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Parents' Perceptions of and Responses to Children's Emotions: Relations with Meta-Emotion Philosophy and Adult Attachment

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Abstract

Objective.—This study investigated how parents' perceptions of, feelings toward, and anticipated responses to children's emotions relate to parents' meta-emotion philosophy (MEP) and attachment.

Design.—Parents (112 mothers and 95 fathers) completed an online research study where they viewed photographs of unfamiliar girls and boys (aged 10 to 14 years) displaying varying intensities of happiness, sadness, fear, anger, and neutral expressions. Parents labeled the emotion, identified the emotion's intensity, and reported their mirrored emotion and responses. They also completed measures assessing their MEP and attachment.

Results.—MEP predicted parents' responses to children's negative emotion, in that greater emotion-coaching predicted greater accuracy in labeling emotions (boys only), a greater likelihood to interact with children, and for mothers to be further from the mean in either direction in their mirrored emotion. Attachment also predicted parents' responses to children's negative emotions: Parents higher in anxiety reported more mirrored emotion, and those higher in avoidance reported less mirrored emotion, lower intensity, and less willingness to interact (boys only). In exploratory models for positive emotion, parents' MEP did not predict their responses, but parents higher in attachment avoidance rated girls' positive emotions as less intense, reported less mirrored emotion, less willingness to interact, and less supportive responses, and those higher in anxiety showed the opposite pattern.

Conclusions.—Despite methodological limitations, results offer new evidence that parents' ratings on a standardized emotion perception task as well as their anticipated responses toward children's emotion displays are predicted by individual differences in their attachment and MEP.

Keywords

Emotion socialization; emotion perception; attachment style; meta-emotion philosophy; parents

INTRODUCTION

Parents' responses toward children's emotions are a major influence on children's development (e.g., Eisenberg, Cumberland, & Spinrad, 1998; Fabes, Leonard, Kupanoff, & Martin, 2001; Gottman, Katz, & Hooven, 1996). However, to react appropriately, parents must first recognize that children are displaying an emotion and decode the type and intensity of emotion. Relatedly, parents' own feelings and behaviors toward children's emotions are important components of the emotion socialization process, but work in this area has rarely examined parents' feelings and behaviors in conjunction with their emotion recognition ability and included responses to positive emotions. Two individual-difference factors that should predict parents' identification of and responses to children's emotions are their own attachment history and their broad philosophy toward emotions or meta-emotion philosophy (MEP; Halberstadt, Dennis, & Hess, 2011; Jones, Cassidy & Shaver, 2015). Thus, the aims of this study were to examine: (1) parents' perceptions of unfamiliar children's facial expressions of negative emotions (and, on an exploratory basis, positive emotions), (2) parents' reports of their own feelings and behaviors in response to children's emotional displays, and (3) if parents' perceptions, feelings, and behaviors are predictable by parents' MEP and attachment.

Parents' Perception of Children's Emotions

Existing research on emotion perception in parents mostly focuses on the infancy period because emotions are infants' primary means of communication (e.g., Montague & Walker-Andrews, 2002; Spangler, Maier, Geserick, & von Wahlert, 2010). However, investigating parents' understanding of older children's emotions is important for several reasons. By middle childhood, children may be more able and motivated to modulate their expressed emotions to either neutralize or reduce the intensity of their displays (Saarni & Weber, 1999; Sallquist et al., 2009) which suggests that parents may need to be more adept at analyzing these emotions to respond sensitively. Similarly, in early adolescence youth seek to increase their autonomy, but still need parental guidance in many ways. This developmental shift may make active engagement with children's emotions a more difficult yet important task for parents. In addition, adolescents who viewed their mothers as more accepting were more likely to communicate with mothers about their emotions later in adolescence (Hare, Marston, & Allen, 2011), and fostering an environment of open communication in early adolescence may serve as a protective factor against many problems associated with adolescence (Kerr & Stattin, 2000), including depression (Hankin et al., 1998) and risky behaviors (Kann et al., 2014).

In addition, most research on parents' emotion perception only assesses the identification of highly intense, prototypical displays of basic emotions, but less is known about how parents identify less intense emotions and interpret intensity of expressions. People generally are able to identify highly intense or prototypical emotions (e.g., Ekman et al., 1987), but are less accurate when expressions are less intense displays of the posed emotions (Halberstadt et al., 2011; Hess, Blairy, & Kleck, 1997). Given that intense displays of emotion in everyday life may be relatively rare, our study offers information on how parents may identify and gauge the intensities of a range of expressions in older children.

Finally, in most research on parents' emotion perception, parents are asked to identify their own child(ren)'s expressions. This method is ecologically valid, but when the aim is to investigate individual differences in parents' emotion perception ability, the use of validated picture sets comprising unfamiliar children's expressions may be especially important to gain a more objective assessment of parents' perception skill. Past research has suggested that parent-child relationships are bi-directional, in that children actively shape the responses that parents provide (Plomin, DeFries, & Loehlin, 1977; Scarr & McCartney, 1983). For example, children who express sadness more frequently may help parents to become more adept at labeling their sadness than children who express sadness less often. Therefore, to minimize effects from shared history, assessing parents' labeling accuracy with standardized photographs is necessary. Although this methodology precludes drawing conclusions regarding emotion-labeling within the particular parent-child relationship, it instead reflects parents' general labeling skills, which are essential to understand any potential perceptual biases. Research supports the notion that parents' performance on a task using unfamiliar children predicts how they respond to their own. Specifically, mothers' responses to unfamiliar infant crying have been linked with their observed sensitivity and responsiveness to their own infants (Leerkes, Parade, & Gudmundson, 2011). Therefore, in the present study, parents were asked to label photographs and to provide answers as to how they would respond to their own children if the child were experiencing the pictured emotions.

Parents' own Emotional Responses toward Children's Emotions

Research has emphasized the importance of emotional contagion for sensitive responding to children's emotions, wherein parents "catch" or "mirror" the child's displayed emotion, which motivates them to respond effectively (Ebisch et al., 2012; Spangler et al., 2010). Although some empathetic response by the parent may signify sensitivity to the child's emotions, too much mirroring of a negative emotion can be maladaptive (Eisenberg, Fabes, & Murphy, 1996). For instance, a mother who responds to her child's distress by becoming distressed herself is also more likely to react to her child's distress in other negative ways, including punishing her child or minimizing her child's negative emotions, which relates to poorer child outcomes (Fabes et al., 2001). Mothers have also been rated as optimally sensitive by objective raters when mothers' responsiveness to their infants was moderate rather than under- or over-responsive (Bornstein & Manian, 2013). Thus, the optimal level of parental emotion may be curvilinear in nature, with appropriate levels falling between the two extremes.

Parents' Behavioral Responses toward Children Expressing Emotions

Parents vary in their behavioral responses to children's emotions (Eisenberg et al., 1998; Fabes et al., 2001) and on their general attitudes and beliefs about emotion (Gottman et al., 1996; Halberstadt, Thompson, Parker, & Dunsmore, 2008b). Lee (1999; as cited in Hakim-Larson, Parker, Lee, Goodwin, & Voelker, 2006) identified two dimensions that may represent parents' behaviors or beliefs toward children's emotions: the active-passive (how much parents would choose to actively engage with a child) and approval-disapproval dimensions. These dimensions are similar to responses identified by Fabes and colleagues (Fabes, Eisenberg, & Bernzweig, 1990) where parents can be approving or supportive (i.e., encourage expression, help the child solve problems or feel better) or disapproving/non-

supportive (i.e., punish or minimize the emotion, express personal distress) toward children's emotions. Despite the utility of the active-passive and approval-disapproval dimensions to explain parents' attitudes and behaviors toward children's emotions, little work has examined them in relation to actual emotion expressions. Therefore, the inclusion of parents' perceptions, emotions, and responses in the current study should provide more complete information about parents' varied responses toward children's emotion.

Factors Predicting Parents' Perception and Emotional and Behavioral Responses

Many factors impact people's general parenting behaviors. One important factor is parents' own developmental history, which contributes to their current environment and parenting-related beliefs and behaviors (Belsky, 1984; Bornstein, 2016). However, few studies have directly examined how these types of developmentally based individual differences might impact emotion-related parenting. Some past studies have found support for linkages between parents' responses to children's emotions and parents' traits (e.g., personality; Hughes & Gullone, 2010), physiology (e.g., vagal tone; Perlman, Camras, & Pelphrey, 2008), and associated situational factors (e.g., parental stress; Nelson, O'Brien, Blankson, Calkins, & Keane, 2009). However, the literature on attachment and MEP suggests that, because these constructs are developed from parents' past emotional experiences and may be transmitted cross-generationally (e.g., Hooven, Gottman, & Katz, 1995; Obegi, Morrison, & Shaver, 2004; Roelofs, Meesters, & Muris, 2008; Steele, Steele, & Fonagy, 1996; van IJzendoorn, 1995), they should be especially relevant to how parents interpret and react to children's emotions.

Meta-emotion philosophy.—Meta-emotion has been defined as the emotions and thoughts that individuals have toward emotions (Gottman et al., 1996). Gottman and subsequent researchers often focus on parents' MEP toward anger and sadness and include parents' awareness of their own emotions, acceptance and awareness of their children's emotions, and feelings toward being an emotion-coach for their children (Gottman & DeClaire, 1997; Gottman et al., 1996; Hunter et al., 2011; Lagace-Seguin & Coplan, 2005; Yap, Allen, Leve, & Katz, 2008). Parents higher on awareness, acceptance, and coaching feel that emotions are valuable, and are able to recognize emotions in themselves and others, talk to their children about emotions in a nuanced manner, and give appropriate guidance (Hooven et al., 1995).

Parents' MEP has also been conceptualized as comprising four types of philosophies: emotion-coaching (EC), laissez-faire, dismissing, and disapproving (Gottman & DeClaire, 1997). EC parents are attentive to children's emotions, and they talk with children about emotions and their causes and how they should cope (Hooven et al., 1995). In contrast, laissez-faire parents are accepting and aware of children's emotions, but offer children little guidance. Dismissing parents feel that negative emotions are dangerous and that children's emotions should be minimized (Gottman & DeClaire, 1997). Finally, disapproving parents actively discourage, disapprove of, and punish emotional displays in children. Although these philosophies can be treated categorically, Hakim-Larson et al. (2006) found that using them as continuous was more precise. Halberstadt later expanded how beliefs about children's emotions are conceptualized by assessing other aspects such as parents' beliefs

about the importance of emotions and beliefs about children's motives for their emotional displays (Halberstadt et al., 2008a, 2013).

MEP has been related to several aspects of the parent-child relationship. For example, Katz and Hunter (2007) found that mothers' EC was related to better parent-adolescent communication patterns (e.g., lower reciprocity of negative affect), and that mothers' acceptance of their own emotions predicted fewer behavioral problems and better self-image in their adolescents. Also, parents' acceptance and valuing of 4th-5th grade children's emotions was related to children's feelings of security in times of high stress (Stelter & Halberstadt, 2011). In another study, parents' strong beliefs in guiding 9- to 10-year-old children's emotions related negatively to their children's ability to perceive their own parents' emotions (Dunsmore, Her, Halberstadt, & Perez-Rivera, 2009). Finally, an intervention that teaches parents to employ EC with their young adolescents demonstrated beneficial outcomes, including improving emotion socialization (e.g., by lowering parents' emotion dismissing) and reducing adolescents' internalizing and externalizing behavior (Tuning in to Teens; Havighurst, Kehoe, & Harley, 2015; Kehoe, Havighurst, & Harley, 2014). Yet, the prediction outlined in MEP theory that parents who vary in MEP would differ in their ability to identify emotions has not been systematically investigated.

