

Effects of an Adolescent Depression Prevention Program on
Parental Criticisms and Positive Remarks

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CHAPTER I

INTRODUCTION

Parental depression is characterized by poor parent-child relationships and negative parent behaviors such as withdrawal, unavailability, and irritability (e.g., Lovejoy, Graczyk, O'Hare, & Neuman., 2000; Wilson & Durbin, 2010). In particular, parents with depression tend to be more critical of and less positive with their children than are parents without depression. Families with depressed parents also experience more family conflict (Lovejoy et al., 2000; Fear et al., 2009) and parental disengagement, lack of warmth, and greater hostility (e.g., Beardslee, Gladstone, & O'Connor, 2011). Such parenting behaviors, often combined with marital conflict and parenting stress, contribute to the overall stressful family environments to which children of depressed parents are exposed (Hammen, Brennan, & Shih, 2004). According to the intergenerational interpersonal stress model of depression (Hammen, Shih, & Brennan, 2004), the negative effects of parental depression on offspring result from dysfunctional family relationships, which can have negative consequences on youths' interpersonal functioning.

The quality of parent-child relationships often is measured with questionnaires such as the Children's Report of the Parental Behavior Inventory (CRPBI; Schludermann & Schludermann, 1988), or using observational methods of parent-child interactions that are coded by independent raters (Compas et al., 2010; Lovejoy et al., 2000). The CRPBI assesses parental acceptance, psychological control, and monitoring. Parenting behaviors measured with observational methods often include positive behaviors such as warmth, responsive listening, and child centeredness, as well as negative parenting behaviors such as hostility, intrusiveness, and neglecting (Compas et al., 2010; Lovejoy et al., 2000).

Another method of assessing the family environment, particularly regarding parent's attitude about their child, is with the Five-minute Speech Sample (FMSS), which measures "expressed emotion" (EE; Magana et al., 1986). Parents are instructed to talk about their child and their relationship with him/her for five minutes during which the experimenter does not interact or interrupt. These speech samples then are coded for content and tone, which yield EE indices of parental criticism, positive remarks, and emotional over involvement (Magana et al., 1986). Confirmatory factor analyses of these different measures of the family environment (i.e., self-report measures, observational studies, and FMSS) have revealed good convergence across methods (Park, Garber, Ciesla, & Ellis, 2008). Indeed, Park and colleagues showed that these different assessment approaches correlated significantly with each other and combined to yield two factors – positive and negative family environment.

Each of these methods of measuring the family environment has revealed a link to depression in mothers and children. For example, correlational studies using self-report measures have shown that poorer perceived parenting quality predicted higher levels of youth depression (Hammen, Shih, & Brennan, 2004). Similarly, observations of parent-child interactions in a laboratory setting have shown that parental depression is associated with negative parenting behaviors such as criticism of and disengagement from their child (Forehand et al., 2012; Lovejoy et al., 2000; Parent et al., 2014). Studies using the FMSS have shown that depressed parents express high levels of criticism, which is associated with more functional impairment in their children (e.g., Frye & Garber, 2005). Finally, Park and colleagues reported that the latent constructs of positive and negative family environments comprised of all three types of measurement methods correlated with depression in both mothers and their children. Although all three measurement approaches yield useful information, the FMSS measure of parental

attitudes holds particular utility as it is not subject to response bias often seen in self-report measures and is less time-consuming to administer and code than observational data.

Parents' expressed emotion has been found to be a powerful predictor of the course and relapse of psychological disorders (Hooley, 2007). Specifically, high EE environments (i.e., high levels of criticisms and low levels of positive remarks) are associated with negative treatment outcomes and a more severe clinical course for individuals with various disorders, including schizophrenia, depression, anxiety, bipolar disorder, substance use disorders, attention deficit disorders, and eating disorders (for a review, see Wearden, Tarrier, Barrowclough, Zastowny, & Rahill, 2000). High levels of parental criticism also are associated with more observed negative parent-child interactions, lower parental responsiveness, and less child attunement (Nelson, Hammen, Brennan, & Ullman, 2003; Sher-Censor, 2015), and elevated externalizing and antisocial symptoms in children (e.g., Frye & Garber, 2005; Cussen, Sciberras, Ukoumunne, & Efron, 2012; Psychogiou, Daley, Thompson, & Sonuga-Barke, 2007). High levels of parental criticism also have been found to predict poor emotion regulation in young children, as indexed by lower levels of RSA suppression (Hastings et al., 2008). Thus, considerable evidence exists documenting the deleterious effects of high parental EE on children, particularly in children of depressed parents.

