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Parental Emotion Coaching: Associations With Self-Regulation in Aggressive/Rejected and Low Aggressive/Popular Children

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Abstract

This study investigated associations between maternal and paternal emotion coaching and the self-regulation skills of kindergarten and first-grade children. Participants were 54 children categorized as either aggressive/rejected or low aggressive/popular by peer reports. Findings indicated a statistical trend for fathers of low aggressive/popular children to engage in more emotion coaching than fathers of aggressive/rejected children. Paternal emotion coaching accounted for significant variance in children's regulation of attention. Maternal emotion coaching moderated the relation between children's status and regulation of emotion. Findings suggest that interventions focused on parental emotion coaching may prove beneficial for increasing the self-regulation and attention skills of children with social and conduct problems.

Keywords

aggressive/rejected children; attention skills; behavior regulation; emotion coaching; emotion regulation; meta-emotion

Substantial research highlights the central role parents play in children's cognitive, social, and emotional competence (e.g., Eisenberg, 1998). Gottman and others found that maternal

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coaching regarding emotions predicted a number of positive outcomes in children including their self-regulation skills (Gottman, Katz & Hooven, 1996; Katz, Gottman & Hooven, 1996; Katz & Windecker-Nelson, 2004). In the current study, we investigated the emotion coaching of both mothers and fathers and the degree to which children's self-regulation skills could be predicted by maternal versus paternal emotion coaching. There is a paucity of research examining both maternal and paternal emotion coaching in the same study and we know of no prior studies that have examined the predictive value of each parent's emotion coaching for children's self-regulation. We focused on self-regulation because children's skills in this area have been shown to play an important role in their social, emotional and academic development (Blair & Razza, 2007; Eisenberg, Spinrad, & Eggum, 2010; Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009).

The present study investigated the degree to which maternal and paternal emotion coaching explained the self-regulation skills of children with and without social and conduct problems as rated by peers (i.e., aggressive/rejected children and low-aggressive/popular children). We chose to investigate these issues in a sample of aggressive/rejected children because these children have significant difficulty with self-regulation (Eisenberg et al., 1996, 1997; Hubbard, 2001; Krueger, Caspi, Moffitt, White, & Stouthamer-Loeber, 1996; Wilson, 2003, 2006) and are at high risk for continuing conduct and social problems as they develop (Coie, Lochman, Terry, & Hyman, 1992; Kupersmidt & Coie, 1990). We investigated two models of the influence of emotion coaching on children's self-regulation skills, an additive model and a moderated model whereby parental emotion coaching moderated the relation between children's status (i.e., their aggressiveness and social status) and their self-regulation skills. More specifically, we evaluated whether both aggressive/rejected children and low aggressive/popular children would benefit from emotion coaching and whether emotion coaching might provide an extra protective function for aggressive/rejected children.

Self-regulation

Self-regulation is a broad construct that includes the ability to regulate emotion, behavior, and cognitive processes such as attention (Carlson & Moses, 2001; Kochanska, Coy, & Murray, 2001; Posner & Rothbart, 2000). The current study focused on behavioral aspects of self-regulation that can be readily observed and rated by adult reporters. We distinguished between two types of behavioral self-regulation skills by incorporating Eisenberg et al.'s (2010) distinction between behavior regulation and emotion-related behavior regulation, which we refer to as emotion regulation. Both behavior and emotion regulation are significant predictors of children's social-emotional and academic competence (e.g., Blair & Razza, 2007; Brophy, Taylor, & Hughes, 2002; Hughes, Dunn, & White, 1998; Spinrad et al., 2006; Wilson, 1999).

The regulation of behavior and emotion has been consistently linked to attention processes (Belsky, Friedman, & Hsieh, 2001; Kochanska, Murray, & Harlan, 2000; Peake, Mischel, & Hebl, 2002; Rothbart & Derryberry, 1981). For example, adult reports of children's ability to control attention are related to less intense expressions of negative emotion and positive management of anger (Eisenberg et al., 1993; Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994; Kochanska, Coy, Tjebkes, & Huserak, 1998; Rothbart, Ziaie, & O'Boyle,

1992). Furthermore, research on computer-based attention assessments suggests that shifting attention away from a negative stimulus predicts decreased negative emotional and physiological arousal (Derryberry & Rothbart, 1988; Rothbart & Derryberry, 1981).

Although most previous research investigating children's attention skills has examined attention to cognitive stimuli such as letters, symbols, or other non-emotional events, more focused research has begun to examine attention to emotional stimuli such as facial expressions of emotion (Wilson, 2003; Wilson, Derryberry, & Kroeger, 2006). Attention to emotional stimuli is an especially important area for research involving children with conduct problems because these children tend to exhibit hostile attributional biases in provocative peer situations (Coie & Dodge, 1998; Graham & Hudley, 1994). Once these biases are activated, aggressive children tend to attend to negative contextual cues or events, and experience difficulty moving their attention away from these events (Dodge, 1980; Gouze, 1987). Previous research with the current sample found that aggressive/rejected children had more difficulty shifting attention away from angry faces than low aggressive/ popular children. Problems shifting attention between emotion faces predicted difficulty in regulating behavior and emotion during a challenging social situation with peers (Wilson, 2003). Major objectives of the current study were to replicate and extend previous research by investigating aggressive/rejected children's ability to regulate their attention, behavior, and emotion and examine how these skills were related to parents' emotion coaching.

Parental Influences on Children's Self- Regulation Skills

Parents play an important role in children's competence across multiple domains including their development of self-regulation skills. Over the course of development, the responsibility for controlling emotions and behaviors gradually shifts from the adult to the child (Cicchetti, Ganiban, & Barnett, 1991; Thompson, 1991). Parents shape children's development through methods such as communication, discipline, teaching, and modeling (Denham, 1998; Eisenberg, Fabes, Carlo, & Karbon, 1992; Grusec & Goodnow, 1994; Saarni, 1999). Research suggests that the manner in which parents respond to their children's emotions influences children's self-regulation skills. Parental encouragement of emotional expression has been associated with positive outcomes, whereas restriction of negative emoting has been linked with distress in young children (Eisenberg, 1998). Non-supportive parental reactions (i.e., punitive or minimizing responses) to children's negative emotions may result in children remaining emotionally aroused and becoming behaviorally dysregulated (Eisenberg, Fabes, Shepard, Guthrie, Murphy, & Reiser, 1999). In general, parental tactics that help children deal with their own emotions or with emotion-eliciting events are positively related to children's coping and social competence (Eisenberg & Fabes, 1992; Eisenberg, Fabes, & Murphy, 1996; Gottman, Katz, & Hooven, 1997).

