify). Parents and teens interested in participating provided their contact information to a counselor or staff at the recruitment facility or contacted the research team directly. The doctoral level project director or a graduate-level research assistant, screened parent and teen separately for eligibility and further explained the study. They were informed that the study would consist of four assessment time points, including a baseline and three follow-up assessments (one, six, and twelve months post-baseline). For the purposes of the present study, only data collected at baseline and twelve months were used. Those randomized to the intervention condition received a one and a half day group workshop (12 hours total) plus one booster session two weeks after the workshop (2 hours total) and those randomized to the assessment only control were provided with reading materials on substance use, HIV/STDs, and suicide. Parent and adolescent were also informed that they would receive compensation for their time. If eligibility criteria were met, an appointment was made for the baseline assessment, at which time, parental consent and adolescent assent was obtained. All measures used for the present study were completed via a computer questionnaire with the exception of the Child and Adolescent Services Assessment (Burns, Angold, Magruder-Habib, Costello & Patrick, 1997), which was administered to caregivers in an interview format. All study procedures were approved by the university affiliated institutional review board. This study used data obtained at baseline for all predictor (parental depression and parental anxiety) and moderator (social-emotional coping skills) variables. Baseline and twelve-month follow-up data were used for the outcome variable.

Measures

Demographic Variables—Demographics were assessed by adolescent self-reported gender, age, race, and ethnicity, and caregiver self-reported gender, age, race, ethnicity, marital status, relationship to adolescent, and annual family income as part of the baseline assessment.

Adolescent DSM-IV diagnoses—Adolescent psychiatric diagnoses were assessed with the Diagnostic Interview Schedule for Children 4.0 (C-DISC; Shaffer et al., 2000). The C-DISC is reliable and well-validated structured, computer-assisted, diagnostic interview that was administered to adolescents and their parents (Shaffer et al., 2000). A diagnosis was assigned if criteria were met via parent or adolescent report.

Mental Health Treatment—The well validated Child and Adolescent Services Assessment (CASA; Burns et al., 1997) interview was used to assess number of minutes adolescents spent in outpatient mental health treatment.

Parental Mental Health—The 6-item self-report Depression and Anxiety subscales of the Brief Symptom Inventory (BSI; Derogotis, 1993) were used to assess depressive and anxiety symptom severity over the last week using a 5-point Likert scale (0 = ‘not at all’ to 4 = ‘extremely’). These scores are summed and divided by the number of items in the subscale. Scores range from 0 to 4. Higher raw scores reflect greater depressive and anxiety symptoms. Both subscales have strong psychometric properties, including high internal consistency (coefficient alpha =.82–.88) in the present study.

Social-Emotional Coping Skills—The 6-item self-report Intrapersonal Skills and Stress Management Skills subscales from the BarOn Emotional Quotient Inventory: Short Youth Version (BarOn EQ-i:YV(S); Bar-On & Parker, 2000) were used to assess emotional awareness and expression, and emotion regulation, respectively. This self-report instrument employs a 4-point Likert scale (1 = ‘not true of me’ to 4 = ‘very much true of me’). Scores range from 6 to 24. Higher scores reflect higher levels of social-emotional coping skills. Bar-On and Parker (2000) report 3-week test-retest subscale reliabilities ranging from .84 to .88. In the present study, internal consistency (coefficient alpha) for the Intrapersonal Skills scale was .86 and for the Stress Management scale was .87.

ED Attitudes and Behaviors—The 13-item Dieting subscale of the Eating Attitudes Test (EAT-26; Garner et al., 1982) was used to assess extreme dieting attitudes and behaviors and body shape preoccupation associated with EDs at baseline and 12-month follow-up. The dieting subscale correlates highly with the EAT-26 total score, and thus may be used as an “economical substitute for the total scale” (Garner et al., 1982). Participants are asked to choose a response that indicates the frequency of current eating related thoughts and behaviors. Each item in this subscale is rated on a 6-point Likert scale (0 = ‘never’, ‘rarely’, ‘sometimes’, 1 = ‘often’, 2 = ‘usually’, 3 = ‘always’). Scores range from 0 to 39. The EAT-dieting subscale had high internal consistency (coefficient alpha =.80 to .84) across the two time points in the present study.

Statistical Analysis Plan

First, descriptive statistics were conducted to examine the distribution of study variables. Next, preliminary bivariate analyses were conducted to examine the association between potential covariates and the outcome variable. Correlation coefficients were also computed to examine the bivariate association between all predictor variables, potential moderators, and the outcome variable. Four separate linear regression analyses were then used to examine how each hypothesized predictor (parental depression and parental anxiety) interacts with each hypothesized moderator (emotional awareness and expression skills, emotion regulation skills) to predict ED attitudes and behaviors at 12 months. Baseline EAT-Dieting score was controlled for in the first step of each analysis. The hypothesized predictor and moderator were entered in the second step. The interaction between the predictor variable and moderator was entered in the third step for each analysis. All predictor variables

were mean centered prior to computing interaction terms. Hayes and Matthes (2009) MODPROBE procedure was used to probe significant interactions, with +1 standard deviation representing more emotional awareness/expression or emotion regulation, and -1 standard deviation representing less emotional awareness/expression or emotion regulation.