Little is known, however, about how to change parents' EE. One study of parents of children with anxiety found that a CBT intervention that taught parents skills for managing their children's anxiety significantly reduced parental EE (Gar & Hudson, 2009). In a study of parents of youth with bipolar disorder, family-based interventions improved parental EE (Kim & Miklowitz, 2004). Additionally, Moskovich and colleagues (2016) reported that a family intervention for families of children with anorexia nervosa improved maternal EE. These studies

demonstrate that EE can be modified via interventions with fairly intensive parenting or family components. One aim of the current study was to explore whether a group cognitive behavioral intervention for adolescent offspring of parents with depression had an effect on parents' attitudes about their children in terms of their expressed emotion.

Several randomized controlled trials have shown that interventions can prevent or reduce depression in offspring of depressed parents (e.g., Clarke et al., 2001; Compas et al., 2009; Garber et al., 2009). Clarke et al. (2001) found that a cognitive behavioral (CB) intervention decreased the rates of depression in offspring of depressed parents. Using a similar program, Garber and colleagues (2009) also found that a group CB prevention program had a significant preventive effect on adolescents' depressive symptoms and diagnoses, although not for adolescents whose parents were currently depressed. Compas and colleagues (2009) demonstrated that a family group CB prevention program was effective in increasing positive parenting and reducing children's depressive symptoms. Taken together, these studies showed that CB interventions significantly prevent depression in children, and interventions that included parents, improved parenting behaviors as well. The current study examined whether a CB preventive intervention for at-risk adolescents affected parents' expressed emotion (i.e., parental criticism and positive remarks). We hypothesized that parents of children in the intervention condition would show an increase in positive remarks and a decrease in criticisms, as compared to parents of children in usual care.

A second aim of this study was to explore whether the effect of the intervention on parents' EE varied as a function of the adolescents' gender. The results of previous studies of gender differences in the effect of prevention programs on depression have been mixed or not reported (e.g., for reviews, see Brunwasser, Gillham, & Kim, 2009; Garber & Downs, 2011;

Merry et al., 2012). For example, Compas and colleagues (2010) did not report gender differences in the effects of their depression prevention program on children's outcomes or positive parenting behaviors measured in laboratory interactions. Overall, a comprehensive meta-analytic review of the prevention of depression literature in youth revealed that, on average, the magnitude of effect for prevention programs on depression was similar between boys and girls (Merry et al., 2012).

Studies of differences in parents' EE regarding their male versus female offspring also have been mixed. In a sample of depressed mothers, Tompson and colleagues (2015) found no gender differences in their expressed emotions about their adolescent offspring. In a sample of adolescents with bipolar disorder (BD), parents were generally more critical of girls than boys, although parents were more critical of boys with childhood-onset BD and of girls with adolescent-onset BD (Coville, Miklowitz, Taylor, & Low, 2008). Finally, in a review of five studies of parental EE and youth psychopathology in samples of depressed parents or depressed youth, Peris and Miklowitz (2015) did not find any gender differences. To date, no study has examined whether parents' EE changes differently for boys versus girls after an intervention aimed at preventing depression in a high-risk sample.

A third study aim was to explore whether parents' reports about their parenting behavior changed for youth in CBP versus UC. We assessed two domains of parenting behavior – Acceptance and Psychological Control — using the CRPBI. Acceptance refers to the extent to which parents express warmth and affection to their child. Psychological Control captures psychologically manipulative ways of parenting such as inducing guilt or withdrawing love from the child (Schaefer, 1965; Schludermann & Schludermann, 1970). Prior studies have shown that higher levels of parental Acceptance are associated with greater adolescent social competence

and less depression (e.g., Garber, Robinson, & Valentiner, 1997; Putnick, Bornstein, Hendricks, Painter, Suwalsky, & Collins, 2008), and higher levels of Psychological Control are associated with more internalizing problems in youth (e.g., Garber et al., 1997; Nanda, Kotchick, & Grover, 2012). We expected that parents of youth in CBP would report greater increases in Acceptance and decreases in Psychological Control. Finally, we explored whether the effect of the intervention on parental EE varied as a function of parenting behavior. That is, does the intervention affect parents' level of criticism, differently for youth whose parents are low versus high in Acceptance or low versus high in Psychological Control? We hypothesized that for youths whose parents were high in acceptance or low in psychological control, the intervention would predict lower criticism for those in CBP as compared to UC.

CHAPTER II

METHOD

Participants

The sample included 329 adolescents ranging in age from 13 to 17 years ($M_{age} = 14.80$, $SD = 1.36$), from 293 families, (within which there were 33 sets of siblings); 281 parents were biological mothers (86%), six were adoptive/foster mothers or other female primary caregivers (2%), 39 were biological fathers (12%), and one was an adoptive father (<1%). Parents were between the ages of 29 and 58 ($M_{age} = 43.61$, $SD = 5.80$).