Gottman et al. (1997) assessed parental meta-emotion philosophy, that is, parents' thoughts and feelings about emotion, and identified four ways parents respond to children's emotions. These include: (a) dismissing or ignoring children's emotions, (b) disapproving or restricting these emotions, (c) accepting but not assisting children with their emotions (i.e., a laissez-faire approach), and (d) coaching children regarding their emotions. Parents who use an emotion coaching philosophy tend to be aware of their own negative emotions and

demonstrate an ability to discuss these emotions. They are also aware of negative emotion in their children and assist their children in dealing with negative emotions such as anger, sadness, and fear (Gottman et al., 1996). Positive associations have been found between parental emotion coaching and children's ability to regulate their emotion, behavior and attention (e.g., Gottman et al., 1997; Shortt, Stoolmiller, Smith-Shine, Mark, & Sheeber, 2010). One goal of the current study was to extend previous research by investigating the emotion coaching of parents of aggressive/rejected children.

Emotion Coaching and Aggressive/Rejected Children

In the current study we were interested in determining if, compared to parents of low aggressive/popular children, parents of aggressive/rejected children would be less likely to use emotion coaching. Although no prior research has specifically investigated parental emotion coaching and aggressive/rejected children, studies of children with conduct problems or children who were rejected by peers found that parents of these children were less aware and involved in helping their children with their negative emotions. For example, Katz and Windecker-Nelson (2004) found that compared to mothers of children without conduct problems, mothers of children with conduct problems were less likely to coach their children regarding emotions. Furthermore, Carson and others found that compared to fathers of popular children, fathers of peer-rejected children were less likely to anticipate their children's emotional responses or help them manage their emotional experiences during an emotion-eliciting game (Carson & Parke 1996; MacDonald, 1987; Parke, 1996).

Some research also suggests that group differences in parental emotion coaching may be more evident for fathers of aggressive/rejected children versus fathers of low aggressive/popular children than for mothers of children from these two status groups. In addition to research suggesting that fathers of rejected children are less aware and involved in their children's emotions (Carson & Parke, 1996; MacDonald & Parke, 1984; Parke, 1996), research with more normative samples suggest that fathers may be less likely to emotion coach than mothers. For example, one study found that fathers were less likely than mothers to use emotion coaching with their adolescents (Stocker, Richmond, Rhodes, & Kiang, 2007). Compared to mothers, fathers were also less likely to accept and support negative emotions in their adolescents (Stocker et al., 2007). In the current study, we investigated whether group differences in emotion coaching would be more evident in fathers of aggressive/rejected children vs. fathers of low aggressive/popular children than for mothers of children in these two groups.

A second goal of the current study was to replicate and extend previous research linking parental emotion coaching and children's self-regulation skills (e.g., Gottman et al.1997) to a sample of children with significant social and conduct problems (i.e., aggressive/rejected children). It is important to determine whether the positive child outcomes, specifically self-regulation skills, associated with parental emotion coaching apply to at-risk populations of children. If research indicates that parental emotion coaching also predicts the self-regulation skills of aggressive/rejected children, interventions could be developed to teach parents of these children how to coach their children about emotions.

A number of previous studies suggest that aspects of parenting, including emotion coaching, may buffer at-risk children from negative outcomes (Katz, Hunter, & Klowden, 2008; Katz & Windecker-Nelson, 2004; 2006). Therefore, we were interested in whether parental emotion coaching might provide a protective function for the self-regulation skills of aggressive/rejected children given that these children show general deficits in this area and emotion coaching may specifically address relevant aspects of these deficits, such as calming emotional and physiological arousal (Gottman et al., 1996).

Another goal of this study was to investigate potential parent gender differences in the influence of emotion coaching on child self-regulation skills. We know of no prior studies that have investigated the influence of maternal versus paternal emotion coaching on children's self-regulation skills. It seems likely that different patterns of influence may be found based on parent gender. Past research suggests differences exist in paternal and maternal interactive styles with their children. For example, Parke (1996) noted that father-child play interactions have a greater range and intensity of emotion than mother-child play and may create unique opportunities for children to learn about monitoring and regulating emotion. In contrast, mothers may be more likely to engage in talking, making supportive statements and teaching their children (e.g., Wong, McElwain, & Halberstadt, 2009).

Purpose of the Current Study

Based on our review of previous research, we had a number of hypotheses regarding associations among children's status (i.e., aggressive/rejected versus low aggressive/popular), parental emotion coaching and children's self-regulation skills.

Hypotheses

Based on the work of Katz and Windecker-Nelson (2004), we expected that parents of aggressive/rejected children would engage in less emotion coaching with children than parents of low-aggressive/popular children. We were also interested in whether group differences based on children's status would be more evident for fathers or mothers. It was hypothesized that fathers of aggressive/rejected children would be less likely to engage in emotion coaching than fathers of low aggressive/popular children (Carson & Parke, 1996; Parke, 1996; Stocker et al., 2007).

It was also hypothesized that child status and parental emotion coaching would be associated with children's self-regulation skills. Specifically, we predicted that both status and parental emotion coaching would be related to children's ability to regulate their behavior, emotion, and attention. In addition to testing an additive model of the influence of status and parental emotion coaching on child self-regulation, we also tested a moderated model to determine whether emotion coaching would predict the self-regulation skills of both aggressive/rejected and low-aggressive/popular children and whether it might provide a protective function for aggressive/rejected children's self-regulation skills.

We know of no prior research that has investigated the predictive value of maternal versus paternal emotion coaching to children's self-regulation skills. Although no hypotheses were posed related to this issue, we reasoned that paternal versus maternal coaching might be

related to different aspects of children's self-regulation skills based on differences in parent-child interaction patterns for mothers and fathers (e.g., Carson & Parke, 1996; MacDonald & Parke, 1984; Parke, 1996).