Attachment.—Attachment is a major conceptual framework that describes how individuals learn to depend on others and cope with their feelings of distress (Bowlby, 1973). Through repeated interactions with primary caregivers, children's experiences become internalized, which shapes their expectations and behaviors for future close relationships, including their relationships as adults with their own children (Bowlby, 1973; Jones et al., 2015; Main, Kaplan, & Cassidy, 1985). In adulthood, attachment styles can be conceptualized on dimensions of avoidance and anxiety (Brennan, Clark, & Shaver, 1998). People higher in anxiety often become preoccupied with the threat of attachment figures' unavailability and with their own negative emotions. They tend to adopt a hyperactivating approach that involves exaggerating threats and emotions to meet their attachment needs (e.g., keeping their partner's attention or keeping them nearby; Mikulincer & Shaver, 2007). In contrast, avoidant individuals develop a deactivating strategy where they suppress or do not acknowledge emotions, and are generally uncomfortable with both negative and positive emotions because they may foster intimacy and dependency that avoidant individuals want to minimize (Mikulincer & Shaver, 2005; 2007).

Substantial research supports these theoretical predictions showing that anxiety and avoidance predict consistent parental responses to children's emotions. Most previous work assessing the role of attachment in parents specifically has used the Adult Attachment Interview (the AAI), an interview measure designed to assess the state of mind with respect to attachment (George, Kaplan, & Main, 1985; Main et al., 1985; van IJzendoorn, 1995). However, a growing body of literature has examined self-reported attachment style, which is conceptually distinct from the AAI, but still strongly predicts differences in emotion and parenting outcomes (Roisman et al., 2007; also see Jones et al., 2015, for a review). For example, mothers' attachment avoidance prospectively predicted their provision of harsh responses to their adolescents' negative emotion, and avoidance and anxiety indirectly predicted maternal nonsupportive responses through their relation with mothers' emotion

regulation difficulties (Jones, Brett, Ehrlich, Lejuez, & Cassidy, 2014). Less work has investigated attachment's impact on positive emotion socialization, but mothers' avoidance has been related to encouraging fewer savoring responses in children that up-regulate children's positive emotions, and mothers' anxiety was related to negative reactions (greater discomfort, more reprimanding) to children's positive emotions (Gentzler, Ramsey, & Black, 2015).

There are fewer studies on emotion perception and attachment, and most existing studies have used either adult expressions (Fraleigh, Niedenthal, Marks, Brumbaugh, & Vicary, 2006; Niedenthal, Brauer, Robin, & Innes-Ker, 2002) or infant faces as stimuli (Krippel, Ast-Scheitenberger, Bovenschen, & Spangler, 2010; Leerkes et al., 2011; Spangler, Geserick, & von Wahlert, 2005). For example, Leerkes and Siepak (2006) found that with female undergraduates, greater self-reported anxiety and avoidance were associated with less accuracy in identifying infants' negative emotion and reporting more negative attributions about the cause of infants' distress. In a sample of parents specifically, parents' attachment as assessed by the AAI did not influence their perception of their children's emotions, but secure parents were more likely to report an analogous negative emotional response when viewing a child's negative emotion than insecure parents (Spangler et al., 2010).

Overall, this body of work on attachment suggests that insecure parents can be less sensitive and responsive to children's emotions. The present study extends this research by using older children's expressions and by incorporating all of the necessary components of the socialization process (perception, felt emotions, behavioral responses) into the same study.

Parent and Child Gender.—Although most parenting research has focused on mothers, differences may exist in socialization behaviors between mothers and fathers. Fathers are more likely to punish or ignore negative emotions, and mothers are more likely to mirror negative emotions (Eisenberg et al., 1996; Klimes-Dougan et al., 2007). In MEP work, fathers were less likely to emotion-coach or be aware of children's emotion than were mothers, and greater variability is often found for fathers' beliefs than mothers' (Hakim-Larson et al., 2006; Hooven et al., 1995). Therefore, including fathers in the current study allows us to examine whether or not the tested associations vary by parent gender, which has been identified as an important direction (Jones et al., 2015; Katz, Maliken, & Stettler, 2012).

Previous work on emotion socialization has also reported differences between mothers and fathers in their responses to girls' and boys' emotions, often in ways that conform to gender stereotypes. For example, in a longitudinal study, fathers were found to be more attentive toward girls' submissive emotion (e.g., sadness) than to boys', and to boys' disharmonious emotion (e.g., anger) than girls' (Chaplin, Cole, & Zahn-Waxler, 2005). In a retrospective study, young adults reported that their fathers responded differentially to expressed sadness and fear, in that girls were rewarded for their expression and boys were punished (Garside & Klimes-Dougan, 2002). Finally, evidence suggests that parents' beliefs might impact their parenting of their same-sex but not opposite-sex children (Wong, McElwain, & Halberstadt, 2009). Therefore, the possibility of parents' differing on their responses based on child gender is explored.

The Present Study

The present study was designed to examine parents' perceptions of and feelings toward children's emotional expressions using a validated picture set of children's emotions to determine whether or not responses were predicted by parents' MEP and attachment. Mothers and fathers were asked to label children's expressions and rate the intensity, rate their own level of mirrored emotion, indicate whether they would actively approach the child or not, and rate the likelihood that they would provide a supportive reaction toward the expressed emotion. We include 15 hypotheses (5 outcomes for 3 predictors) pertaining to negative emotions. We discuss tentative associations expected for positive emotions, but given the paucity of data on these, extensions to positive emotions are exploratory.

In line with MEP theory (Gottman & DeClaire, 1997), parents who scored higher in EC (compared to those scoring lower) were expected to (1a) correctly label a greater percentage of children's negative and positive emotion expressions; (1b) be more accurate (i.e., closer to the mean for each photo) in judging emotional intensity because EC parents should be more sensitive to variations in emotions; (1c) fall within ± 1 *SD* around the *M* for mirrored emotion (due to feeling some, but not an overwhelming degree of, emotion when viewing children's emotions); (1d) report higher levels of active (rather than passive) responses to children's emotions; and (1e) report more supportive reactions.

For attachment anxiety, parents who are higher on anxiety are expected to (2a) be more accurate in labeling negative emotions; (2b) rate negatively valenced photos as more intense; (2c) report greater mirroring of negative emotion; (2d) report less willingness to engage with children's negative emotions; and (2e) be less supportive. Associations between anxiety and responses to positive emotions are less clear, but may differ from those for negative emotion in that anxious parents may exhibit decreased accuracy and intensity judgments for positive emotion compared to less anxious parents. For attachment avoidance, parents who are higher on avoidance are expected to (3a) be less accurate in labeling negative emotions; (3b) rate negatively valenced photos as less intense; (3c) report less mirroring of negative emotion; (3d) report less willingness to engage with children's negative emotions; and (3e) be less supportive. Again, hypotheses are tentative for positive emotions, but they are expected to hold in similar ways to hypotheses for negative emotions.

METHOD

Participants

The sample was 112 mothers and 95 fathers. Parents were eligible if they had at least 1 residential child younger than 18 years (all reported children $M_{age} = 9.41$, $SD = 6.70$). Parents' age ranged from 18 to 64 years ($M = 36.45$, $SD = 8.65$), and the mean age for entry into parenthood was 26 years ($SD = 6.18$, range = 15 – 54). On average, parents had 2 children ($M = 1.86$, $SD = 1.15$, Range = 1–10). Most participants were European American (80.2%), heterosexual (97.1%), married (65.7%), and biological parent to at least one child (98.1%). A wide range of education level was reported, but the most frequently endorsed response was a Bachelor's degree (31.9%). Most participants were employed (75.8%). There were some demographic differences between mothers and fathers; mothers were younger

($M_{\text{mothers}} = 35.35$, $SD = 8.08$, $M_{\text{fathers}} = 37.75$, $SD = 9.16$) and reported becoming parents at a younger age ($M_{\text{mothers}} = 24.89$, $SD = 5.25$, $M_{\text{fathers}} = 27.32$, $SD = 6.92$) than did fathers. Fathers were more likely to be employed for pay than were mothers.

Participants were recruited locally ($n = 84$) and from Amazon's Mechanical Turk ($n = 123$). Participants were combined for all analyses, but analyses were first conducted to compare sampling methods. Mostly demographic differences emerged, in that the MTurk sample included more men, and on average, included younger participants who entered parenthood earlier and had lower education levels. For their participation, local participants were offered either a \$10 money order or entry into a \$100 raffle, and MTurk participants were paid \$3. A total of 327 participants completed some portion of the study, however 120 participants were removed from analyses for several reasons, including failure to complete the study (which was in part due to a programming error, though affected participants were compensated, $n = 84$), patterning in the data ($n = 6$), having a romantic partner who also participated ($n = 10$), and incorrectly answering validity questions ($n = 20$).

Procedure

The study was conducted online using Inquisit 3 Web. Upon accessing the study website, individuals read information about the study and indicated their consent to participate. Next, participants answered sociodemographic questions and then were directed to the picture task. Two trial pictures were presented before the actual 30-picture emotion perception task. Parents were asked to (1) label the displayed emotion, (2) rate its intensity, (3) rate their own mirrored emotion, (4) identify whether they would engage with the target child, and (5) rate the supportiveness of their anticipated behavior. After the task, parents completed the remaining surveys including the MEP and attachment measures.

Materials

Demographic Information.—Parents reported various sociodemographic information, including the age(s) and gender(s) of their child(ren). Parents were asked to indicate their overall level of experience with youth under the age of 18 and with young adolescents (ages 10–14) specifically using a 7-point Likert scale (from 1 = *very little experience* to 7 = *considerable experience*). These two questions were averaged to create an index of participants' experience with children/teens to examine if performance varied depending on familiarity with children.

Picture Rating Task.—Participants were told that they were to view photos of children between the ages of 10 and 14 and that each expression was taking place within the child's home. Specifying a single context should improve parents' ability to respond to the posed questions in a more unified manner. The NIMH-ChEFS (Egger et al., 2011) child picture set was used. Parents viewed 30 total photographs selected from this set, representing children's expression of 5 emotions (happiness, sadness, fear, anger, and neutral), although neutral expressions were not analyzed within the present study. The chosen pictures consisted of 2 rated as highly intense, 2 in the mid-range of intensity, and 2 with low intensity ratings for each emotion. In addition, children of both genders were depicted for each emotion (4 girls and 2 boys for happiness, sadness, and anger photos, and 3 girls and 3 boys for fear). Parents

were asked to *label the expressed emotion* for each photograph. The following choices were provided: afraid, angry, happy, sad, and neutral (no emotion). A parent correctly identifying an emotion (e.g., fear) in 3 out of 6 photos was given a (fear-) labeling score of 50%.