Results

Descriptive Statistics and Preliminary Bivariate Analyses

Descriptive statistics for measures of parental depression, parental anxiety, emotion awareness and expression, emotion regulation, and disordered eating attitudes and behaviors are presented in Table 1. As scores on some variables were positively skewed (> 2), transformations were conducted to decrease the skew to < 1 . A log transformation was used on the EAT-Dieting subscale and the BSI-Depression scale. An inverse transformation was used on the BSI-Anxiety scale. All analyses were conducted with the transformed versions of these variables. All other variables were normally distributed.

Bivariate relationships (correlations and one-way ANOVA) were examined between potential covariates and disorder eating attitudes and behaviors. Covariates examined included adolescent gender ($p = .18$), age ($p = .54$), race (White, Black/African American, Other; $p = .22$), ethnicity (Hispanic, Non-Hispanic; $p = .17$), internalizing disorder ($p = .18$), externalizing disorder ($p = .64$), substance abuse disorder ($p = .91$), intervention condition in parent study ($p = .85$), and minutes spent in community based mental health treatment over the study period ($p = .61$), as well as caregiver gender ($p = .73$), age ($p = .61$), race (White, Black/African American, Other; $p = .20$), ethnicity (Hispanic, Non-Hispanic, $p = .33$), marital status (married, unmarried; $p = .24$), and annual family income level ($p = .79$). As no significant associations were found between these potential covariates and disordered eating attitudes and behaviors, they were not controlled in multivariate analyses.

Correlation coefficients were computed to examine the bivariate relationships between parental depression, parental anxiety, emotional awareness and expression skills, and emotion regulation skills (measured at baseline) and disordered eating attitudes and behaviors (measured at baseline and 12-month follow up) (See Table 1). Among predictor variables, only emotion regulation skills were significantly correlated with ED attitudes and behaviors (in a negative direction) at baseline, but not at 12-month follow up. Baseline and 12-month follow-up ED attitudes and behaviors were significantly associated in a positive direction.

Parental Depression and Anxiety

Linear regression analyses examined the relationship between parental depression, emotional awareness and expression skills, emotion regulation skills, and disordered eating attitudes and behaviors (See Table 2). There was no main effect of parental depression ($\beta = -.03$, $p = .85$) or emotional awareness and expression skills ($\beta = -.12$, $p = .36$) on ED attitudes and behaviors. There was a significant interaction between parental depression and emotional awareness and expression skills ($\beta = -.25$, $p < .05$, Cohen's $d = .52$). MODPROBE analysis of the simple effects indicated that adolescents who had a more

depressed parent and poorer emotional awareness and expression skills reported marginally significant increased levels of ED attitudes and behaviors one year later ($\beta = .49, p = .08$), whereas those who had a more depressed parent, but stronger emotional awareness and expression skills, reported no significant change in ED attitudes and behaviors one year later ($\beta = -.26, p = .19$). Similarly, there was no main effect of parental depression ($\beta = .18, p = .13$) or emotion regulation skills ($\beta = .04, p = .77$) on ED attitudes and behaviors. However, there was a significant interaction between parental depression and emotion regulation skills ($\beta = -.35, p < .01$, Cohen's $d = .75$). MODPROBE analysis of the simple effects indicated that individuals who had a more depressed parent and poorer emotion regulation skills reported significantly increased levels of ED attitudes and behaviors one year later ($\beta = .69, p < .01$), whereas those who had a more depressed parent, but stronger emotion regulation skills, reported no significant change in levels of ED attitudes and behaviors one year later ($\beta = -.30, p = .11$).