Method

Participants

Recruitment for this study occurred in two phases. In the first phase, kindergarten and first grade children were recruited from eleven different lower to middle class schools in the rural Pacific Northwest region of the United States. A total of 49 classrooms participated in phase one of the study. Mean parent consent rates averaged 76% across classrooms and ranged from 65% to 100%. The sample for the first phase of the study included 778 kindergarten and first-grade children (51% male). All children with parental consent completed individual interviews to assess their social status with peers and level of aggressiveness. Social status with peers and aggressiveness were measured through a peer nomination process where children were asked to point to pictures of three classmates they "like to play with the most" (positive nomination) and three they "like to play with the least" (negative nomination; see Dorval & Begin, 1985). Children were also asked to identify three classmates who "fight and say mean things" (Coie & Dodge, 1988). Peer social status was established using procedures developed by previous research (see Coie, Dodge, & Coppotelli, 1982). Social preference was calculated by subtracting standardized negative nominations (NNs) from standardized positive nominations (PNs) and then standardizing the difference. Popular children had social preference scores 1 SD or more above the class mean and rejected children had social preference scores 1 SD or more below the class mean. Children were considered low aggressive if they had standardized aggression scores of less than zero, and high aggressive if they had standardized aggression scores of .80 SD or more above the class mean (French, 1988; Hecht, Inderbitzen, & Bukowski, 1998). Measures of social status and aggressiveness were calculated separately for each classroom and for boys and girls to assure an even distribution of gender (Asher & Renshaw, 1982). These procedures and thresholds have been used by a number of other researchers (see Coie & Dodge, 1988; French, 1988; Hecht, Inderbitzen, & Bukowski, 1998; Zakriski & Coie, 1996).

Children who met criteria for both high aggressiveness and rejected status by peers were assigned to the aggressive/rejected group (n = 37, 4.8% of the sample) and children with low aggressiveness and popular social peer status were assigned to the low aggressive/popular group (n = 44, 5.7% of the sample). In the second phase of the study, parents of children in these two extreme groups were re-contacted about participating in the present study. Potential child participants with cognitive delays or other disabilities, which would have restricted physical ability or communication, were excluded from the second phase of the study (n = 7). Eight families were unable to participate because they relocated to a new area more than 100 miles from the university. In addition, two families originally agreed to participate in the study but withdrew after determining that they did not have enough time to complete the study measures. The parental consent rate for phase two of the study was 86.4%, resulting in a final sample of 54 participants. There were 27 aggressive/rejected children, 13 boys and 14 girls, and 27 low aggressive/popular children, 13 boys and 14 girls.

Children's ages ranged from 5.1 years to 7.9 years (M = 6.7, SD = .65). Most of the children in the final sample were Caucasian (94.4%); two were Hispanic and one child's ethnicity was African American and Caucasian. Fifty-two mothers and 44 fathers participated in the study. We included families composed of single parents, step-parents and domestic partners of children's parents in the study if these individuals had lived in the home with the target child for at least one year. Approximately 76% of parents were married and living with their spouse (n = 42), 6% were married but living separately (n = 3), 7% were not married but living with a domestic partner for at least one year (n = 4), and 9% were divorced and living alone (n = 5). The age of mothers ranged from 24 to 49 years with a mean of 34.59 years (SD = 5.3), whereas the average age for fathers was 34.88 years (SD = 6.7) with a range from 26 to 54 years. Mothers' years of education ranged from 9 to 20 years with a mean of 13.92 years and fathers' education levels averaged 14 years with a range from 10 to 20 years. Annual family income ranged from less than $10,000 ($n$ = 4 families) to over $80,000 (n = 4 families) with the average family income falling between $25,000 and $40,000.

Procedure

Researchers met with parents and their children at their homes to explain the purpose of the study and obtain parental consent and child verbal assent. Individual meta-emotion interviews were conducted separately with each parent during this visit and were audiotaped for future coding. During this interview, emotion coaching was assessed by asking parents about their thoughts, feelings, and behaviors associated with their own and their child's sadness, anger, and fear (Hooven, 1994). Children also participated in a laboratory session where they completed an assessment of their attention regulation skills. The visit to the research laboratory typically took place one to three weeks after the home visit. Parents and teachers completed a questionnaire regarding children's self-regulation of behavior whereas only parents completed a measure of children's emotion regulation skills. The parent with the most frequent daily contact with the target child was asked to complete questionnaires. Parent questionnaires were usually completed by mothers except for four families where fathers completed these measures.

Measures

Parent report of family demographic information—Parents completed a questionnaire regarding basic family demographic information such as age of the target child, marital status, ethnicity of family members, family income, and parent education.

Parent and teacher report of child behavior regulation—Parents and teachers completed the Self-Control Rating Scale (Kendall & Wilcox, 1979), an adult-report questionnaire which assesses children's self-regulatory and self-control behavior. For example, one item asks adults, "When the child has to wait in line does he/she do so patiently?" The measure consists of 33 questions on a Likert-type scale (1 = *maximum self-control* to 7 = *maximum impulsivity*). The Cronbach's alpha for parent and teacher report in the current study were .91 and .98, respectively. We conducted an inter-item reliability assessment across teacher and parent reports of self-control and found an alpha of .85. The original scoring format for this questionnaire results in higher subscale scores indicating less

regulation. For ease of interpretation we recoded items for this scale so that higher scores would mean greater regulation of behavior.

Parent report of child emotion regulation—We used the Down Regulation subscale of the Child Regulation Index (Katz & Gottman, 1991) which assesses the extent to which parents need to calm their child, control temper tantrums, and restrict inappropriate emotional behavior (e.g., "How often do you have to tell your child to simmer down?"). This measure uses a Likert-type scale (1 = *Never* to 5 = *Very Often*). The Cronbach's alpha for the current study was .87. In a similar manner as with the self-control subscale, we recoded items for the Down Regulation subscale so that higher scores indicated greater regulation of emotion.

Children's ability to regulate attention—Children completed the Children's Attentional Shifting Task (CAST; Wilson et al., 2006), a computerized task designed to assess their ability to shift attention between photographs of neutral, happy, and angry faces. Equipment used for the CAST included a standard keyboard, a micron personal computer, and two computer monitors. Children sat on a chair directly in front of the two computer screens. Two pictures of a child's face were presented simultaneously, one on each of the two adjacent computer screens. Each pair of pictures contained at least one neutral face. Some pairs had two neutral facial expressions, which served as control pairs. Children were asked to press the space bar when an emotion face appeared on either computer screen. The display time for each pair was 2,500 ms and the interval between stimuli was 1,000 ms (See Wilson et al., 2006).