Parents also were asked to identify the *intensity of the expressed emotions*. Ratings were made across a continuous, sliding scale rating bar that appeared to participants to be a straight unbroken line. The bar had 100 incremental positions to increase sensitivity to small variations and to reduce response biases. It was anchored with *Very low intensity* to *Very high intensity* and was similar to one used by Egger et al. (2011). To derive meaningful intensity scores, parents' intensity ratings were centered on the sample mean of that photograph.

After that, parents were asked to *rate their own emotion* when viewing the photos. Ratings were also collected through the use of the sliding scale rating bar. Parents were asked to "Think about the label you provided for this child's emotion. If this was your child, how likely would his/her emotion provoke a similar emotional response in you?" The rating scale was labeled with *Very unlikely to provoke a similar response in me* to *Very likely to provoke a similar response in me*. Raw scores were used to test attachment hypotheses. However, for MEP hypotheses, scores were converted into whether (yes or no) parents' scores fell within ± 1 *SD* of the *M* for the overall sample. This transformation allowed for an examination of the hypothesis that parents higher in EC would show more optimal mirrored emotion levels.

Next, parents were asked to identify the degree to which they felt that an *active or passive response* would be more appropriate for the pictured emotion. Ratings for the active-passive dimension were also provided on the sliding bar. Directions were "How likely would you be to interact with this child?" and labels were *Very unlikely to interact with the child* to *Very likely to interact with the child*. Finally, we assessed parents' likelihood of providing a *supportive or non-supportive response* to the child's emotions on the sliding scale. Parents were asked to "Indicate your likely response toward this emotion" with endpoints labeled as *I would discourage or punish this emotion* to *I would encourage or reward this emotion*.

Meta-emotion philosophy.—Participants completed the Emotion-Related Parenting Styles Self-Test (ERPSST; Gottman & DeClaire, 1997; Hakim-Larson et al., 2006). This 81-item measure was designed to categorize parents as either dismissing, disapproving, laissez-faire, or EC toward children's anger and sadness. The laissez-faire category was not examined within the current study due to the paucity of research demonstrating conclusively that laissez-faire parenting is worse than or even distinct from EC. The original version used a true-false format, but later research showed that a 5-point Likert-type scale (*always false* to *always true*) provided greater precision (Hakim-Larson et al., 2006). Parents' mean scores within each subscale were used for analyses. Example items include "If you ignore a child's sadness it tends to go away and take care of itself" (dismissing), "Angry children are being disrespectful" (disapproving), and "A child's anger is important" (EC). The subscales demonstrated internal consistency (α for dismissing = .75; α for disapproving = .88; α for EC = .84).

Parents also completed scales from Halberstadt and colleagues' (2008a) Parents' Beliefs about Children's Emotions (PBACE) Questionnaire. The PBACE has been revised (see Halberstadt et al., 2013); however, the 2008 version was used in this study. The chosen scales include the: (1) positive emotions are good, (2) negative emotions are good, (3) all emotions are bad, (4) parents should guide, (5) children are capable, (6) contempt, and (7) manipulation subscales. Mean scores on these individual subscales were combined into larger *value* (consisting of scales 1, 2, & 3 which was reverse-coded, $\alpha = .92$, sample item = "It is useful for children to feel angry sometimes."), *guidance* (consisting of 4 & 5 which was reversed coded, $\alpha = .90$, sample item = "It's a parent's job to teach children how to handle their emotions.") and *relational* (consisting of 6 & 7, $\alpha = .90$, sample item = "Children sometimes show affection to get something they want.") scales. Higher scores on the value and guidance scales and lower scores on the relational scale reflected greater endorsement of EC beliefs. Parents were asked to complete both MEP measures as though their own children were 10 to 14 years of age.

We included both the PBACE and the ERPSST in the current study because they provide overlapping but also unique information about the broad MEP construct. Specifically, the PBACE was empirically derived and tested (unlike the ERPSST, which was first presented in a parenting handbook). In addition, the PBACE includes questions about parents' responses to positive emotions, unlike the ERPSST. Finally, the PBACE aims to measure many different aspects of parents' emotion-related beliefs and includes many subscales. Therefore, using both measures and creating a latent factor provides more depth and breadth to the MEP construct.

Adult attachment.—To measure attachment across relationships (i.e., one's own mother, father, and romantic partner) the Experiences in Close Relationships-Relationship Structures questionnaire (ECR-RS; Fraley, Heffernan, Vicary, & Brumbaugh, 2011) was administered. This questionnaire assesses individuals on two continuous dimensions, anxiety and avoidance of close relationships. For the ECR-RS, responses are made on a 7-point Likert scale and include 9 items per relationship. The directions to participants were, "Please answer the following 9 questions about your mother or mother-like figure (father or father-like figure; dating or marital partner). If your parent is deceased, please respond as to your experiences with them when they were living. (If you do not have a current partner, please respond as to your general experiences in dating relationships.)" Evidence for internal consistency was found for anxiety (mother $\alpha = .92$, father $\alpha = .92$, partner $\alpha = .92$) and avoidance (mother $\alpha = .96$, father $\alpha = .93$, partner $\alpha = .91$) dimensions. Example items include "I often worry that this person doesn't really care about me." (attachment anxiety), and "I prefer not to show this person how I feel deep down." (attachment avoidance). Descriptive information for all of outcome and predictor variables is provided in Table 1.

RESULTS

Analytic Approach

Structural equation modeling (SEM) in AMOS19 was used for model testing. Structural models were tested for moderation by parent gender. Non-significant paths were trimmed,

and modification indices were examined to create best-fitting models. Acceptable values include CMIN/DF below 3, CFI of .90+, and RMSEA of .08 or lower (Hoe, 2008; Tabachnick & Fidell, 2007). With the attachment models, latent variables for anxiety and avoidance were allowed to covary because people can be high or low in both anxiety and avoidance (Fraley et al. 2011).

Preliminary Analyses

Several preliminary analyses were conducted. First, although people may have emotion-specific attitudes (Harmon-Jones, Harmon-Jones, Amodio, & Gable, 2011), the hypotheses proposed for overall negative affect (sadness, anger, and fear) necessitated condensing across negative emotions. Thus, we conducted correlations among anger, fear, and sadness for each outcome measure. For accuracy, correlations ranged from $r(207) = .15$ to $.30$, values for intensity ranged from $r(207) = .43$ to $.60$, mirrored emotion ratings ranged from $r(207) = .50$ to $.69$, willingness to interact values ranged from $r(207) = .78$ to $.83$, and finally parents' responses ranged from $r(207) = .70$ to $.84$. Because outcomes for each emotion were significantly and positively correlated, we collapsed across sadness, anger and fear.

We also examined potential covariates by analyzing the outcome variables based on recruitment source, participants' age, age at first becoming a parent, ethnicity, education level, employment status, difficulty in paying bills, number of children, experience with children/teens, having a child older than 9, and having a child aged 10 to 14. Numerous significant relations were found, but the two variables with the most associations were parents' education level and experience with children/teens. Specifically, parents' education level was significantly correlated with their ratings of negative, $r(207) = -.20$, $p = .004$, and positive, $r(207) = -.22$, $p = .001$, emotion intensity and with their mean levels of mirroring negative emotion, $r(207) = -.15$, $p = .036$. Education was also marginally associated with parents' supportive responses to negative, $r(207) = .12$, $p = .086$, and positive, $r(207) = -.14$, $p = .051$, emotion. Parents' experience with children/teens was related to their negative, $r(207) = .24$, $p < .001$, and positive, $r(207) = .20$, $p = .004$ emotion intensity ratings, and to the absolute value of parents' positive emotion intensity ratings, $r(207) = .14$, $p = .049$. Parents' experience level also related to their likelihood of falling within the optimal ($+/- 1SD$) range of mirrored negative, $r(207) = -.19$, $p = .005$, and positive, $r(207) = -.14$, $p = .038$, emotion as well as their mean mirrored negative, $r(207) = .19$, $p = .006$, and positive, $r(207) = .18$, $p = .009$, emotion ratings. Finally, parents' experience was correlated with their willingness to interact with children's negative, $r(207) = .33$, $p < .001$, and positive, $r(207) = .17$, $p = .015$, emotion. Therefore, education and experience were included in the models.

We also investigated the possibility that parents may differ on their ratings of girls' and boys' emotional expressions, as photographs were selected that depicted children of both genders posing each emotion. Results of t -tests suggested several differences in the outcomes based on child gender (especially for negative emotions). Specifically, for negative emotion, parents were more accurate in their identification of girls' ($M = 88.06$, $SD = 11.91$) emotions compared to boys' ($M = 81.00$, $SD = 17.57$), $t(206) = 5.63$, $p < .001$. They also reported higher (non-centered) intensity ratings for girls ($M = 65.24$, $SD = 11.92$) compared to boys ($M = 60.86$, $SD = 13.18$), $t(206) = 7.57$, $p < .001$, greater mirrored emotion for girls

($M = 55.28$, $SD = 17.03$) than boys ($M = 51.13$, $SD = 17.51$), $t(206) = 7.65$, $p < .001$, and greater willingness to interact with girls ($M = 70.65$, $SD = 18.09$) than boys ($M = 68.27$, $SD = 18.12$), $t(206) = 4.33$, $p < .001$. Finally, parents reported less supportive responses to girls' negative emotion ($M = 35.76$, $SD = 13.68$) than to boys' ($M = 36.97$, $SD = 12.35$), $t(206) = -2.73$, $p = .007$. For positive emotion, parents reported greater mirrored emotion for girls ($M = 80.19$, $SD = 13.48$) than for boys ($M = 78.21$, $SD = 14.66$), $t(206) = 3.29$, $p = .001$, and also marginally greater willingness to interact with girls' ($M = 82.70$, $SD = 13.82$) positive emotions than boys' ($M = 81.53$, $SD = 15.12$), $t(206) = 1.76$, $p = .080$. Therefore, models were conducted separately for girl and boy photographs.

Finally, we examined factor loadings and mean differences in the predictor variables (i.e., attachment and MEP indicators) across parent gender. At the mean level, mothers and fathers differed from one another on some indicators of their MEP, with mothers reporting more emotion-coaching ($M_{mothers} = 3.88$, $SD = .41$, $M_{fathers} = 3.74$, $SD = .41$), $t(205) = -2.45$, $p = .015$, less dismissing ($M_{mothers} = 2.82$, $SD = .39$, $M_{fathers} = 2.93$, $SD = .39$), $t(205) = 2.00$, $p = .047$, and greater valuing of emotion ($M_{mothers} = 4.87$, $SD = .54$, $M_{fathers} = 4.67$, $SD = .50$), $t(205) = -2.72$, $p = .007$, than did fathers. Only one difference was found for attachment, with mothers reporting greater anxiety with partners than fathers ($M_{mothers} = 2.53$, $SD = 1.85$, $M_{fathers} = 2.07$, $SD = 1.44$), $t(205) = -1.98$, $p = .049$. We next constructed a measurement model to examine fit of individual indicators onto the latent predictor variables. Fit for this measurement model across the entire sample was acceptable, $\chi^2(48) = 120.29$, $\chi^2/df = 2.51$, $p < .001$, CFI = .91, RMSEA = .086, 90% C.I. [.067 – .105], and all indicators of MEP and attachment loaded significantly on the latent variables. To assess metric equivalence across parent gender, multigroup analysis was utilized. The model again fit the data well, $\chi^2(96) = 164.17$, $\chi^2/df = 1.71$, $p < .001$, CFI = .92, RMSEA = .059, 90% C.I. [.043 – .074]. One indicator (fathers' avoidance with their mothers) did not load significantly onto the latent variable ($p = .25$), but this indicator was retained due to its significant loading for mothers and across the full sample. Full tabled results of preliminary analyses are available from the authors.