Families were eligible for the study if one parent/caretaker had experienced within the child's lifetime, a major depressive episode (MDE) in the past three years, three or more MDEs, or three or more cumulative years in an MDE or dysthymic episode. Inclusion criteria for adolescents were that they currently reported a score of 20 or greater on the Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1991) or they had experienced a prior depressive episode that was in full remission for at least the past 2 months, or both. Adolescents were excluded if (1) they or their biological parent had a diagnosis of bipolar I or schizophrenia; (2) they met DSM-IV criteria for a current mood disorder diagnosis; (3) they were currently taking an antidepressant; or (4) they had received more than 8 sessions of cognitive behavioral therapy for depression.

Procedure

Participants were recruited from a range of sources including a computerized database, a university medical center listserv, letters to community physicians, letters to parents at local schools, and advertisements in newspapers, radio, and local television (see Garber et al., 2009 for details about the sample and procedures). Adolescents were randomized to either CBP (n=166)

or UC (n=163) using yoked randomization to ensure that families with multiple children were in the same condition. Conditions were balanced on age, gender, race/ethnicity, and inclusion criteria (i.e., adolescents' history of a prior depressive episode; baseline CESD scores).

Intervention

The intervention was a cognitive behavioral prevention (CBP) program for adolescents at risk for depression. CBP was comprised of 8 weekly, 90-minute (acute) and 6 monthly (continuation) sessions for small groups of adolescents ($M = 6.6$ adolescents, $SD = 1.6$). On average, participants attended 6.5 acute sessions and 3.8 continuation sessions. Each group was led by a clinician with at least a master's degree in a mental health field, and who was trained and supervised by an experienced clinician. The CBP intervention taught adolescents cognitive restructuring techniques, problem-solving skills, assertiveness, behavioral activation, and relaxation. Parent meetings were held during the first and last weekly sessions to inform parents about the skills being taught to their children and to provide the rationale for their use.

Usual Care

All families, regardless of condition, were permitted to receive other mental health services once randomized. Although youth who currently were receiving anti-depressant medications for depression or had previously had eight or more sessions of CBT prior to randomization were excluded, youth in both conditions could seek any kind of treatment after randomization (see Garber et al., 2009 for a description of the types of services received).

Measures

Adolescent depression was measured using the Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1991), which probes depressive symptoms over the past week. The CESD is a 20-item, self-report measure of behavioral and emotional symptoms of

depression, rated on a 4-point scale. The CESD has good reliability and validity; coefficient alpha for the current sample at baseline was .89.

The five-minute speech sample (FMSS; Magana et al., 1986) was used to assess parents' *expressed emotion*. Parents are instructed to talk for 5 minutes about their child and about their relationship with that child. Independent coders who were unaware of the intervention condition rated the FMSS for criticisms and positive remarks. The primary dependent variables used in the analyses were the total number of criticisms and the total number of positive remarks measured at the post-continuation follow-up, which occurred at 9 months post baseline.

Parents' reports about their behaviors were assessed with the Children's Report of Parenting Behavior Inventory (CRPBI) completed about the particular child. The CRPBI is a 30-item questionnaire that measures three parenting domains: *Acceptance*, *Psychological Control*, and *Monitoring*. Parents respond to each item regarding how much the item describes them, using a 3-point scale: 1-*not like me*, 2-*somewhat like me*, and 3-*a lot like me*. Parental Acceptance refers to parents' warmth, acceptance, and affection toward their child (e.g., "You smile at your child very often"). Parental Psychological Control measures the extent to which the parent employs psychological or manipulative strategies to control their child's behavior (e.g., "You are less friendly with your child if he/she does not see things your way"). These subscales of the CRPBI have yielded good reliability and validity (Schludermann & Schludermann, 1970). Coefficient alpha for the current sample was greater than .80. In the current study, we focused on the parenting dimensions of Acceptance and Psychological control because they have been more closely linked to internalizing problems, whereas monitoring has been more closely associated with externalizing (Barber, 1996; Pinquart, 2017).

At baseline, parents completed the FMSS and CRPBI and adolescents completed the CESD. The same measures were administered after the completion of the continuation phase of the CBP program, which was 9 months after the baseline assessment. Complete data were available for 305 participants at baseline, and 235 at month 9. No variables differed significantly at baseline between those who had both Time 1 and 2 data from those with only Time 1 data.