Children completed a short training session involving eight practice trials before starting the real task. The computer program and the facilitator provided children with feedback about their performance during this practice session but children did not receive feedback during the actual task. There were a total of 40 trials in the CAST. Each trial consisted of two pairs of faces. Shifts between two different emotion faces were considered target trials, e.g., shifting from either happy to angry or angry to happy faces. There were 10–14 presentations of each target trial type. Comparison trials involved shifts between neutral and emotion faces such as neutral to happy or angry to neutral faces. There were three to five presentations of each comparison trial type. The inter-trial interval was allowed to vary so that children could choose to rest between trials if needed. A blue light was displayed between the two monitors between trials. Participants were told to look at this central fixation point any time it was displayed. They were also told to press the space bar as soon as they were ready for the next trial to begin. Consecutive pairs of faces were arranged so that they required children to shift attention from one computer screen to the other in order to view the emotional faces (see Figure 1). Half of the children responded to angry faces that were consistently displayed on the left monitor and happy expressions that were displayed on the right monitor. The positions for happy and angry faces were reversed for the remaining children. Children were instructed to press the space bar anytime they saw an angry or happy face on either of the two screens and not to press the space if they only saw two neutral faces. Accurate shifting was demonstrated by correct identification of angry or happy faces. Accuracy was recorded automatically by the program (Mel2, manufactured by

Psychology Software Tools, Incorporated, Schneider, 1995). See Wilson et al. (2006) for more information about this task. Methods developed by Mezzacappa (2004) were used to assess the internal consistency of the CAST. *T*-tests were used to compare children's accuracy on even and odd trials. Results indicated no significant (0.9%) mean difference. Previous research found further evidence for the psychometric properties of the CAST. Children's performance on the CAST was related to observations of their regulation of emotion and behavior and parent reports of their attentional skills (Wilson, 2003; Wilson et al., 2006).

The Meta-Emotion Interview—The meta-emotion interview asks parents questions related to their own and their child's experiences of sadness, fear, and anger as well as parents' involvement in coaching their child regarding these experiences (Katz & Gottman, 1986; Gottman et al., 1997). Interviews were audiotaped for future coding. The coding procedure for the interview uses a checklist rating system that requires the coder to rate the interview responses on a number of different dimensions related to the parent and the child. Ratings are selected from a 6-point Likert scale that range from *strongly agree* to *strongly disagree*. Although a number of different domains are coded from this interview, only parental scores for emotion coaching, which is comprised of 11 items, are reported in this paper. The emotion coaching domain assesses the degree to which parents engage in coaching their child regarding sadness, fear, and anger.

Interrater reliability—Assessments of interrater agreement for the meta-emotion interview were conducted on 25% of the data. All coders were graduate students in a doctoral program. Prior to coding the tapes for reliability, three coders were involved in twelve weekly training sessions with a coach who co-developed the *Meta-emotion Coder Training Manual* (Hooven, 1994). Reliability was derived by calculating the correlation between the independent coding of the two coders. The coders reached .75 or greater interrater reliability on 27 practice tapes before coding the study data. Interrater reliabilities (intra-class correlations) for mothers' coaching of anger, sadness, and fear were .79, .92 and .89, respectively. Interrater reliabilities for fathers' coaching for these three emotions were .85, .82, .78, respectively. We calculated the inter-item reliability across the three emotion coaching subscales for mothers and fathers separately and obtained alphas of .67 and .62, respectively.

Results

Preliminary Analyses

Group means and standard deviations for study variables are presented in Table 1 and correlations between variables are presented in Table 2. In an effort to increase the power of our analyses we formed two composite variables for emotion coaching, one for maternal and one for paternal coaching, by calculating the sum for coaching across the three negative emotions (sadness, fear, and anger). The three emotion coaching variables for sadness, fear and anger were significantly correlated for mothers; $r = .54$, $p < .001$ to $r = .57$, $p < .001$; and for fathers; $r = .31$, $p = .05$ to $r = .54$, $p < .001$. Previous researchers have also used similar composite scores to represent emotion coaching and other meta-emotion constructs

(e.g., Katz et al., 2008; Yap, Allen, Leve, & Katz, 2008). We created separate emotion coaching composite scores for mothers and fathers so that we could investigate potential parent gender and status differences (aggressive/rejected versus low aggressive/popular) in parental emotion coaching as well as parent gender differences in associations between emotion coaching and child self-regulation. It is also important to note that mother and father emotion coaching composite variables from our data were not significantly correlated (see Table 2). In addition, we formed a composite variable from parent and teacher reports of children's behavior regulation, which was based on the Self-Control Rating Scale (Kendall & Wilcox, 1979), by first recoding these data so that higher scores on individual items corresponded to greater self-regulation of behavior. Average item scores were calculated for teacher and parents separately. Before creating this composite we determined that parent and teacher reports of self-control were significantly correlated, $r = .51$, $p < .0001$. Because data related to children's ability to regulate emotion were only gathered from children's parents, no composite was created for this variable. Accuracy for identifying emotion faces on the CAST was estimated by calculating the proportions of correct responses for the angry and happy faces and creating an average score from these proportions. This average proportion was arcsine-transformed before analyses were completed (Zar, 1996).

Our preliminary analyses found that maternal education was correlated with child status, $r = .30$, $p = .04$ (aggressive/rejected < low aggressive/popular) but not with any other study variables. Family income was positively related to maternal emotion coaching, $r = .32$, $p = .02$, indicating that as family income increased maternal emotion coaching also increased. Family income was also significantly correlated with adult reports of children's ability to regulate their behavior ($r = .48$, $p < .0001$) and emotion, $r = .29$, $p = .03$, but not to children's ability to shift attention between emotion faces on the CAST ($r = .10$, $p = .47$). We controlled for family income in analyses that included maternal coaching and adult reports of self-regulation.