Linear regression analyses also examined the relationship between parental anxiety, emotional awareness and expression skills, emotion regulation skills, and disordered eating attitudes and behaviors (See Table 3). There was no main effect of parental anxiety ($\beta = -.11, p = .37$) or emotional awareness and expression skills ($\beta = -.06, p = .61$) on ED attitudes and behaviors. There was a significant interaction between parental anxiety and emotional awareness and expression skills ($\beta = .28, p < .05$, Cohen's $d = .59$). MODPROBE analysis of the simple effects indicated that individuals who had a more anxious parent and poorer emotional awareness and expression skills reported significantly increased levels of ED attitudes and behaviors one year later ($\beta = .73, p < .01$), whereas those who had a more anxious parent, but stronger emotional awareness and expression skills, had no significant change in levels of ED attitudes and behaviors one year later ($\beta = -.49, p = .36$). Similarly, there was no main effect of parental anxiety ($\beta = -.18, p = .11$) or emotion regulation skills ($\beta = .07, p = .54$) on ED attitudes and behaviors. However, there was a significant interaction between parental anxiety and emotion regulation skills ($\beta = .30, p < .01$, Cohen's $d = .63$). MODPROBE analysis of the simple effects indicated that individuals who had a more anxious parent and poorer emotion regulation skills reported significantly increased levels of ED attitudes and behaviors one year later ($\beta = .54, p < .001$), whereas those who had a more anxious parent, but stronger emotion regulation skills, reported no significant change in ED attitudes and behaviors one year later ($\beta = .12, p = .18$).

Discussion

This study explored whether parental depression and anxiety interact with social-emotional coping skills (specifically, emotional awareness/expression skills and emotion regulation skills) to influence change in level of disordered eating attitudes and behaviors over the course of one year in a clinical sample of adolescents. Notably, this question was examined in a racially and economically diverse sample with a relatively high percentage of males, whereas the majority of ED studies consist of predominantly female, Caucasian samples. The sample was also unique because it included a non-ED clinical sample of adolescents seen in outpatient mental health treatment for internalizing and/or externalizing symptoms. Partial support for study hypotheses was found. While parental depression and anxiety did not directly predict disordered eating attitudes and behaviors, they were associated with this

outcome in the presence of poor social-emotional coping skills. Specifically, greater parental depression and anxiety were only associated with higher disordered eating attitudes and behaviors among adolescents who reported poorer emotional awareness/expression skills and less ability to adaptively regulate emotions. All simple effects supporting these findings were of similar magnitude, though the effect of parental depression on eating attitudes and behaviors among adolescents with poorer emotional awareness/expression was only marginally significant. Generally, these results may suggest that adolescents who lack the social-emotional coping skills needed to navigate the potential negative effects of parental depression and anxiety (e.g., poorer parent-child communication, child-directed criticism, under and/or over parental involvement), may be more likely to engage in maladaptive coping behaviors, such as disordered eating, as a means to manage associated distress and negative emotions (Heatherton & Baumeister, 1991).

Interestingly, no direct association was found between parental mental health or any domain of social-emotional coping and ED attitudes and behaviors, after controlling for baselines levels of eating behavior. These findings are inconsistent with previous research (Bould et al., 2015; McLaughlin et al., 2011; McGrane & Carr, 2008) and may, in part, be due to the relatively low levels of eating pathology in the present study relative to other studies with community-based samples of adolescents (e.g., Rosen, Silberg, & Gross, 1988), which may have restricted range and variability. The inclusion of males, who reported particularly low levels of eating pathology and are not commonly included in ED research, may also help explain our failure to replicate prior research. While we were unable to examine our hypotheses separately for males and females due to our sample size, this is an important avenue to explore in future research.

Results of this study hold several important clinical implications. Clinically, results suggest that adolescents who present for mental health treatment for internalizing and/or externalizing symptoms may be at risk for disordered eating if they have a parent with anxiety or depression *and* they lack healthy social-emotional coping skills, including emotional awareness/expression and emotion regulation skills. Thus, it is important for clinicians to assess for and monitor parental mental health, youth social-emotional coping skills, and ED symptoms in their work with these youth. In the absence of such assessment, ED symptoms may go unnoticed and unaddressed in this clinical adolescent population. Furthermore, emotional awareness/expression and emotion regulation may be important targets for intervention with these youth. If an adolescent is able to understand his or her emotions, express them in a healthy way, and regulate them as needed, the adolescent may be less likely to turn to disordered eating as way to express or cope with distress.

While the current results offer new and important data for understanding how parental mental health and social-emotional coping skills relate to ED attitudes and behaviors, several limitations deserve mention. First, because the study only included adolescents in mental health outpatient treatment, results may not readily apply to non-clinical populations. A second limitation is that the rate of ED attitudes and behavior present in the sample was relatively low. Rates of diagnosable EDs were not assessed in the present study but also likely to be very low based on self-reported eating symptoms. Therefore, results may not apply to samples with greater eating pathology. Third, while our preliminary analyses did

not support an association between adolescent time spent in outpatient mental health treatment or treatment assignment in the parent study, symptom change could have been indirectly influenced by treatment received. Finally, the sample size was relatively small, which limited the complexity and number of predictors possible in our models. However, the fact that interactions were found in a sample of this size attests to the strength of these findings.