CHAPTER III

RESULTS

Descriptive Statistics

Table 1 presents the means, standard deviations, and correlations for all study variables. At baseline, on average, parents made .47 criticisms (SD = 1.05, range 0-7), and, on average, 3.53 positive remarks (SD = 3.07, range 0-17). No gender or condition differences and no gender by condition interactions were found at baseline for either parental criticisms or positive remarks. At the 9-month follow-up, on average, parents made .23 criticisms (SD = .71, range 0-6) and 3.01 positive remarks (SD = 2.92, range 0-7) during the FMSS. The number of positive remarks and criticisms were negatively correlated at baseline, $r(304) = -.18, p = .001$, and at 9 months, $r(221) = -.15, p = .021$. Number of positive remarks and adolescents' CESD scores correlated significantly at baseline, $r(304) = -.11, p = .049$.

The concurrent correlations between parents' expressed emotion and their report about their parenting behaviors were mostly significant, but small. The correlation between criticism and acceptance was negative at Time 1, $r(299) = -.14, p = .013$, and Time 2, $r(229) = -.28, p < .001$, and between criticism and psychological control was positive at Time 1, $r(299) = .16, p = .005$, and at Time 2, $r(229) = .17, p = .011$. The correlation between positive remarks and acceptance was positive at Time 1, $r(299) = .24, p = < .001$, and at Time 2, $r(229) = .30, p < .001$, and between positive remarks and psychological control was negative at Time 1, $r(299) = -.20, p = .001$, and at Time 2, $r(229) = -.11, p = .098$.

Data Analysis Plan

We conducted separate models to examine differences between the cognitive behavioral prevention (CBP) program and usual care (UC) conditions in the number of criticisms and the

number of positive remarks that parents made at the post-intervention follow-up (i.e., 9 months post baseline). We examined gender differences by including a gender by condition interaction in the models. Analyses controlled for either parents' criticisms or positive remarks at baseline, adolescents' level of depressive symptoms at baseline and at the 9-month follow-up, adolescents' age, and adolescents' gender; these predictors were grand mean centered. Given the nested structure of the data (i.e., adolescents nested within families), multilevel modeling (MLM) was used to account for this interdependency. Specifically, because the outcomes were count variables that follow a Poisson distribution, hierarchical generalized linear models (HGLM) were run, which use the log link function. A sample model, with number of criticisms as the outcome variable is presented below:

Level 1 (Within-Family):

$$E(9\text{-month Criticism} \mid \beta) = \lambda$$

$$\log(\lambda) = \eta$$

$$\eta = \beta_0 + \beta_1(\text{baseline criticism}) + \beta_2(\text{age}) + \beta_3(\text{gender}) + \beta_4(\text{baseline adolescent CESD}) + \beta_5(9\text{ mos. adolescent CESD}) + R$$

Level 2 (Between-Family):

$$\beta_0 = \gamma_{00} + \gamma_{01} *(\text{Condition}) + U_0$$

$$\beta_1 = \gamma_{10}$$

$$\beta_2 = \gamma_{20}$$

$$\beta_3 = \gamma_{30} + \gamma_{31} *(\text{Condition})$$

$$\beta_4 = \gamma_{40}$$

$$\beta_5 = \gamma_{50}$$

Although we were interested in λ – the expected rate of criticisms at month 9 given the predictors in the model – the model used the log link to predict η (i.e., log number of criticisms), which then can be converted back to the original scale. Variables that could vary within a family were included at Level 1, and variables that could vary between families (e.g., condition) were included as predictors at Level 2. The Level 2 model aggregated the within-family estimates to provide estimates for the average number of criticisms at the 9-month follow-up (i.e., intercept,

γ_{00}) and the average relation between the Level 1 predictors and the outcome variable for the sample. Of particular interest in the present study were γ_{01} – represents group differences in the number of criticisms at 9 months, and γ_{31} – represents a gender by condition interaction in predicting the number of criticisms at 9 months. The inclusion of a random intercept, U_o , at Level 2 accounted for the dependency among siblings' data.

Predicting Number of Parental Criticisms at the Post-intervention Evaluation

Results from the model examining group differences in the number of criticisms parents made about their children at the 9-month evaluation are presented in Table 2. The gender by condition interaction was significant, indicating that parents' criticisms at the 9-month follow-up varied as a function of intervention condition, and this relation differed by adolescent gender. Parents of boys in CBP made significantly fewer criticisms as compared to parents of boys in UC. In contrast, parents of girls in CBP made significantly more critical comments than did parents of girls in UC (see Table 3 and Figure 1).

Within each condition, there also were significant differences between boys and girls for criticisms. For youth in UC, parents made significantly more criticisms of boys than of girls. For youth in CBP, parents made significantly more criticisms of girls than of boys. Adolescents' age and concurrent depressive symptoms did not significantly predict parents' criticism at 9 months.