Group Differences Based on Status

A one-way multivariate analysis of covariance (MANCOVA), controlling for family income, was used to evaluate status differences in adult reports of children's self-regulation of behavior and emotion. The two status groups (i.e. aggressive/popular children and aggressive/rejected) were significantly different on the dependent variables, Wilks' Lambda = .70, $F(2, 50) = 10.66$, $p < .0001$, $n^2 = .30$. Subsequent analysis of variance (ANOVAs) on the two dependent variables indicated that compared to low aggressive/popular children, aggressive/rejected children had lower ratings for self-regulation of behavior, $F(1, 51) = 19.43$, $p < .0001$, $n^2 = .28$, and emotion, $F(1, 51) = 7.50$, $p = .009$, $n^2 = .13$. We did not include children's regulation of attention in these analyses because our prior research already found that aggressive/rejected had lower accuracy on the CAST than low aggressive/popular children (Wilson, 2003). We conducted a one-way ANOVA and a one-way ANCOVA to evaluate status differences for paternal and maternal emotion coaching, respectively, because these variables were not significantly correlated with each other ($r = .27$, $p = .09$) and family income was only related to maternal emotion coaching. No significant group difference for emotion coaching was found for mothers, $F(1, 49) = .83$, p

= .37, n^2 = .02, but there was a statistical trend for fathers of aggressive/rejected children to engage in less emotion coaching than fathers of low aggressive/popular children, $F(1, 43) = 2.91$, $p = .08$, $n^2 = .07$.

Additive and Moderation Models of the Influence of Status and Parental Emotion Coaching on Children's Self-Regulation Skills

A series of hierarchical regression analyses were used to test two models of the influence of status and emotion coaching on children's self-regulation skills. We tested the additive effects of status and emotion coaching on children's self-regulation as well as a moderation model of these effects. To test our additive model we entered status and family income, where appropriate, on the first step and emotion coaching on the second step of our regressions. To test our moderation model, we added the interaction between status and emotion coaching on the final step. We conducted separate analyses for maternal and paternal emotion coaching to investigate potential parent gender differences in the influence of parental emotion coaching on children's self-regulation skills and to maximize our power for these analyses; more mothers participated ($n = 52$) in our study than fathers ($n = 44$).

The influence of status and maternal emotion coaching on child self-regulation—For analyses predicting self-regulation of behavior as the outcome variable, the contribution of status and income entered on the first step was significant, $F(2, 49) = 19.15$, $p < .0001$. Follow-up analyses indicated that both status, $t(49) = 4.25$, $p < .0001$ and income, $t(49) = 2.78$, $p = .008$ explained significant variance in children's regulation of behavior. After controlling for status and income, maternal emotion coaching did not explain significant unique variance in children's regulation of behavior, $F(1, 48) = 2.52$, $p = .11$. The interaction between status and coaching did not explain significant unique variance after controlling for main effects, $F(1, 47) = .004$, $p = .95$. See Table 3 for the results of hierarchical analyses involving maternal emotion coaching.

For analyses predicting child emotion regulation, children's status and family income entered on the first step of the regression analyses explained 21% of the variance, $F(2, 49) = 6.63$, $p < .01$. Status contributed significant variance in children's regulation of emotion, $t(49) = 2.82$, $p = .003$, but income did not, $t(49) = 1.21$, $p = .23$. Maternal emotion coaching, entered on the second step, did not account for significant variance in children's emotion regulation after controlling for status and family income, $F(1, 48) = .09$, $p = .76$. In contrast, the interaction between status and maternal coaching entered on the final step explained significant variance in children's emotion regulation, $F(1, 47) = 4.22$, $p = .045$. We graphed this interaction using the guidelines provided by Aiken and West (1991; see Figure 2).

As can be seen in Figure 2, for aggressive/rejected children, higher maternal emotion coaching was associated with better emotion regulation skills and lower levels of coaching predicted lower levels of emotion regulation skills. The pattern for low aggressive/popular children was just the reverse; high levels of maternal emotion coaching were associated with lower levels of emotion regulation skills and lower levels of coaching were related to higher emotion regulation skills.

In analyses of child attention regulation, social status and income explained 17% of the variance in children's regulation of attention, $F(2, 49) = 5.13$, $p = .01$. Follow-up analyses indicated that only status, $t(49) = 3.11$, $p = .003$ but not income, $t(49) = -.32$, $p = .75$, contributed significant variance. Neither maternal emotion coaching, $F(1, 48) = .37$, $p = .54$, nor the interaction between coaching and social status, $F(1, 47) = .97$, $p = .33$, explained significant variance in children's regulation of attention.

The influence of status and paternal emotion coaching on child self-regulation—Status and income, entered on the first step, explained 57% of the variance in children's self-regulation of behavior, $F(2, 41) = 27.39$, $p < .0001$. Both status, $t(41) = 5.73$, $p < .0001$, and income, $t(41) = 2.96$, $p = .005$, contributed significant variance. On the second and third steps, neither paternal emotion coaching, $F(1, 40) = 1.30$, $p = .26$, nor the interaction between paternal emotion coaching and status explained significant unique variance in children's regulation of behavior, $F(1, 39) = .62$, $p = .44$ (see Table 4).

With regulation of emotion as the outcome, status and income explained approximately 19% of the variance, $F(2, 41) = 4.83$, $p = .01$, but follow-up analyses indicated that only status contributed significant variance, $t(41) = 2.67$, $p = .01$ whereas income, $t(41) = .81$, $p = .42$, did not. Neither paternal coaching, $F(1, 40) = 1.49$, $p = .23$, nor the interaction between coaching and status, $F(1, 39) = .77$, $p = .39$, explained additional significant unique variance.

For analyses of the regulation of attention, status explained significant variance, $F(1, 43) = 10.82$, $p = .002$. Paternal emotion coaching entered on the second step explained an additional 19% unique variance in children's regulation of attention, $F(1, 42) = 12.97$, $p = .001$, but the interaction between emotion coaching and status did not explain significant unique variance after controlling for income and the main effects of status and coaching, $F(1, 41) = .94$, $p = .34$.

Discussion

This study found support for links between parental emotion coaching and children's self-regulation skills. Consistent with previous research, we found status group differences for children's self-regulation skills. Aggressive/rejected children had lower adult ratings for self-regulation of behavior and the regulation of emotion. In our previous research, we found that aggressive/rejected children also had lower skills for regulating their attention to emotional stimuli (Wilson, 2003). The anticipated status group differences for parental emotion coaching were not found although there was a statistical trend for fathers of aggressive/rejected children to engage in less emotion coaching than fathers of low aggressive/popular children. This latter trend is consistent with prior research suggesting that fathers of rejected children may be less aware and less likely to help their children deal with negative emotion (Carson & Parke 1996; MacDonald, 1987). It may be that significant differences for fathers would have emerged with a larger sample.