Findings from this study suggest several directions for future research. While there was adequate power to detect significant results, our sample size was relatively small and it would be valuable to replicate this study in a larger, more diverse sample. A larger study would also offer the opportunity to examine possible differential influences of maternal versus paternal mental health. Additionally, these data were gathered in the context of a clinical intervention study; and while the intervention was not designed to address eating nor was there an association between disordered eating symptoms and treatment condition, it would be beneficial to conduct similar analyses outside the context of an intervention study. Finally, it would be interesting test our hypotheses in a clinical population of individuals with EDs to determine whether the models examined in the present study receive support among those with more severe eating pathology. Such information may further improve our understanding of the manner in which parental mental health problems and social-emotional coping skills contribute to the development and maintenance of ED behaviors and attitudes.

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Table 1

Descriptive Statistics and Intercorrelations Between Variables of Interest

Variable	M	SD	Observed Range	1	2	3	4	5	6
1. BSI – Depression ^a	.47	.61	0–2.8	-	-.67**	-.38**	-.11	-.13	.05
2. BSI – Anxiety ^b	.35	.40	0–2.0		-	.27*	.02	.14	-.13
3. Emotion Awareness (EQi – Intrapersonal)	13.61	4.30	6–23			-	.15	-.15	-.16
4. Emotion Regulation (EQi – Stress Management)	16.76	4.71	6–24				-	-.38*	-.17
5. Baseline EAT-26 – Dieting ^c	4.36	5.23	0–28					-	.47**
6. 12-mo EAT-26 – Dieting ^c	4.39	5.93	0–33						-

Note: BSI = Brief Symptom Inventory; EQi = Baron Emotional Quotient Inventory; EAT-26 = Eating Attitudes and Behaviors Test – 26

^aCorrelations for the BSI – Depression computed using the log transformation

^bCorrelations for the BSI – Anxiety computed using the inverse transformation

^cCorrelations for the EAT-26 – Dieting computed using the log transformation

*
p < .05,

**
p < .01

Table 2
Linear Regression Analyses of Parental Depression Predicting EAT-Dieting at 12 months

Predictor Variables	B	SEB	β	R ²	R ²
Emotion Awareness and Expression					
Step 1 Baseline EAT – Dieting	.50	.13	.47***	.22	.22***
Step 2 Baseline EAT – Dieting	.50	.13	.47***	.23	.01
Parental Depression	.23	.34	.09		
Emotion Awareness and Expression	-.01	.01	-.06		
Step 3 Baseline EAT – Dieting	.51	.13	.48***	.28	.05*
Parental Depression	-.07	.37	-.03		
Emotion Awareness and Expression	-.01	.01	-.12		
Parental Depression X					
Emotion Awareness and Expression	-.18	.09	-.25*		
Emotion Regulation					
Step 1 Baseline EAT – Dieting	.50	.13	.47***	.22	.22***
Step 2 Baseline EAT – Dieting	.53	.14	.50***	.23	.01
Parental Depression	.30	.32	.11		
Emotion Regulation	.00	.01	.04		
Step 3 Baseline EAT – Dieting	.64	.14	.60***	.34	.11**
Parental Depression	.47	.31	.18		
Emotion Regulation	.00	.01	.04		
Parental Depression X					
Emotion Regulation	-.25	.08	-.35**		

Note.

*
p < .05,

**
p < .01,

p < .001

Table 3
Linear Regression Analyses of Parental Anxiety Predicting EAT-Dieting at 12 months

Predictor Variables	B	SEB	β	R ²	R ²
Emotion Awareness and Expression					
Step 1 Baseline EAT – Dieting	.50	.13	.47***	.22	.22***
Step 2 Baseline EAT – Dieting	.52	.13	.49***	.26	.04
Parental Anxiety	-.39	.26	-.19		
Emotion Awareness and Expression	-.00	.01	-.04		
Step 3 Baseline EAT – Dieting	.51	.12	.48***	.33	.07*
Parental Anxiety	-.24	.26	-.11		
Emotion Awareness and Expression	-.01	.01	-.06		
Parental Anxiety X					
Emotion Awareness and Expression	.15	.06	.28*		
Emotion Regulation					
Step 1 Baseline EAT – Dieting	.44	.12	.43***	.22	.22**
Step 2 Baseline EAT – Dieting	.43	.14	.42	.26	.04
Parental Anxiety	-.38	.27	-.17		
Emotion Regulation	-.00	.01	-.05		
Step 3 Baseline EAT – Dieting	.44	.13	.43***	.38	.12**
Parental Anxiety	-.34	.26	-.15		
Emotion Regulation	-.00	.01	-.02		
Parental Anxiety X					
Emotion Regulation	.15	.06	.30**		

Note.

*
p < .05,

**
p < .01,

p < .001. Parental anxiety variable inversely transformed; thus, higher scores reflect lower anxiety.