In addition to the gender by condition interaction, we tested interactions of condition by parenting domains (Acceptance and Psychological Control), with separate models for each. Again, given the nested structure of the data (i.e., adolescents nested within families), multilevel modeling (MLM) was used to account for this interdependency. Specifically, because the outcomes were count variables that follow a Poisson distribution, hierarchical generalized linear models (HGLM) were run, which use the log link function.

To the model with the gender by condition interaction, we added an interaction term of a parenting subscale (i.e., Acceptance by condition, or Psychological Control by condition) assessed at 9 months. Baseline levels of the particular parenting subscale used in the interaction term were covaried. The model again controlled for adolescents' depressive symptoms at baseline and at 9-months, adolescents' age, and gender; these predictors were grand mean centered. Below, we present a sample model, with number of criticisms at post-intervention (i.e., 9-months) as the outcome variable and both interaction terms in the model:

Level 1 (Within-Family):

$$E(9\text{-month Criticism} \mid \beta) = \lambda$$

$$\log(\lambda) = \eta$$

$$\eta = \beta_0 + \beta_1(\text{baseline criticism}) + \beta_2(\text{age}) + \beta_3(\text{gender}) + \beta_4(\text{baseline adolescent CESD}) + \beta_5(9\text{-month adolescent CESD}) + \beta_6(\text{baseline psychological control}) + \beta_6(9\text{-month psychological control}) + R$$

Level 2 (Between-Family):

$$\beta_0 = \gamma_{00} + \gamma_{01} *(\text{Condition}) + U_o$$

$$\beta_1 = \gamma_{10}$$

$$\beta_2 = \gamma_{20}$$

$$\beta_3 = \gamma_{30} + \gamma_{31} *(\text{Condition})$$

$$\beta_4 = \gamma_{40}$$

$$\beta_4 = \gamma_{50}$$

$$\beta_4 = \gamma_{60}$$

$$\beta_4 = \gamma_{70} + \gamma_{71} *(\text{Condition})$$

In this model, there are two interaction terms predicting criticisms at the post-intervention evaluation: gender by condition and Psychological Control (at 9-months) by condition, controlling for baseline criticism and baseline Psychological Control. Results from the model examining the predictive value of these interactions in the number of criticisms parents made about their child at the post-intervention evaluation are presented in Table 4. The condition by gender interaction was significant, indicating that parents' criticisms at the 9-month follow-up varied by intervention condition and gender. In addition, the Psychological Control by condition

interaction also was significant, indicating that parents' criticisms at the 9-month follow-up varied as a function of intervention condition and level of parental Psychological Control at 9 months, accounting for number of parental criticisms and parents' Psychological Control at baseline (see Figure 2). At low levels of parents' Psychological Control, the extent of parental criticism did not differ significantly for youth in CBP versus UC. In contrast, at high levels of Psychological Control, parents of youth in CBP were significantly more critical of their children than were parents of youth in UC. Finally, the three-way interaction among condition by gender by Psychological Control was not significant.

We ran a similar set of models using Acceptance as the parenting variable instead of Psychological Control. In these models, neither the main effect of parental acceptance nor the interactions with condition was significant.

Predicting Number of Parental Positive Remarks at the Post-intervention Evaluation

Results of the model examining differences in parents' positive remarks about their child at the 9-month, post-intervention evaluation are presented in Table 4. The main effect of condition was significant, indicating that at the post-intervention evaluation, parents of children in the CBP group made significantly more positive remarks about their children (3.34 remarks, CI: 2.83-3.85) as compared to parents whose children were in UC (2.68 remarks, CI: 2.14 – 3.22), controlling for number of parents' positive remarks at baseline. Adolescents' age, gender, and concurrent depressive symptoms were not significant predictors of parents' positive remarks; neither adolescents' gender nor either parenting subscale significantly moderated the effect of the intervention on parents' positive remarks.

CHAPTER IV

DISCUSSION

Results of this study showed that a preventive intervention for youth at-risk for depression modified parents' attitudes (i.e., expressed emotion) about their children as measured with the Five-minute Speech Sample. Significant main effects for intervention condition were found with respect to parental criticisms and positive remarks such that at the 9-month, post-intervention, follow-up evaluation, parents of adolescents in the cognitive behavioral prevention (CBP) program made significantly fewer criticisms and more positive remarks than parents of youth in usual care. These findings demonstrated that an adolescent-focused intervention, with limited contact with parents, affected parents' attitudes about their children. That is, parental EE changed even without working directly with parents. Supplementing the CBP program with more direct efforts to reduce parents' level of criticism and increase their positive remarks about their children may further improve parents' attitudes about their children.