Although we did not specifically predict group differences in emotion coaching between mothers of aggressive/rejected vs. mothers of low-aggressive/popular children, it may be

instructive to discuss potential reasons for the lack of these differences. Coaching scores were based on self-report, not on observed behaviors. It is possible that mothers of aggressive/rejected children were sensitized when talking about negative emotion, especially anger, because they realized their children have difficulties with this emotion. Their answers during the meta-emotion interview could reflect social desirability rather than their actual behavior. Furthermore, although mothers may have appropriate coaching knowledge, their child's characteristics (e.g., temperament) or other variables may prevent them from being able to utilize this knowledge during actual interactions with their children.

We found some support for our additive and moderated models of the influence of child status and parental emotion coaching on children's self-regulation skills. As expected, the association between emotion coaching and children's self-regulation skills varied somewhat based on parent's gender. Fathers' emotion coaching predicted children's regulation of attention to emotion faces even after controlling for their status but did not predict children's behavior or emotion regulation skills. In contrast, we found support for a moderated rather than an additive model for the effects of maternal emotion coaching and status on children's emotion regulation skills. These findings provide some support to a growing body of research suggesting that parental emotion coaching may facilitate children's development of self-regulation skills (e.g., Gottman et al., 1997; Shortt et al., 2010). Findings from the current study also extend previous research by suggesting that the relation between parental emotion coaching and children's self-regulation skills may differ somewhat based on parent gender. It may be that parents' general interaction patterns with their children play a role in these differences. For example, some research suggests that fathers are more likely than mothers to engage in physical play with their children and mothers are more likely to spend time talking and teaching their children (Carson & Parke, 1996; MacDonald & Parke, 1984). Perhaps these play interactions provide children and fathers with opportunities to practice monitoring and responding to changes in the others' emotionality. Accurate monitoring of the excitement and emotions of others likely facilitates these play episodes (e.g., Carson & Parke, 1996). It would be instructive to compare fathers' emotion coaching to their behavior during physical play sessions with their children (Carson & Parke, 1996). It is possible that additional significant relations between emotion coaching and self-regulation would have emerged with a larger sample.

Maternal emotion coaching appeared to provide a protective function for aggressive/rejected children with regards to emotion regulation. Aggressive/rejected children with mothers who reported high levels of emotion coaching had better emotion regulation skills than aggressive/rejected children who experienced lower levels of maternal emotion coaching. This pattern was not found for low aggressive/popular children. This protective function regarding emotion coaching for aggressive/rejected children was only found for emotion regulation and mother's emotion coaching. Perhaps mothers' general style of interaction, i.e., talking and making supportive statements, provides more opportunities for emotion coaching that facilitates the regulation of emotion (Wong et al., 2009). It also seems likely that problems related to the regulation of emotion are more central to the social and conduct problems of aggressive/rejected children than children without these problems. Thus, when mothers address these problems through their emotion coaching this may be especially effective for these children. In addition, it may be that emotion coaching has a specific

influence on the mechanisms underlying emotion regulation rather than generalizing to other aspects of child regulation.

In addition, it is interesting to note that we found an unexpected slight negative pattern between maternal emotion coaching and parent ratings of child emotion regulation for low aggressive/popular children. Perhaps children are most likely to benefit from emotion coaching when it is aligned with children's zone of proximal development regarding self-regulation skills (Vygotsky, 1962). When children have already mastered these skills, excessive emotion coaching may be less effective. More research is needed to better understand how much emotion coaching is needed and for whom emotion coaching may be beneficial. It is also important to note that compared to aggressive/rejected children, low aggressive/popular children had higher levels of emotion regulation skill at all three levels of maternal emotion coaching.

Contrary to our expectations, parental emotion coaching did not predict children's self-regulation of behavior. It may be that the manner in which behavior regulation was operationalized in our study was too closely linked to the behavioral problems of aggressive/rejected children. For example, children's status and family income explained 57% of the variance in children's behavior regulation skills. It is possible that parental emotion coaching would predict children's behavior regulation if it was operationalized in other ways such as during self-regulation tasks (e.g., delay of gratification task).

Overall our analyses generally suggest that children's self-regulation skills are related to parent emotion coaching. For the self-regulation of attention, high paternal emotion coaching predicted better skills for both aggressive/rejected and low aggressive/popular children. Whereas for the regulation of emotion, the skills of aggressive/rejected varied based on the level of emotion coaching provided by mothers. Higher coaching was related to better emotion regulation skills. These findings support existing research suggesting that parents play an influential role in their children's emotional coping (Eisenberg, 1998, Eisenberg et. al., 1999; Gottman et al., 1997) and extend this research by showing that parental emotion coaching is associated with better attention and emotion regulation skills for children with high levels of social and conduct problems.

Strengths and Limitations of Current Study

There are several important strengths of the current study. First, the sample consisted of a nonclinical sample of children at risk for continuing conduct problems (Coie et al., 1992; Kupersmidt & Coie, 1990). This is the first study to investigate the emotion coaching of parents with children rated as aggressive/rejected by their school classmates. These findings have potentially important clinical implications. Given that parental emotion coaching appears positively associated with the ability of aggressive/rejected children to regulate emotion and attention, it is important to investigate the possibility that interventions could target this domain of parenting. Additionally, an interview format appeared to be an effective method for eliciting parent's discussion of emotions in themselves and their children. Parents may be less defensive and more open because the interview format allows them to share their thoughts and feelings first. Another significant strength of this study is that both mothers and fathers completed interviews regarding emotion coaching. No

previous research has investigated gender differences in the associations between parental emotion coaching and child self-regulation.

The current study also had several limitations. First, the sample size was small; findings may have been more robust with more participants. The sample size also limited the use of different statistical techniques such as structural equation modeling. Second, the ethnicity of participants in the current study was almost entirely Caucasian. This study also used an extreme group design with no additional groups for comparison (i.e., low aggressive/rejected or aggressive/non-rejected children). These two factors limit the ability to generalize the findings to populations other than the two groups involved (i.e., aggressive/rejected and low aggressive/popular Caucasian children).

Within this study many of our variables were based on self-report measures. Greater confidence could be placed in the results if additional observational measures of variables had been collected. A final limitation of this study is that our data were collected only at one time point. Therefore, we could not determine the direction of our pathways. In our models, we tested the degree to which parental emotion coaching predicted children's self-regulation skills. It is important to note that it is also possible that children's self-regulation skills, or lack of these skills, influences parents' tendency to engage in emotion coaching. Additional longitudinal and experimental research is needed to investigate this possibility and further examine the associations among maternal and paternal emotion coaching and children's self-regulation skills.