Parents' Meta-Emotion Philosophy Predicting their Responses

The latent variable for MEP consisted of 6 indicators derived from the ERPSST and the PBACE. For the first model, MEP predicting parents' responses to girls' negative emotions, MEP predicted willingness to interact with children differentially for mothers and fathers (z -score of 1.97, $p < .05$). Thus, multigroup analysis was used. The fit of the final trimmed model was marginal, with CMIN/DF suggesting good fit, but CFI and RMSEA suggesting less ideal fit (see Figure 1). Hypotheses for accuracy (1a) and intensity (1b) were not supported. The hypothesis that parents higher in EC would be more likely to fall within 1 SD of the mean for mirrored emotion (1c) was not supported for fathers ($\beta = -.15$, critical ratio or C.R. = -1.36 , $p = .17$), and contrary to expectations, mothers higher in EC were further from the mean ($\beta = -.21$, C.R. = -2.03 , $p = .043$). The hypothesis that more EC parents would be more willing to interact with children than less EC parents (1d) was supported in fathers ($\beta = .31$, C.R. = 2.73, $p = .006$) and mothers ($\beta = .57$, C.R. = 4.56, $p < .001$). Finally, no support was found for the hypothesis that parents higher in EC would provide more supportive responses (1e). Two covariates were also included in each structural

model; experience with children/teens and parents' education level. Greater experience with children/teens predicted mirrored emotion scores further from the mean for mothers ($\beta = -.19$, C.R. = -2.04 , $p = .041$) but not fathers ($\beta = -.11$, C.R. = -1.03 , $p = .30$), and predicted greater willingness to interact for fathers ($\beta = .34$, C.R. = 3.72 , $p < .001$) and mothers ($\beta = .27$, C.R. = 3.51 , $p < .001$). Education did not predict any outcomes.

For the model with MEP predicting parents' responses to boys' negative emotions, MEP predicted willingness to interact with children differentially for mothers and fathers (z -score of 2.21 , $p < .05$). Thus, multigroup analysis was used. The fit of the final trimmed model was acceptable, with all values except for CFI suggesting good fit (Figure 2). Hypotheses for this model were partially supported. First, the hypothesis that a greater identification with the EC philosophy would predict parents' greater accuracy on the labeling task (1a) was supported for fathers ($\beta = .24$, C.R. = 2.08 , $p = .037$) and mothers ($\beta = .35$, C.R. = 3.11 , $p = .002$). The hypothesis for intensity (1b) was not supported. For mirrored emotion, the hypothesis that parents higher in EC would be within 1 SD of the mean (1c) was not supported for fathers ($\beta = -.03$, C.R. = $-.29$, $p = .78$), and the opposite association was again found for mothers ($\beta = -.23$, C.R. = -2.17 , $p = .03$). The hypothesis that more EC parents would be more willing to interact with children than less EC parents (1d) was supported in fathers ($\beta = .28$, C.R. = 2.46 , $p = .014$) and mothers ($\beta = .58$, C.R. = 4.51 , $p < .001$). No support was found for the hypothesis that parents higher in EC would provide more supportive responses (1e). Finally, greater experience with children/teens predicted greater willingness to interact for fathers ($\beta = .35$, C.R. = 3.78 , $p < .001$) and mothers ($\beta = .22$, C.R. = 2.89 , $p = .004$). Overall, two of the five hypotheses related to MEP were supported in the predicted direction in at least one of the two tested models, and one finding was significant but in the opposite direction from predictions.

Next, the exploratory models with MEP predicting parents' responses to children's positive emotions were tested. No evidence was found to support moderation by parent gender in either model (girls or boys). The overall fit of the initial and the trimmed models were poor, with no values indicating good fit to the data (girls initial: $\chi^2(57) = 300.50$, $\chi^2/df = 5.27$, $p < .001$, CFI = $.61$, RMSEA = $.14$, 90% C.I. [$.13 - .16$], girls trimmed: $\chi^2(20) = 87.16$, $\chi^2/df = 4.36$, $p < .001$, CFI = $.85$, RMSEA = $.13$, 90% C.I. [$.10 - .16$]; boys initial: $\chi^2(57) = 301.66$, $\chi^2/df = 5.29$, $p < .001$, CFI = $.60$, RMSEA = $.14$, 90% C.I. [$.13 - .16$], boys trimmed: $\chi^2(14) = 75.75$, $\chi^2/df = 5.41$, $p < .001$, CFI = $.86$, RMSEA = $.15$, 90% C.I. [$.12 - .18$]). Therefore, these exploratory models are not interpreted.

Parents' Attachment Predicting their Responses

The latent variable for attachment consisted of 3 indicators derived from the ECR-RS measure assessing attachment with mothers, fathers, and partners. In the model with attachment predicting parents' responses to girls' negative emotions, no evidence was found to support moderation by parent gender. The final, trimmed model fit the data well (Figure 3). However, hypotheses for accuracy (2a & 3a), willingness to interact (2d & 3d), and responses (2e & 3e) were not supported. The hypothesis that greater anxiety would relate to higher intensity ratings (2b) was not supported, yet the hypothesis that parents higher in avoidance would rate negative emotions as less intense (3b) was supported ($\beta = -.26$, C.R. =

-2.46, $p = .014$). In addition, the hypothesis that parents higher in anxiety would report higher mirrored emotion levels (2c) was supported ($\beta = .24$, C.R. = 2.25, $p = .024$), as was the hypothesis that parents higher in avoidance would rate themselves as lower in mirrored emotion (3c; $\beta = -.33$, C.R. = -2.39, $p = .017$). For the covariates, experience with children predicted higher intensity ratings ($\beta = .19$, C.R. = 2.88, $p = .004$) and greater mirrored emotion toward girls' negative emotions ($\beta = .15$, C.R. = 2.28, $p = .023$). Education predicted lower intensity ratings ($\beta = -.16$, C.R. = -2.50, $p = .013$).

In the model with attachment predicting parents' responses to boys' negative emotions, no evidence was found to support moderation by parent gender. The final, trimmed model was an acceptable fit to the data, with all values except for RMSEA suggesting good fit (Figure 4). Hypotheses for accuracy (2a & 3a) were not supported. The hypothesis that greater anxiety would relate to higher intensity ratings (2b) received marginal support ($\beta = .23$, C.R. = 1.95, $p = .051$), and the hypothesis that greater avoidance would predict lower intensity ratings (3b) was supported ($\beta = -.57$, C.R. = -2.84, $p = .005$). The hypothesis that greater anxiety would relate to higher mirrored emotion levels (2c) was supported ($\beta = .34$, C.R. = 2.73, $p = .006$) as was the hypothesis that parents higher in avoidance would rate themselves as lower in mirrored emotion (3c; $\beta = -.52$, C.R. = -2.76, $p = .006$). The hypothesis that insecure parents would report less willingness to interact with children (2d & 3d) was unsupported for anxiety and was supported for avoidance ($\beta = -.19$, C.R. = -1.97, $p = .049$). Hypotheses for response (2e & 3e) were not supported. Experience with children predicted rating boys' negative emotions as higher in intensity ($\beta = .17$, C.R. = 2.58, $p = .010$), greater mirrored emotion ($\beta = .13$, C.R. = 1.98, $p = .048$), and greater willingness to interact ($\beta = .30$, C.R. = 4.48, $p < .001$). Overall, two of the five hypotheses related to attachment anxiety and three of the five hypotheses related to attachment avoidance received support in at least one of the two tested models.

Next, in the exploratory model predicting parents' responses to girls' positive emotion from attachment, no evidence was found for moderation by parent gender. The final trimmed model had good fit to the data for all indices except for RMSEA, which was close to the cutoff (Figure 5). Attachment did not predict parents' accuracy. However, the exploratory hypothesis for intensity (more insecure parents might rate positive emotions as less intense) was supported for avoidance ($\beta = -1.22$, C.R. = -2.55, $p = .011$), but the opposite relation was found for anxiety, with more anxious parents rating positive emotions as more intense ($\beta = .83$, C.R. = 2.08, $p = .037$). For mirrored emotion, results suggested that parents higher in avoidance rated themselves as lower in their mirrored emotion than those lower in avoidance ($\beta = -1.75$, C.R. = -2.61, $p = .009$), but more anxious parents reported greater mirrored emotion than those lower in anxiety ($\beta = 1.30$, C.R. = 2.37, $p = .018$). Parents higher in anxiety or avoidance were expected to be less willing to engage with children expressing positive emotions. This expectation was supported for avoidance ($\beta = -1.72$, C.R. = -2.61, $p = .009$), but again the opposite relation was found for anxiety ($\beta = 1.32$, C.R. = 2.45, $p = .014$). Following the same pattern, those higher in avoidance rated themselves as less likely to provide supportive responses ($\beta = -1.45$, C.R. = -2.58, $p = .010$), but the opposite relation was found for those higher in anxiety ($\beta = 1.00$, C.R. = 2.17, $p = .030$). Higher education level predicted rating happy expressions as lower in intensity (β

= $-.19$, C.R. = -3.52 , $p < .001$) and responses as less supportive ($\beta = -.10$, C.R. = -2.09 , $p = .037$).

Finally, the exploratory model with attachment predicting parents' responses to boys' positive emotions was tested. No evidence was found to support moderation by parent gender. The overall fit of the initial and the trimmed models were poor, with neither indicating good fit to the data (initial: $\chi^2(48) = 142.85$, $\chi^2/df = 2.98$, $p < .001$, CFI = $.88$, RMSEA = $.098$, 90% C.I. [$.08 - .12$], trimmed: $\chi^2(26) = 78.86$, $\chi^2/df = 3.033$, $p < .001$, CFI = $.89$, RMSEA = $.099$, 90% C.I. [$.08 - .13$]). Therefore, this model is not interpreted.

DISCUSSION

This study advanced research by examining parents' perceptions of and reactions to 10–14-year-old girls' and boys' negative and positive emotions using a new picture task and by testing how parents' performance and responses were predicted from their MEP and attachment. Emotion has long been recognized as an important factor in parenting, but few studies have directly examined parents' perceptions of children's emotions beyond the infancy period. In addition, this study tested predictions inherent in attachment and MEP theories in novel ways by tying together essential components of parental responses to children's emotions (labeling and interpreting emotion expressions, and choosing to interact and how to respond) and testing these outcomes simultaneously. Results indicated that, out of 15 total hypotheses for negative emotion, 7 were supported in some way, 7 were unsupported, and 1 was significant yet contrary to expectations. The comparable exploratory models for positive emotion were also mixed but provide novel information about parenting in relation to children's positive affect. Moreover, by using unfamiliar children instead of parents' own children, this study provides evidence into how attachment and MEP affects parents' general emotion perception skill, and still provides some insight into how they might socialize their own children. Overall, the findings offer new information about how mothers' and fathers' beliefs may impact their emotion perception and related behaviors.