Whereas some depression prevention programs have *not* found that including parents in the intervention improved children's outcomes as compared to the same intervention without a parent component (Clarke et al., 2001; Gillham et al., 2006), other prevention programs that work directly with parents have shown improvements in both parenting behaviors and children's outcomes (Compas et al., 2010; Forehand et al., 2012). Indeed, Compas and colleagues (2009) tested the efficacy of a depression prevention program that explicitly targeted improving parenting behaviors in families with a parent who had a history of depression. They found that parents in a family group cognitive behavioral (FGCB) program showed significantly more positive parenting as compared to parents in the control condition. Thus, changing parents'

attitudes and behaviors may be most efficiently accomplished through programs for whom altering parenting is a primary focus.

A few interventions have been found to improve parents' expressed emotion. In families with youth at risk for the development of bipolar disorders, Miklowitz and colleagues (2013) reported stronger effects of a family-focused intervention on parents' EE and children's symptoms for youth in high-EE families than for youth in low-EE families. Thus, it may be possible to changing parents' EE through family-focused interventions, in particular. One interesting and important question that needs to be addressed is through what mechanisms do changes in parents' EE occur? Does the intervention help families learn to reduce heated family interactions, teach more adaptive skills for coping with stress, or offer therapeutic support that tends to alleviate family stress? These remain salient questions for further research.

The second aim of the current study was to explore possible moderators of the effect of the CBP program on parents' EE. Results revealed the effects of the interventions on parents' level of criticism differed for boys and girls. Parents of boys in CBP made significantly fewer criticisms compared to parents of boys in UC, whereas parents of girls in CBP made significantly more critical comments than did parents of girls in UC. We speculate that the increase in parental criticisms of girls in CBP might have been due, in part, to the girls having become increasingly assertive, which may have been met with greater parental disapproval. The significantly fewer parental criticisms for boys in CBP as compared to UC might reflect improvements in boys' functioning due to the CBP program. It is possible that when girls and boys engage in similar assertive behaviors, others respond quite differently to them. For example, in children as young as 4-years-old, Kerig and colleagues (1993) found that parents responded more positively to assertiveness in boys than in girls, with boys more likely to receive praise and girls more likely

to experience negative responses to their assertiveness. This differential response to assertiveness by gender also is well-documented in negotiation literature where women are expected to be less assertive to avoid backlash from peers and to align with gender stereotypical expectations (Bossuyt & Van Kenhove, 2018). We do not know for certain, however, which of the CBP skills girls and boys were using that resulted in different responses from parents. Future research should explore which of the CBP skills the youth actually used, and how these new skills affected the parent-child relationship. How do parents react to their children's new behaviors, and what contributes to parents responding differently to boys versus girls?

One clinical implication of the finding of gender differences in parents' criticisms is that it might be useful to work directly with parents to prepare them for the kinds of changes their children might undergo as a result of the CBP program. A second possible implication is that girls and boys might need to learn different skills or additional ways to deal with the reactions of others to their newly acquired behaviors. That is, although males and females may engage in assertiveness similarly, girls may need to express it differently or learn to respond to others' negative reactions to them. More research is needed to identify the reasons for the increase in parental criticisms toward girls, and then to make appropriate amendments to the intervention to address these reasons.

A second moderator of the relation between the intervention and parental criticism was parents' Psychological Control. Specifically, among parents who reported higher levels of Psychological Control, those whose children were in the CBP condition expressed significantly more criticisms of their child than did parents of youth in UC. Future work should identify which, if any, aspects of the CBP intervention might be related to increases in parents' Psychological Control. In addition, higher levels of parental Psychological Control may lead to

more problem behavior in adolescents (Pettit, Laird, Dodge, Bates, & Criss, 2001), or alternatively, more problem behaviors in youth may lead to increased Psychological Control in parents. Clarifying the temporal and potential transactional relation between these constructs is an important next step.

A strength of the current study was that we used a measure of parents' attitudes about their children that was not simply self-report. Whereas self-report can be affected by demand characteristics, the FMSS is a more subtle measure of parents' attitudes about their children. Moreover, independent raters who were unaware of intervention condition assignment coded the FMSS. The FMSS methodology also is easier to administer and code as compared to laboratory observations of parent-child relationships, which rely on intensive and time-consuming coding and may have low ecological validity.

Limitations of the study highlight directions for future research. First, although the sample was representative of the communities from which participants lived, only 25% of the sample identified as members of a racial or ethnic minority. In the current sample, we did not find any significant differences as a function of race or ethnicity. A larger and more diverse sample, however, would be necessary to generalize these findings more broadly.