Future Research

Many questions remain in the investigation of parental meta-emotion philosophy. One such question is how children's meta-emotion philosophy fits into this theory (i.e., children's thoughts and feelings about their own and others' emotions and feelings). Gottman et al. (1996) suggested that a meta-emotion measure for children should include children's interpretations of their parents' meta-emotion coaching and how that moderates parental effects. Katz, Wilson, and Gottman (1999) noted that understanding children's feelings about their emotions may help us understand how to better train parents to emotion coach their children and to teach children how to emotion coach themselves. Additionally, more research is needed on the relative effects of parents' meta-emotion philosophy, specifically addressing how differing philosophies may contribute to the development of interventions for at-risk children. Finally, in this study, maternal and paternal parenting processes were modeled independently because paternal and maternal emotion coaching variables were not significantly correlated. However, it seems clear that maternal and parental parenting processes are not entirely independent and future research involving larger samples should consider incorporating a model that allows for these variables to be modeled together.

Conclusions

The current study adds to a growing body of knowledge about parental influences in children's self-regulation skills. Specifically, the results suggest an association between parental emotion coaching and better attention and emotion regulation skills for children and that some positive child outcomes identified in previous research apply to children with high

levels of conduct and social problems. In addition, fathers' emotion coaching predicted children's attention skills, and mothers' coaching appeared to provide a protective function for the emotion regulation skills of aggressive/rejected children. The cross-sectional nature of this research did not allow us to understand the direction of these effects or determine causality. However, the results suggest that examining the potential benefits of teaching emotion coaching skills to parents of at-risk children is an important area for future research. This study not only expands upon the existing literature regarding parental factors associated with children's self-regulation and attention but also paves the way for future research in the area of meta-emotion. In addition to parental emotion coaching, researchers should investigate other domains of parental behavior which may influence children's self-regulation skills.

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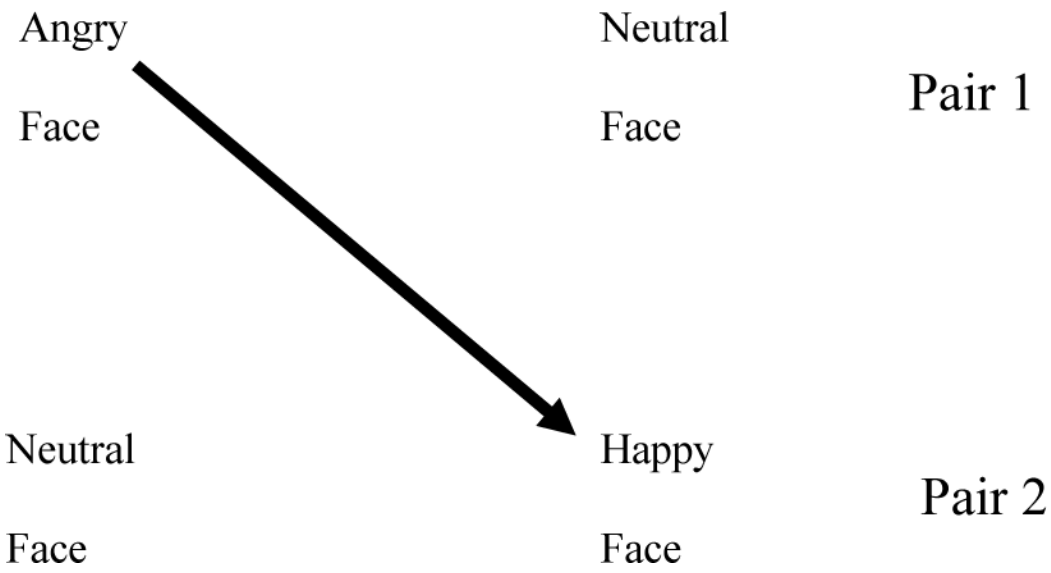

Figure 1.
Trial from Children's Attention Shifting Task requiring children to shift attention between an angry face on the left computer screen (Pair 1) to the happy face on the right computer screen (Pair 2).