Meta-emotion Philosophy

The models for MEP predicting parents' responses to unfamiliar girls' and boys' negative emotions demonstrated adequate fit, yet were only predictive of parents' accuracy (in the boys model), mirrored emotion, and willingness to interact with children. As hypothesized, parents identifying more strongly with the EC philosophy were more accurate in labeling boy's negative emotions. According to MEP theory, an important component of EC parenting is being able to distinguish emotions and help the child to label the experienced emotion (e.g., Gottman et al., 1996). The findings of the present study provide empirical support to this part of MEP theory and suggest that this emotion-labeling skill may be general (rather than specific to the parent-child relationship). It may be that parents who believe that emotions present valuable opportunities for teaching orient more frequently toward children's emotional displays, promoting their ability to label children's emotions. However, it could also be that parents who are generally better at labeling emotions feel more competent to coach children's emotions. Longitudinal research would help to further test these relations. Although it is unclear why this hypothesis was not supported for girls,

parents were more accurate in identifying girls' negative emotions (88% accuracy) than boys (81%), so the null findings for girls may be due to a ceiling effect, or it may be that identifying boys' negative emotions is especially difficult for those parents lower in EC.

Contrary to predictions, mothers' higher endorsement of the EC philosophy was related to their reports of being more deviant from the mean of mirrored emotion (i.e., less likely to fall within 1 *SD*). However, this deviation did not seem to impact high-EC mothers in a detrimental manner, as they were still more accurate in their identification of boys' emotions and reported greater willingness to interact with children. Perhaps those who identify strongly with the EC philosophy behave in a manner consistent with the philosophy regardless of their own emotional state. Mirrored emotion ratings are also a function of the present sample, and it is possible that this average does not represent an ideal level of mirrored emotion. Future studies may better assess mirrored emotion using alternative methods such as physiological or observed measures.

Also in support of the hypothesis, parents higher in EC indicated greater willingness to interact with children (both boys and girls) displaying negative emotions. Parents must be willing to approach and engage with their children if they are to coach them through emotions (Gottman & DeClaire, 1997). EC parents did not rate themselves as more likely to provide supportive responses to children. Even though this finding was unexpected, MEP theory suggests that EC parents provide guidance and limits to children and helps children problem-solve (Gottman et al., 1996) rather than providing unwavering support for emotional displays. Another important consideration is that when rating their willingness to interact, parents were explicitly asked about whether or not they would want to approach the pictured unfamiliar child (rather than their own child). Predictions from MEP theory are largely based in the specific parent-child relationship, rather than how parents would respond to any and all children. Future research is needed to examine if and how results would vary depending on whether parents were asked about approaching their own child expressing different emotions.

Despite finding partial support for three hypotheses within the MEP and negative emotions models, two other hypotheses (MEP predicting intensity and responses) were not supported as they were trimmed from the final models. The null findings for intensity ratings were surprising because MEP theory would suggest that EC parents would be more sensitive and aware of low-intensity emotions (Gottman & DeClaire, 1997). However, intensity was measured in the MEP models as how closely aligned parents were to the mean obtained within this sample, which may not be representative of the "true" intensity. Finally, the hypothesis that greater EC would predict parents' supportive responses to children's negative emotions was also not supported. As mentioned, EC parents may be more focused on guidance and promoting emotional competencies than reinforcing emotions.

The exploratory models for MEP predicting parents' responses to boys' and girls' positive emotions had poor fit. In one way, this was not surprising because MEP theory was derived from (and most questions focus on) responses to anger and sadness (Gottman & DeClaire, 1997). The range in parents' positive emotion outcomes was also more restricted than for negative emotion outcomes, and thus a lack of variability could have contributed to the poor

model fit. In future research it would be beneficial to ask more questions about parents' MEP toward positive emotions and to include photos of other positive emotions (e.g., surprise, pride).

Attachment

The models with attachment predicting parents' perceptions of and reactions toward girls' and boys' negative emotions had good fit, even though accuracy and responses were not predicted. First, as expected, parents scoring higher in avoidance perceived children's negative expressions as less intense than less avoidant parents. Thus, consistent with a large literature, avoidance is linked to a tendency to minimize attention to negative emotional triggers (e.g., Edelstein & Gillath, 2008). In future research, it may help to track eye gaze to determine if avoidance is linked to shorter durations of focusing on central emotional features of faces. Greater anxiety was a marginal predictor of higher intensity ratings, yet this finding only held in the boys' model. Anxious individuals often focus on and exaggerate negative emotion, which may lead them to identify others' displays as more intense (Mikulincer & Shaver, 2007), although more work will be needed to determine why this finding would not extend to girls' expressions. For mirrored emotion, greater anxiety predicted higher mirrored emotion levels and greater avoidance predicted lower mirrored emotion in both girl and boy models. The finding for avoidance is similar to that of Spangler et al. (2010) who found that insecure parents (measured on the AAI) did not experience a change in their own state when viewing images of their own children displaying negative emotion. However, unlike in the Spangler et al. study, our results indicated that anxious parents reported greater mirrored emotion when imagining their own child experiencing emotions. This finding is similar to other research demonstrating greater arousal toward negative emotions for anxiously attached individuals (Rognoni, Galati, Costa, & Crini, 2008; Vrti ka, Sander, & Vuilleumier, 2012). It also aligns with work on anxiety's impact on caregiving, in that anxious individuals' tendency to heighten negative affect and to "turn inward" or become self-focused when faced with negative emotions can overwhelm their ability to effectively respond to the needs of others (Feeney & Collins, 2001; Mikulincer & Shaver, 2007). Parents higher in avoidance also reported less willingness to interact with the pictured children (significant for boys only), which is similar to extensive research demonstrating avoidant parents' lower levels of responsiveness to distressed children (e.g., Edelstein et al., 2004) reflecting avoidant individuals' desire to maintain distance from distress.

The null findings for accuracy and responses in both models, as well as for willingness to interact in the model for girls, is surprising as attachment is clearly tied to individuals' experiences with negative emotions, and attachment insecurity has been related to lower accuracy in emotion identification in past work (Leerkes & Siepak, 2006; Mikulincer & Shaver, 2007). Perhaps simply viewing images of unfamiliar children's negative emotions (2/3 of which were not highly intense) may not evoke attachment-related responses in parents. However, other work has incorporated parents' responses to unfamiliar children and found attachment effects. For example, Leerkes et al. (2011) used videotapes of unfamiliar infants, and found that mothers' responses to the unfamiliar infants were predictive of their responses to their own children over 1 year later. Future research should extend the present

study to investigate if and how parents' responses to unfamiliar children map on to their responses to their own children. In addition, although our hypotheses (and analytic approach) pertained to each attachment dimension separately, future research could explore whether interactive effects (capturing attachment security) could better explain parents' responses.

Finally, the exploratory model with attachment predicting parents' responses to girls' positive emotion had a good fit to the data and predicted substantial variance in the outcomes (only accuracy was cut from the model), yet the exploratory model predicting boys' positive emotion had a poor fit. For the model predicting responses to girls' emotion, findings for attachment avoidance were in line with tentative expectations with greater avoidance predicting reports of positive emotions as less intense, less mirrored emotion, less willingness to interact, and less supportive responses. The mirrored emotion finding differs from Spangler et al. (2010) who found that all parents reported feeling happy when viewing photographs of children displaying positive emotions. However, it is consistent with studies linking parents' avoidance and their reporting or showing less positive affect in response to their children's positive emotions (e.g., Adam, Gunnar, & Tanaka, 2004; Gentzler et al., 2015).

Findings for attachment anxiety in the girls' model were opposite of our tentative predictions in that greater anxiety predicted rating positive emotions as more intense and reporting greater mirrored emotion and willingness to interact and give supportive responses. However, the findings make sense in light of internal working models where anxious people tend to have negative views of themselves, but positive views of others (Bartholomew & Horowitz, 1991). Consequently, because anxious individuals may be highly concerned with others' availability and require reassurance about others' views of them to maintain their self-confidence (Carnelley, Israel, & Brennan, 2007), children's displays of happiness may be reassuring to anxious parents. Thus, anxious parents may rate girls' happiness as more intense and rate themselves as more happy in return. Anxious parents may therefore find interactions with happy children to be easy mechanisms through which to achieve closeness. Given the exploratory nature of this model, more research is needed to examine these possibilities.

The exploratory model for boys' happiness did not fit well. This poor fit is somewhat surprising given the good fit for the model of attachment predicting parents' responses to girls' positive emotions. However, ratings on only two pictures (one high and one low in intensity) were aggregated for the boy model (versus the girl model, which was an aggregate of 4 photographs of varying intensity). Future research should incorporate equal numbers of girl and boy photographs across a range of intensities. Taken together, it therefore appears that MEP and attachment are better or more consistent predictors of parents' responses to girls' and boys' negative emotions than to their positive emotions.

Parent Gender and Experience

Evidence for moderation by parent gender was found within the negative emotion MEP models, suggesting that fathers' influence is not a mere duplication of mothers' when considering how parents guide and respond toward children's negative emotions. Future

research may benefit from investigating the degree of concordance between mothers' and fathers' MEP and attachment (rather than studying one parent in isolation) and the effect of this concordance on emotion socialization processes. In addition, two covariates (education level and experience with children) were included in the models. Experienced parents may be more comfortable with children and their emotions than parents who have spent little time with children. Such experience likely provides opportunities to become familiarized with children's emotional displays and allows people to learn appropriate responses. Future research should consider parents' experience with children when examining how they relate to their own children. In addition, education is a component of parents' socioeconomic status, which has been linked to parents' responses to emotions (Martini, Root, & Jenkins, 2004; Vostanis & Nicholls, 1992), but research would benefit from a more diverse sample to further explore the impact of education on emotion socialization processes.

Study Limitations and Conclusions

This study has several important limitations. The referent was not held constant across questions and tasks; specifically, for the mirrored emotion question, parents were asked to imagine their own child experiencing the pictured emotion, yet for the willingness to interact questions parents were asked in relation to the photographed child. Although this shift in perspectives may have impacted these results, we found effects for each outcome. Still, keeping a constant, explicit referent is vitally important, especially given that one's motivation to engage with their own child would certainly differ from that of an unfamiliar child. Future research building from this work should examine the concordance between parents' abilities and responses when the reference child is one's own versus an unfamiliar child, as MEP and attachment theories are situated within the unique parent-child relationship. Similarly, parents were asked to respond to all questions in the study as though their child(ren) were 10 to 14 years old, but many parents had children who were younger or older than that range. Because this is a major limitation of our study, we conducted posthoc analyses including only those parents with a child at least 10 years of age ($n = 56$ mothers; $n = 50$ fathers) due to concerns that not having direct experience with a child in the 10- to 14-year-old age range may put parents at a disadvantage. The results largely replicated our reported findings, except for in the negative emotions models where MEP no longer predicted mothers' mirrored emotion, and attachment no longer predicted mirrored emotion in the girls' model and willingness to interact in the boys' model. However, this discrepancy may be due to the substantially smaller number of parents in the reduced sample. Still, it will be beneficial in future studies to restrict the sample to only those parents with a child in the studied age range. Another limitation is the acontextual nature of this work. Although parents were asked to imagine children expressing emotion in their homes to provide some context, by not specifying the circumstances that provoked the emotion, it is difficult to determine exactly what parents were thinking when completing the task. An additional limitation is that participants' mood when completing the study was not assessed. Prior research suggests that mood, including mood disorders, can affect people's perceptions of others' emotions (e.g., Kohler, Hoffman, Eastman, Healey, & Moberg, 2011; Yi, Murry, & Gentzler, 2016). Additionally, the majority of the participants in this study were European American, and future research should assess a wider range of ethnicities to explore potential ethnic differences in emotion-related parenting. The sample size was relatively modest for

conducting multigroup SEM models; a larger sample should be utilized. A final limitation is that parents' responses were obtained via self-report, but a multi-modal assessment would have been valuable.