Second, we only collected EE data at two time points (baseline and 9-month follow-up). To examine the maintenance and stability of the effects of the intervention on parental attitudes, parental EE should be assessed at later time points as well. Third, this sample was comprised of children at-risk for depression. Results may not generalize to a purely community sample.

Finally, parents were aware of whether or not their child received the CBP program; thus it is possible that parents of youth in CBP talked more positively about their children due to cognitive dissonance. That is, because they invested so much time in getting their child to the

weekly sessions, they might have talked more positively about their child as a way to confirm to that the effort had been worth it. One argument against this interpretation, however, were the observed gender differences. It is not clear why parents of girls in CBP would be less likely to have such cognitive dissonance as compared to parents of boys.

In summary, this study found that a group cognitive behavioral preventive intervention for at-risk adolescents changed parents' expressed emotion, such that parents of youth in CBP made more positive remarks about their children at the post-intervention evaluation. The effect of the intervention on parental criticism varied by children's gender, such that parents of boys in the intervention made significantly fewer criticisms as compared to parents of boys in UC; parents of girls in CBP made significantly more critical comments than did parents of girls in UC, highlighting the complexity of the intervention effects. Finally, a significant interaction between Psychological Control and condition revealed that among parents who were more psychologically controlling, those whose children were in the CBP program were more critical than were parents of youth in UC. One important implication of these results is that more directly incorporating parents into the intervention might enhance its impact even further.

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Table 1: Means, Standard Deviations, and Correlations among Study Variables

	Mean (SD)	Age	Gender	Condition	T1 CESD	T2 CESD	T1 Criticisms	T2 Criticisms	T1 Pos. Remarks	T2 Pos. Remarks	T1 Acceptance	T2 Acceptance	T1 Psych. Control	T2 Psych. Control
Age	14.80 (1.36)	--												
Gender	--	.073	--											
Condition	--	-.005	.002	--										
T1 CESD	15.67 (9.71)	-.087	.057	-.030	--									
T2 CESD	12.02 (8.46)	-.037	.134*	-.145*	.461**	--								
T1 Criticisms	.47 (1.05)	-.086	-.003	-.070	.091	.065	--							
T2 Criticisms	.23 (.71)	-.088	.009	.005	.004	.121^	.417**	--						
T1 Pos. Remarks	3.53 (3.07)	.027	-.038	-.044	-.113*	-.101	-.183**	-.101	--					
T2 Pos. Remarks	3.01 (2.92)	.114^	.035	.114	-.095	-.101	-.136*	-.151*	.308**	--				
T1 Acceptance	26.04 (3.60)	-.048	.078	.008	-.097	-.013	-.143*	-.197**	.243**	.181**	--			
T2 Acceptance	26.29 (3.45)	-.015	.091	.100	-.049	-.021	-.165**	-.277**	.238**	.299**	.723**	--		
T1 Psych. Control	11.16 (2.50)	.056	-.081	.033	-.010	.052	.160**	.192**	-.195**	-.075	-.352**	-.309**	--	
T2 Psych. Control	10.67 (2.44)	-.009	-.012	-.013	.012	.078	.075	.167*	-.091	-.110^	-.270**	-.313**	.617**	--

^ $p < .10$; * $p < .05$, ** $p < .01$

T1 = Baseline; T2 = 9-month follow-up; Condition = UC = 0; CBP = 1; CESD = Center for Epidemiologic Studies Depression Scale; Pos. = Positive; Psych. = Psychological

Table 2: Hierarchical Generalized Model Results: Predicting Parents' Criticisms at the post-intervention evaluation (i.e., 9-month follow-up)

<u>Table 2a</u>	Coefficient	SE	T-ratio
Outcome: Parental Criticism			
Age	-.19	.09	-2.08
Gender	.001	.31	.004
Parents' Baseline Criticism	.54	.06	8.96**
Adolescent CES-D at Baseline	-.05	.02	-2.83*
Adolescent CES-D at 9 months	.06	.02	3.42**
Condition (UC vs. CBP)	.64	.29	2.13*
Gender * Condition	1.71	.61	2.80*

<u>Table 2b</u>	Coefficient	SE	T-ratio
Outcome: Parental Criticism			
Age	-.23	.09	-2.75*
Gender	1.42	.50	2.83*
Parents' T1 Criticism	.54	.06	8.44**
Adolescent T1 CESD	-.04	.02	-2.37*
Adolescent T2 CESD	.07	.01	5.24**
Parents' T1 Psych. Control	.17	.03	5.11**
Parents' T2 Psych. Control	.63	.22	2.81*
Condition (UC vs. CBP)	.49	.32	1.54
Parents' T2 Psych Control * Condition	-1.32	.44	-2.99*
Gender * Condition	3.58	1.01	3.53**