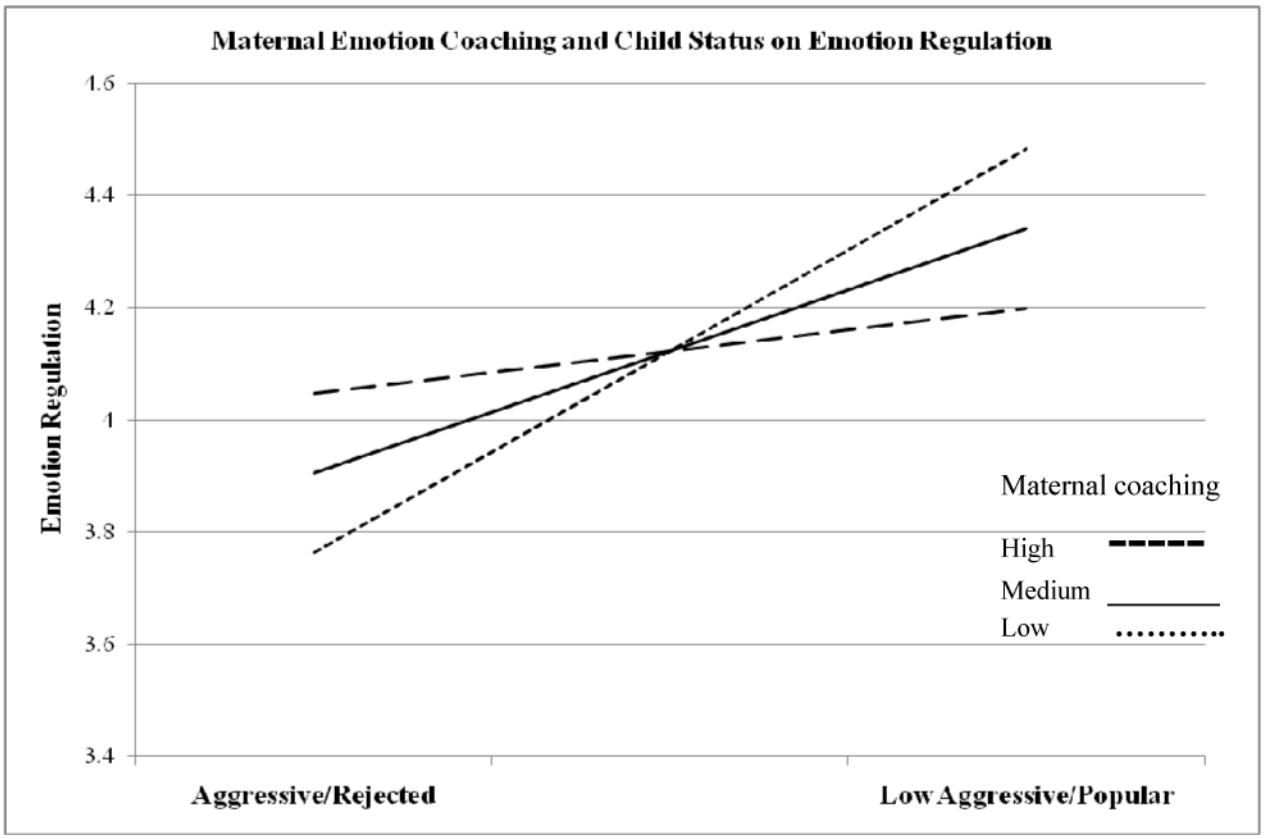

Figure 2.

Simple regression lines for the association between children's status as aggressive/rejected or non-aggressive/popular and their emotion regulation skills at different levels of maternal emotion coaching. Maternal emotion coaching is indexed at high (one SD above the mean), medium (at the mean) and low (one SD below the mean).

Table 1

Means and Standard Deviations for Study Variables by Child Status

Measure	Group	
	LA/P	A/R
Maternal Emotion Coaching	122.28 (11.09)	115.97 (16.04)
Paternal Emotion Coaching	114.00 (12.95)	106.06 (17.02)$^{+}$
Behavior Regulation-Parent & Teacher	5.39 (.60)	4.29 (.88)***
Emotion Regulation-Parent	4.30 (.38)	3.89 (.51)**
Attention Regulation-Child	1.37 (.25)	1.12 (.33)**

Note. LA/P = Low aggressive/popular, A/R = Aggressive/rejected; Parent = Parent report; Parent & Teacher = composite of parent and teacher report; Child = child performance measure. Maternal (n = 52) and Paternal (n = 44) Emotion Coaching = composite scores of parental coaching of sadness, anger, and fear; Higher emotion coaching scores indicate higher levels of emotion coaching; Higher scores for behavior, emotion, and attention regulation refer to greater ability to regulate behavior, emotion and attention.

n = 54 for self-regulation measures.

$^{+}p < .10$.

$^{*}p < .05$.

$^{**}p < .01$.

$^{***}p < .001$.

Table 2

Correlations between Study Variables

Variable	Total Family Income	Maternal Emotion Coaching	Paternal Emotion Coaching	Child Emotion Regulation-Parent	Child Behavior Regulation-Parent & Teacher
Total Family Income	—				
Maternal Emotion Coaching	.32*	—			
Paternal Emotion Coaching	.14	.25	—		
Emotion Regulation-Parent	.29*	.23	.29+	—	
Behavior Regulation-Parent & Teacher	.48***	.32*	.31*	.47***	—
Attention Regulation-Child	.10	.19	.53***	.41**	.43**

Note. Parent = Parent report, Parent & Teacher = composite of parent and teacher report, Child = child performance measure.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$

Table 3

Hierarchical Regression Analyses Testing Additive and Moderation Models of the Influence of Status, Income, and Maternal Emotion Coaching on Child Self-Regulation

Contributions of Income, Child Status, and Maternal Coaching to Child Behavior Regulation					
	R²	***Adj R²***	**Δ *R²***	**β**	***β***
1. Status	.44	.42	.44***	.90	.48***
Income				.22	.32
2. Coach-M	.47	.43	.03	.01	.18
3. CoachMXStatus	.47	.42	.000	−.001	−.07
Contributions of Child Status, Income, and Maternal Coaching to Child Emotion Regulation					
1. Status	.21	.18	.21**	.37	.38**
Income				.06	.16
2. Coach-M	.22	.17	.002	.001	.04
3. CoachMXStatus	.28	.22	.07*	−.02	−2.71*
Contributions of Child Status, Income, and Maternal Coaching to Child Attention Regulation					
1. Status	.17	.14	.17*	.27	.43*
Income				−.01	−.04
2. Coach-M	.18	.13	.006	.002	.09
3. CoachMXStatus	.20	.13	.02	−.006	−1.38

Note. Adj R^2 = Adjusted R^2, Δ R^2 = change in R^2, β= unstandardized regression coefficients, β = Standardized regression coefficients, Status = aggressive/rejected or low aggressive/popular, Coach-M = Maternal Emotion Coaching. CoachMXStatus = interaction of Maternal Coaching and child status

+ $p < .10$

* $p < .05$

** $p < .01$

*** < .001.

Table 4

Hierarchical Regression Analyses Testing Additive and Moderation Models of the Influence of Income, Status, and Paternal Emotion Coaching to Child Self-Regulation

Contributions of Child Status, Income, and Paternal Coaching to Child Behavior Regulation					
Variables	***R²***	***Adj R²***	**Δ *R²***	**β**	***β***
1. Status	.57	.55	.57***	1.13	.61***
Income				.22	.31**
2. Coach-P	.59	.55	.01	.007	.006
3. CoachPXStatus	.60	.55	.006	−.01	−.76
Contributions of Child Status, Income, and Paternal Coaching to Child Emotion Regulation					
1. Status	.19	.15	.19*	.39	.39*
Income				.05	.12
2. Coach-P	.22	.16	.03	.006	.18
3. CoachPXStatus	.24	.16	.02	−.009	−1.16
Contributions of Child Status and Paternal Coaching to Child Attention Regulation					
1. Status	.20	.18	.20**	.28	.45**
2. Coach-P	.39	.36	.19**	.009	.45**
3. CoachPXStatus	.40	.40	.01	−.005	−1.02

Adj R^2 = Adjusted R^2, Δ R^2 = change in R^2, β= unstandardized regression coefficients, β = Standardized regression coefficients, Status = children's social status = aggressive/rejected or low aggressive/ popular, Coach-P = Paternal Emotion Coaching. CoachPXStatus = interaction of paternal coaching and child status.

+ $p < .10$

* $p < .05$

** $p < .01$

*** < .001.