Despite these limitations, the present study provides new evidence suggesting parents' MEP and attachment significantly impact their perceptions of and reactions to unfamiliar girls' and boys' negative and positive emotion displays beyond the infancy period. In addition, the study included fathers, used a latent variable approach, and provided more validation information for the NIMH-CHEFS picture set.

IMPLICATIONS FOR PRACTICE, APPLICATION, THEORY, AND POLICY

These results have implications for MEP and attachment theory and, if replicated, could be useful for informing parenting interventions. Interventions have been shown to promote EC with preschoolers and adolescents (e.g., Havighurst et al., 2015; Katz et al., 2012) and secure attachment with infants (e.g., Cicchetti, Rogosch, & Toth, 2006), and such interventions may be expanded to target parents' relationships with their older children as well as to include information about children's emotion expressions. Results of this study also suggest that providing experience with children (e.g., through hands-on parenting classes) may be a fruitful way to develop emotion-related parenting skills. Finally, other research suggests that changing adults' and adolescents' perceptions of prototypical emotion expressions changes their behaviors (Penton-Voak et al., 2013). Thus, perhaps training high-risk parents to view emotions differently may help them to view emotions as less aversive and react in a more supportive manner to their children.

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REFERENCES

- Adam EK, Gunnar MR, & Tanaka A (2004). Adult attachment, parent emotion, and observed parenting behavior: Mediator and moderator models. *Child Development*, 75(1), 110–122. [PubMed: 15015678]
- Bartholomew K, & Horowitz LM (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61(2), 226–244. [PubMed: 1920064]
- Belsky J (1984). The determinants of parenting: A process model. *Child Development*, 55(1), 83–96. [PubMed: 6705636]
- Bornstein MH (2016). Determinants of parenting In Cicchetti D (Ed.), *Developmental psychopathology* (Vol. 4, pp. 180–270). New Jersey: John Wiley & Sons, Inc.
- Bornstein MH, & Manian N (2013). Maternal responsiveness and sensitivity reconsidered: Some is more. *Development and Psychopathology*, 25, 957–971. [PubMed: 24229542]
- Bowlby J (1973). *Attachment and loss: Volume 2 Separation: Anxiety and anger*. New York, NY: Basic Books.

- Brennan KA, Clark CL, & Shaver PR (1998). Self-report measurement of adult romantic attachment: An integrative overview In Simpson JA & Rholes WS (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford Press.
- Carnelley KB, Israel S, & Brennan KA (2007). The role of attachment in influencing reactions to manipulated feedback from romantic partners. *European Journal of Social Psychology*, 37(5), 968–986.
- Chaplin TM, Cole PM, & Zahn-Waxler C (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion*, 5(1), 80–88. [PubMed: 15755221]
- Cicchetti D, Rogosch FA, & Toth SL (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Development and Psychopathology*, 18(3), 623–649. [PubMed: 17152394]
- Dunsmore JC, Her P, Halberstadt AG, & Perez-Rivera MB (2009). Parents' beliefs about emotions and children's recognition of parents' emotions. *Journal of Nonverbal Behavior*, 33(2), 121–140. [PubMed: 20160992]
- Ebisch SJ, Aureli T, Bafunno D, Cardone D, Romani G, & Merla A (2012). Mother and child in synchrony: Thermal facial imprints of autonomic contagion. *Biological Psychology*, 89(1), 123–129. [PubMed: 22001267]
- Edelstein RS, Alexander K, Shaver PR, Schaaf JM, Quas JA, Lovas GS, & Goodman GS (2004). Adult attachment style and parental responsiveness during a stressful event. *Attachment & Human Development*, 6, 31–52. [PubMed: 14982678]
- Edelstein RS & Gillath O (2008). Avoiding interference: Adult attachment and emotional processing biases. *Personality and Social Psychology Bulletin*, 34, 171–181. [PubMed: 18063834]
- Egger H, Pine DS, Nelson E, Leibenluft E, Ernst M, Towbin KE, & Angold A (2011). The NIMH Child Emotional Faces Picture Set (NIMH-ChEFS): A new set of children's facial emotion stimuli. *International Journal of Methods in Psychiatric Research*, 20(3), 145–156. [PubMed: 22547297]
- Eisenberg N, Cumberland A, & Spinrad TL (1998). Parental socialization of emotion. *Psychological Inquiry*, 9(4), 241–273. [PubMed: 16865170]
- Eisenberg N, Fabes RA, & Murphy BC (1996). Parents' reactions to children's negative emotions: Relations to children's social competence and comforting behavior. *Child Development*, 67(5), 2227–2247. [PubMed: 9022240]
- Ekman P, Friesen WV, O'Sullivan M, Chan A, Diacoyanni-Tarlatzis I, Heider K, ... Tzavaras A (1987). Universals and cultural differences in the judgments of facial expressions of emotion. *Journal of Personality and Social Psychology*, 53, 712–717. [PubMed: 3681648]
- Fabes RA, Eisenberg N & Bernzweig J (1990). The Coping with Children's Negative Emotions Scale: Procedures and scoring. Available from authors. Arizona State University.
- Fabes RA, Leonard SA, Kupanoff K, & Martin CL (2001). Parental coping with children's negative emotions: Relations with children's emotional and social responding. *Child Development*, 72(3), 907–920. [PubMed: 11405590]
- Feeney BC, & Collins NL (2001). Predictors of caregiving in adult intimate relationships: An attachment theoretical perspective. *Journal of Personality and Social Psychology*, 80(6), 972–994. [PubMed: 11414378]
- Fraley RC, Heffernan ME, Vicary AM, & Brumbaugh C (2011). The Experiences in Close Relationships—Relationship Structures Questionnaire: A method for assessing attachment orientations across relationships. *Psychological Assessment*, 23(3), 615–625. [PubMed: 21443364]
- Fraley RC, Niedenthal PM, Marks M, Brumbaugh C, & Vicary A (2006). Adult attachment and the perception of emotional expressions: Probing the hyperactivating strategies underlying anxious attachment. *Journal of Personality*, 74(4), 1163–1190. [PubMed: 16787432]
- Garside RB, & Klimes-Dougan B (2002). Socialization of discrete negative emotions: Gender differences and links with psychological distress. *Sex Roles*, 47(3/4), 115–128.
- Gentzler AL, Ramsey MA, & Black KR (2015). Mothers' attachment styles and their children's self-reported security, as related to maternal socialization of children's positive affect regulation. *Attachment & Human Development*, 17(4), 376–98. [PubMed: 26095911]

- George C, Kaplan N, & Main M (1985). Adult Attachment Interview protocol (2nd ed.). Unpublished manuscript, University of California at Berkeley.
- Gottman JM, & DeClaire J (1997). *The heart of parenting: Raising an emotionally intelligent child*. New York: Simon & Schuster.
- Gottman JM, Katz L, & Hooven C (1996). Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology*, 10(3), 243–268.
- Hakim-Larson J, Parker A, Lee C, Goodwin J, & Voelker S (2006). Measuring parental meta-emotion: Psychometric properties of the Emotion-Related Parenting Styles Self-Test. *Early Education and Development*, 17(2), 229–251.
- Hankin BL, Abramson LY, Moffitt TE, Silva PA, McGee R, & Angell KE (1998). Development of depression from preadolescence to young adulthood: Emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology*, 107(1), 128–140. [PubMed: 9505045]
- Halberstadt AG, Dennis PA, & Hess U (2011). The influence of family expressiveness, individuals' own emotionality, and self-expressiveness on perceptions of others' facial expressions. *Journal of Nonverbal Behavior*, 35(1), 35–50.
- Halberstadt AG, Dunsmore JC, Bryant AR, Parker AE, Beale KS, & Thompson JA (2013). Development and validation of the Parents' Beliefs about Children's Emotions questionnaire. *Psychological Assessment*, 25(4), 1195–210. [PubMed: 23914957]
- Halberstadt AG, Dunsmore JC, Parker AE, Beale KR, Thompson JA & Bryant A Jr. (2008a). Parents' Beliefs about Children's Emotions Questionnaire. Unpublished measure.
- Halberstadt AG, Thompson JA, Parker AE, & Dunsmore JC (2008b). Parents' emotion-related beliefs and behaviours in relation to children's coping with the 11 September 2001 terrorist attacks. *Infant and Child Development*, 17, 557–580.
- Hare AL, Marston EG, & Allen JP (2011). Maternal acceptance and adolescents' emotional communication: A longitudinal study. *Journal of Youth and Adolescence*, 40(6), 744–751. [PubMed: 20820894]
- Harmon-Jones E, Harmon-Jones C, Amodio DM, & Gable PA (2011). Attitudes toward emotions. *Journal of Personality and Social Psychology*, 101(6), 1332–1350. [PubMed: 21843012]
- Havighurst SS, Kehoe CE, & Harley AE (2015). Tuning in to Teens: Improving parental responses to anger and reducing youth externalizing behavior problems. *Journal of Adolescence* (42), 148–158.
- Hess U, Blairy S, & Kleck RE (1997). The intensity of emotional facial expressions and decoding accuracy. *Journal of Nonverbal Behavior*, 21(4), 241–257.
- Hoe SL (2008). Issues and procedures in adopting structural equation modeling technique. *Journal of Applied Quantitative Methods*, 3(1), 76–83.
- Hooven C, Gottman JM, & Katz LF (1995). Parental meta-emotion structure predicts family and child outcomes. *Cognition and Emotion*, 9 (2/3), 229–264.
- Hughes EK, & Gullone E (2010). Parent emotion socialisation practices and their associations with personality and emotion regulation. *Personality and Individual Differences*, 49(7), 694–699.
- Hunter EC, Katz L, Shortt J, Davis B, Leve C, Allen NB, & Sheeber LB (2011). How do I feel about feelings? Emotion socialization in families of depressed and healthy adolescents. *Journal of Youth & Adolescence*, 40(4), 428–441. [PubMed: 20473712]
- Jones JD, Brett BE, Ehrlich KB, Lejuez CW, & Cassidy J (2014). Maternal attachment style and responses to adolescents' negative emotions: The mediating role of maternal emotion regulation. *Parenting: Science and Practice*, 14(3–4), 235–257.
- Jones JD, Cassidy J, & Shaver PR (2015). Parents' self-reported attachment styles: A review of links with parenting behaviors, emotions, and cognitions. *Personality and Social Psychology Review*, 19(1), 44–76. [PubMed: 25024278]
- Kann L, Kinchen S, Shanklin SL, Flint KH, Hawkins J, Harris WA,... Zaza S (2014). Youth Risk Behavior Surveillance — United States, 2013. *MMWR*, 63(4), 1–170.
- Katz LF, & Hunter EC (2007). Maternal meta-emotion philosophy and adolescent depressive symptomatology. *Social Development*, 16(2), 343–360.
- Katz L, Maliken AC, & Stettler NM (2012). Parental meta-emotion philosophy: A review of research and theoretical framework. *Child Development Perspectives*, 6(4), 417–422.