Note: Coefficients are log link of original scale. CBP = cognitive behavior prevention program; UC = usual care; * $p < .05$, ** $p < .01$

Table 3: Expected Number of Parental Criticisms at 9-month Follow-up by Condition and Gender

	Expected log rate	Expected No. of Criticisms	95% Confidence Interval
Girls in UC group	-2.30	.09	.06 - .12
Girls in CBP group	-1.80	.17	.14 - .20
Boys in UC group	-1.89	.15	.13 - .17
Boys in CBP group	-2.59	.08	.06 - .10

CBP = cognitive behavior prevention program; UC = usual care

Table 4: Hierarchical Generalized Model Results: Predicting Positive Remarks at the post-intervention evaluation (i.e., 9-month follow-up)

	Coefficient	<i>SE</i>	T-ratio
Outcome: Parental Positive Remarks			
Age	.03	.04	.90
Gender	.10	.12	.84
Parents' Baseline Positive Remarks	.06	.02	3.71**
Adolescent CESD at Baseline	-.01	.01	-.77
Adolescent CESD at 9 months	.003	.01	.39
Condition (UC vs. CBP)	.29	.12	2.41*
Gender * Condition	-.41	.23	-1.75

Note: Coefficients are log link of original scale. CBP = cognitive behavior prevention program; UC = usual care; CESD = Center for Epidemiologic Studies Depression Scale

* $p < .05$, ** $p < .01$

Figure 1: Number of criticisms expressed by parents at the 9-month assessment, accounting for number of parental criticisms at baseline, as a function of intervention condition and adolescents' gender

CBP= Cognitive Behavioral Prevention program; UC = Usual Care

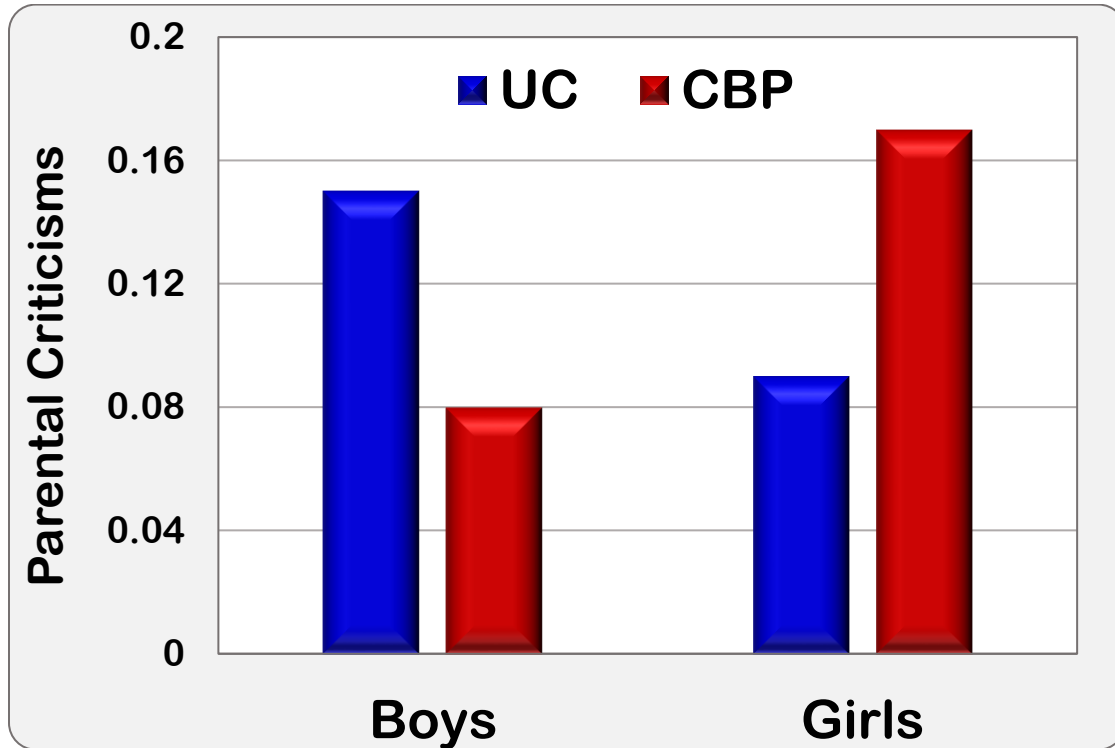


Figure 2: Number of criticisms expressed by parents at the post-intervention (9-month follow-up) assessment, accounting for number of parental criticisms and parents' psychological control at baseline, as a function of intervention condition and parents' psychological control at the 9-month evaluation

CBP= Cognitive Behavioral Prevention program; UC = Usual Care