- Kehoe CE, Havighurst SS, & Harley AE (2014). Tuning in to Teens: Improving parent emotion socialization to reduce youth internalizing difficulties. *Social Development*, 23(2), 413–431.
- Kerr M, & Stattin H (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology*, 36(3), 366–380. [PubMed: 10830980]
- Klimes-Dougan B, Brand AE, Zahn-Waxler C, Usher B, Hastings PD, Kendziora K, & Garside RB (2007). Parental emotion socialization in adolescence: Differences in sex, age and problem status. *Social Development*, 16(2), 326–342.
- Kohler CG, Hoffman LJ, Eastman LB, Healey K, & Moberg PJ (2011). Facial emotion perception in depression and bipolar disorder: A quantitative review. *Psychiatry Research*, 188(3), 303–309. [PubMed: 21601927]
- Krippel M, Ast-Scheitenberger S, Bovenschen I, & Spangler G (2010). Maternal perception of infants' expressions of emotion. *Journal of Psychophysiology*, 24(3), 173–185.
- Lagace-Seguin DG, & Coplan RJ (2005). Maternal emotional styles and child social adjustment: Assessment, correlates, outcomes and goodness of fit in early childhood. *Social Development*, 14(4), 613–636.
- Leerkes EM, Parade SH, & Gudmundson JA (2011). Mothers' emotional reactions to crying pose risk for subsequent attachment insecurity. *Journal of Family Psychology*, 25(5), 635–643. [PubMed: 21517171]
- Leerkes EM, & Siepak K (2006). Attachment linked predictors of women's emotional and cognitive responses to infant distress. *Attachment & Human Development*, 8(1), 11–32. [PubMed: 16581621]
- Main M, Kaplan K, & Cassidy J (1985). Security in infancy, childhood and adulthood: A move to the level of representation In Bretherton I & Waters E (Eds.), *Growing points of attachment theory and research*, Monographs of the Society for Research in Child Development, 50(1–2, Serial No. 209), 66–104.
- Martini TS, Root CA, & Jenkins JM (2004). Low and middle income mothers' regulation of negative emotion: Effects of children's temperament and situational emotional responses. *Social Development*, 13(4), 515–530.
- Mikulincer M, & Shaver P (2005). Attachment theory and emotions in close relationships: Exploring the attachment-related dynamics of emotional reactions to relational events. *Personal Relationships*, 12(2), 149–168.
- Mikulincer M, & Shaver PR (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York, NY: Guilford Press.
- Montague DPF & Walker-Andrews AS (2002). Mothers, fathers, and infants: The role of familiarity and parental involvement in infants' perception of emotion expressions. *Child Development*, 73, 1339–1352. [PubMed: 12361304]
- Nelson JA, O'Brien M, Blankson A, Calkins SD, & Keane SP (2009). Family stress and parental responses to children's negative emotions: Tests of the spillover, crossover, and compensatory hypotheses. *Journal of Family Psychology*, 23(5), 671–679. [PubMed: 19803603]
- Niedenthal PM, Brauer M, Robin L, & Innes-Ker AH (2002). Adult attachment and the perception of facial expression of emotion. *Journal of Personality and Social Psychology*, 82(3), 419–433. [PubMed: 11902625]
- Obegi JH, Morrison TL & Shaver PR (2004). Exploring intergenerational transmission of attachment style in young female adults and their mothers. *Journal of Social and Personal Relationships*, 21(5), 625–638.
- Penton-Voak IS, Thomas J, Gage SH, McMurrin M, McDonald S, & Munafo MR (2013). Increasing recognition of happiness in ambiguous facial expressions reduces anger and aggressive behavior. *Psychological Science*, 24(5), 688–697. [PubMed: 23531485]
- Perlman SB, Camras LA, & Pelphrey KA (2008). Physiology and functioning: Parents' vagal tone, emotion socialization, and children's emotion knowledge. *Journal of Experimental Child Psychology*, 100(4), 308–315. [PubMed: 18486947]
- Plomin R, DeFries JC, & Loehlin JC (1977). Genotype-environment interaction and correlation in the analysis of human behavior. *Psychological Bulletin*, 84(2), 309–322. [PubMed: 557211]

- Roelofs J, Meesters C, & Muris P (2008). Correlates of self-reported attachment (in)security in children: The role of parental romantic attachment status and rearing behaviors. *Journal of Child and Family Studies*, 17, 555–566.
- Rognoni E, Galati D, Costa T, & Crini M (2008). Relationship between adult attachment patterns, emotional experience and EEG frontal asymmetry. *Personality and Individual Differences*, 44(4), 909–920.
- Roisman GI, Holland A, Fortuna K, Fraley R, Clausell E, & Clarke A (2007). The Adult Attachment Interview and self-reports of attachment style: An empirical rapprochement. *Journal of Personality and Social Psychology*, 92(4), 678–697. [PubMed: 17469952]
- Saarni C, & Weber H (1999). Emotional displays and dissemblance in childhood: Implications for self-presentation In Philippot P, Feldman R, & Coats E (Eds.), *The social context of nonverbal behaviour* (pp.71–105). New York, NY: Cambridge University Press.
- Sallquist JV, Eisenberg N, Spinrad TL, Reiser M, Hofer C, Liew J, ... Eggum N (2009). Positive and negative emotionality: Trajectories across six years and relations with social competence. *Emotion*, 9(1), 15–28. [PubMed: 19186913]
- Scarr S, & McCartney K (1983). How people make their own environments: A theory of genotype → environment effects. *Child Development*, 54(2), 424–435. [PubMed: 6683622]
- Spangler G, Geserick B, & von Wahlert A (2005). Parental perception and interpretation of infant emotions: Psychological and physiological processes. *Infant and Child Development*, 14(4), 345–363.
- Spangler G, Maier U, Geserick B, & von Wahlert A (2010). The influence of attachment representation on parental perception and interpretation of infant emotions: A multilevel approach. *Developmental Psychobiology*, 52(5), 411–423. [PubMed: 20578250]
- Steele H, Steele M, & Fonagy P (1996). Associations among attachment classifications of mothers, fathers, and their infants. *Child Development*, 67(2), 541–555. [PubMed: 8625727]
- Stelter RL, & Halberstadt AG (2011). The interplay between parental beliefs about children's emotions and parental stress impacts children's attachment security. *Infant and Child Development*, 20(3), 272–287. [PubMed: 21731472]
- Tabachnick BG, & Fidell LS (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon/Pearson Education.
- van IJzendoorn MH (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117 (3), 387–403. [PubMed: 7777645]
- Vostanis P, & Nicholls J (1992). Expressed emotion in parents of non-referred children aged 6 to 11 years from two school populations: A pilot study. *Child: Care, Health and Development*, 18(5), 249–257.
- Vrtika P, Sander D, & Vuilleumier P (2012). Influence of adult attachment style on the perception of social and non-social emotional scenes. *Journal of Social and Personal Relationships*, 29(4), 530–544.
- Wong MS, McElwain NL, & Halberstadt AG (2009). Parent, family, and child characteristics: Associations with mother- and father-reported emotion socialization practices. *Journal of Family Psychology*, 23(4), 452–463. [PubMed: 19685981]
- Yap MBH, Allen NB, Leve C, & Katz LF (2008). Maternal meta-emotion philosophy and socialization of adolescent affect: The moderating role of adolescent temperament. *Journal of Family Psychology*, 22(5), 688–700. [PubMed: 18855505]
- Yi CY, Murry MWE, & Gentzler AL (2016). Perception of emotion expressions in adults: The role of temperament and mood. *Journal of Individual Differences*, 37(1), 16–23.

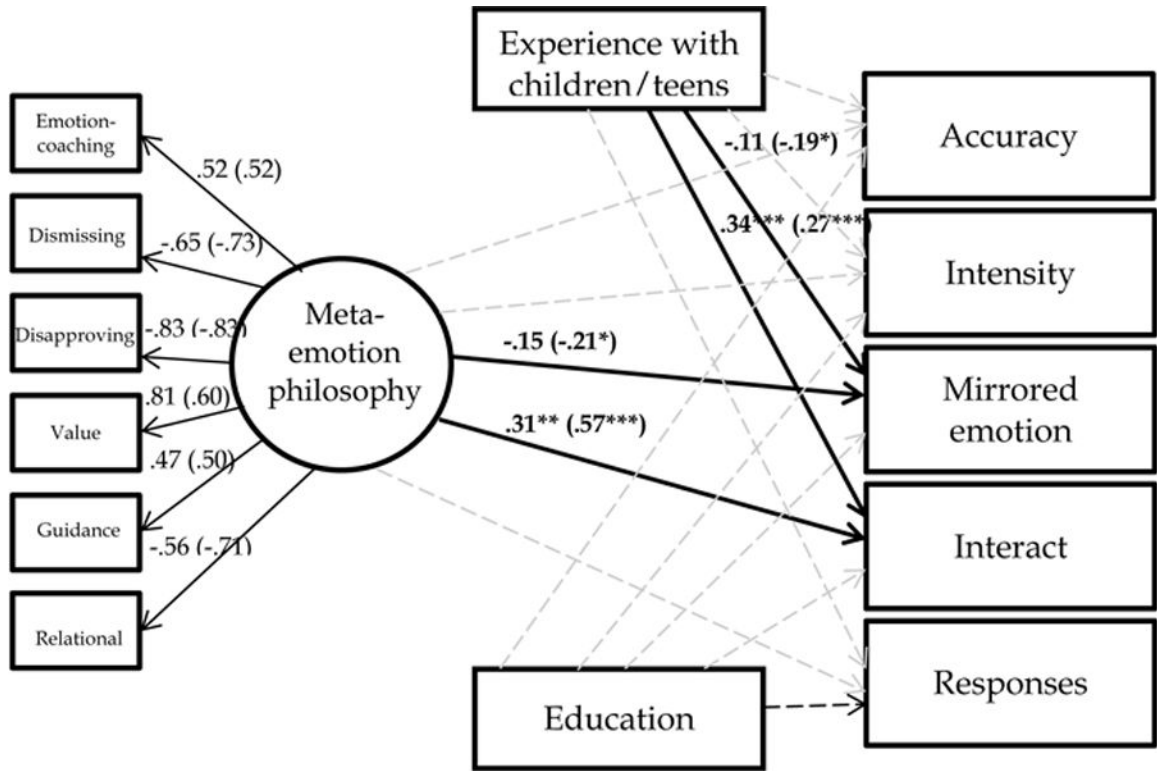


Figure 1. Final structural model for fathers' and mothers' (in parentheses) MEP predicting responses to girls' negative emotions.

Note: Initial model fit: $\chi^2(114) = 265.18$, $\chi^2/df = 2.33$, $p < .001$, CFI = .74, RMSEA = .08, 90% C.I. [.07-.09], trimmed model fit: $\chi^2(52) = 126.22$, $\chi^2/df = 2.43$, $p < .001$, CFI = .85, RMSEA = .083, 90% C.I. [.07-.10]. Variance accounted for (VAF) in mirrored emotion was 8% (mothers) and 4% (fathers). VAF in willingness to interact was 40% (mothers) and 22% (fathers). Trimmed pathways are demarcated by broken lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

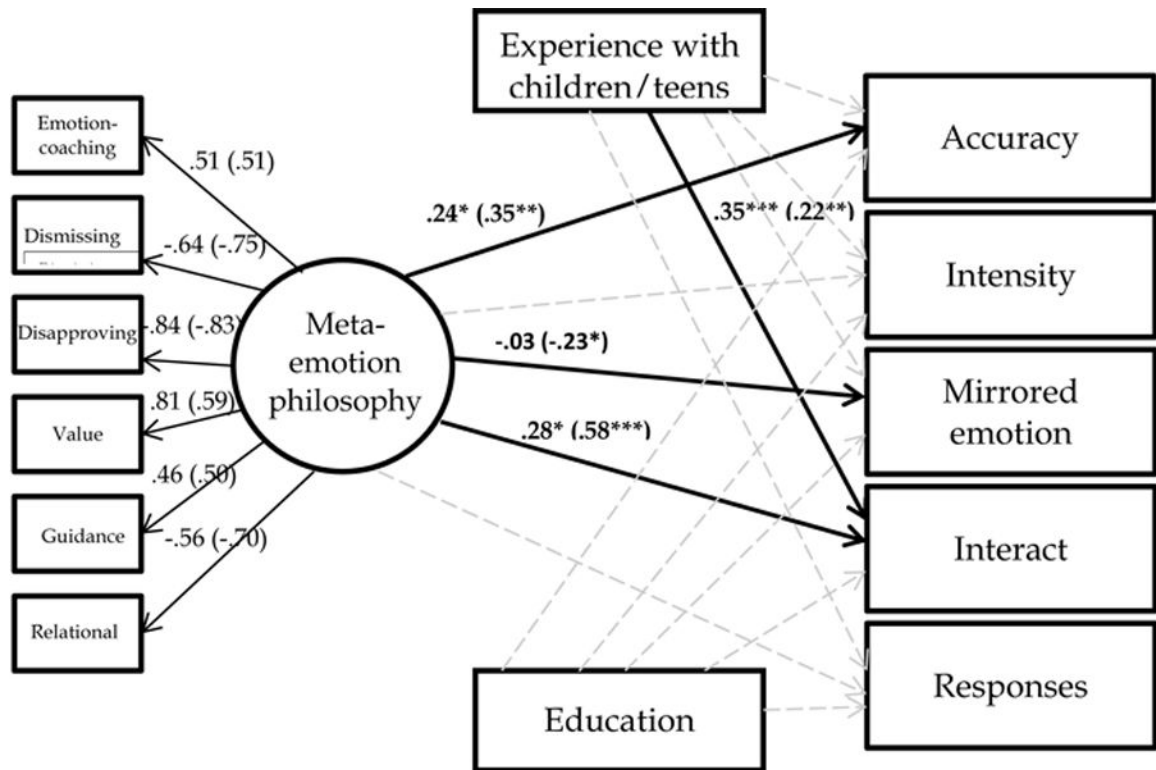


Figure 2. Final structural model for fathers' and mothers' (in parentheses) MEP predicting responses to boys' negative emotions.

Note: Initial model fit: $\chi^2(114) = 267.68$, $\chi^2/df = 2.35$, $p < .001$, CFI = .74, RMSEA = .081, 90% C.I. [.07-.09], trimmed model fit: $\chi^2(70) = 138.44$, $\chi^2/df = 1.98$, $p < .001$, CFI = .87, RMSEA = .069, 90% C.I. [.05-.09]. VAF in accuracy was 12% (mothers) and 6% (fathers). VAF in mirrored emotion was 5% (mothers) and 0.1% (fathers). VAF in willingness to interact was 39% (mothers) and 20% (fathers).

Trimmed pathways are demarcated by broken lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

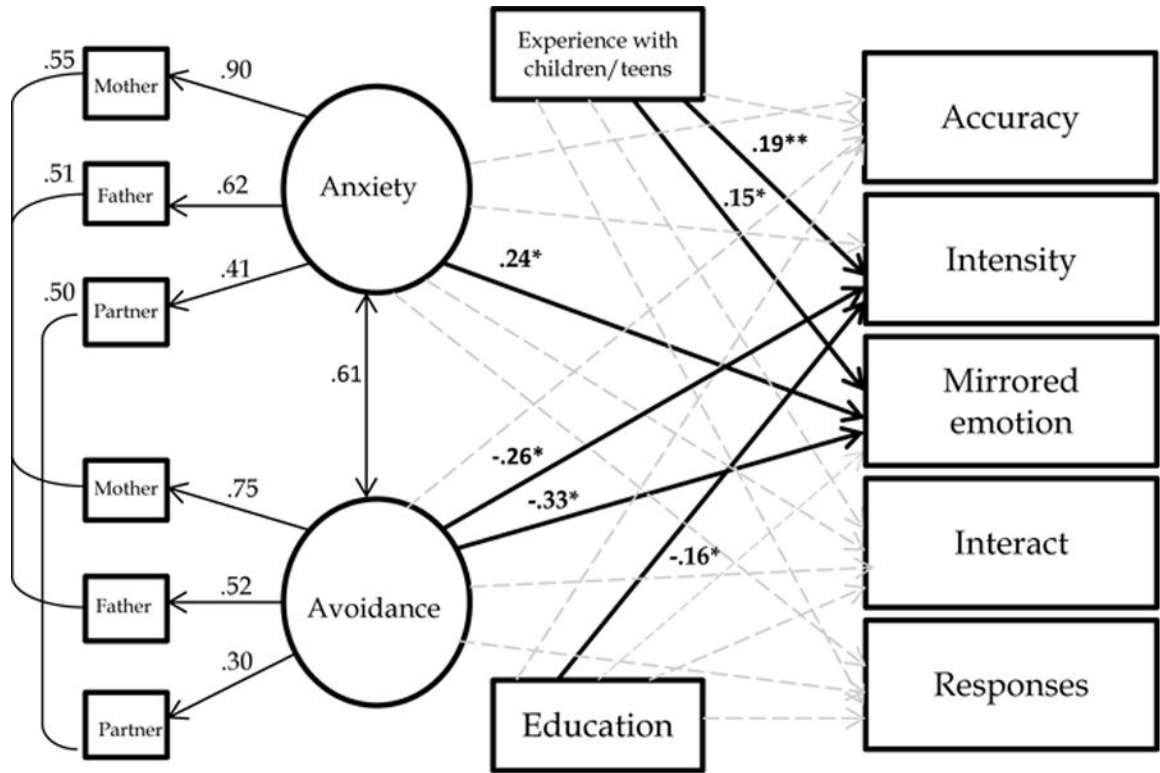


Figure 3. Final structural model for attachment dimensions predicting responses to girls' negative emotions.

Note: Initial model fit: $\chi^2(48) = 110.38$, $\chi^2/df = 2.30$, $p < .001$, CFI = .87, RMSEA = .079, 90% C.I. [.06-.10], trimmed model fit: $\chi^2(29) = 66.62$, $\chi^2/df = 2.30$, $p < .001$, CFI = .91, RMSEA = .079, 90% C.I. [.05-.11]. VAF in intensity was 13% and in mirrored emotion was 9%.

Trimmed pathways are demarcated by broken lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

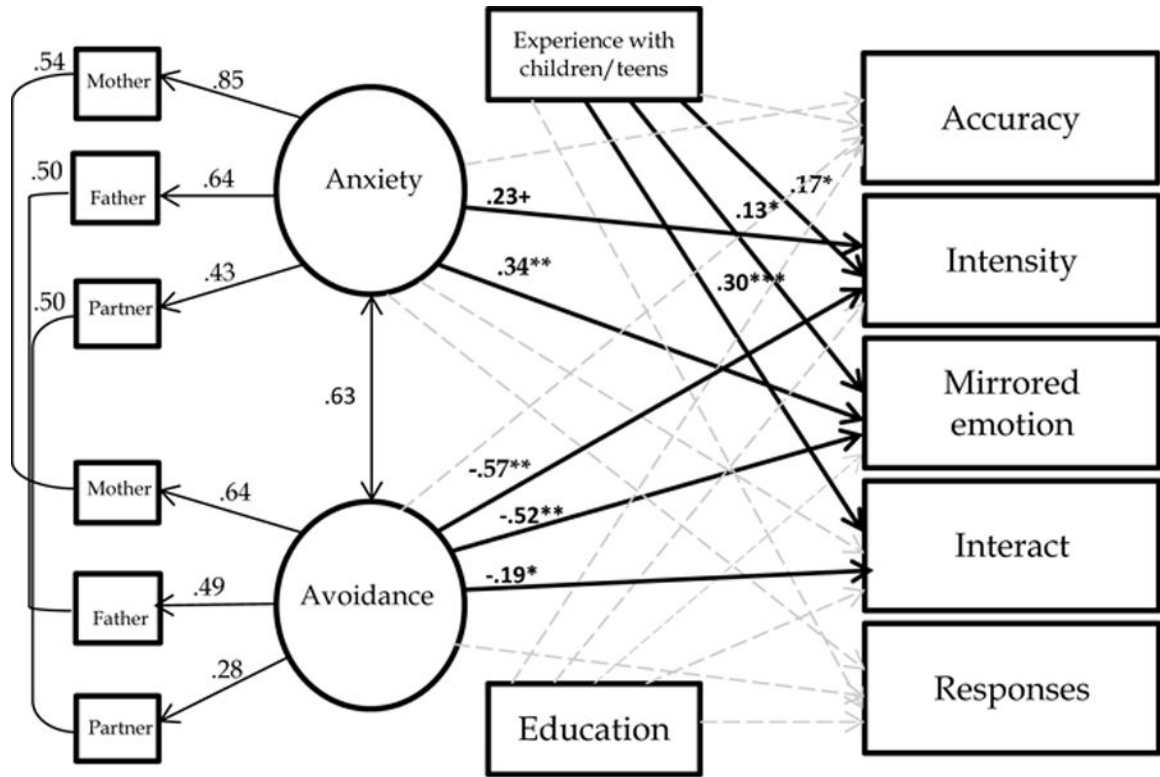


Figure 4. Final structural model for attachment dimensions predicting responses to boys' negative emotions.

Note: Initial model fit: $\chi^2(48) = 120.26$, $\chi^2/df = 2.51$, $p < .001$, CFI = .85, RMSEA = .085, 90% C.I. [.07-.11], trimmed model fit: $\chi^2(27) = 69.98$, $\chi^2/df = 2.59$, $p < .001$, CFI = .90, RMSEA = .088, 90% C.I. [.06-.11]. VAF in intensity was 24%, in mirrored emotion was 18%, and in interact was 13%.

Trimmed pathways are demarcated by broken lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

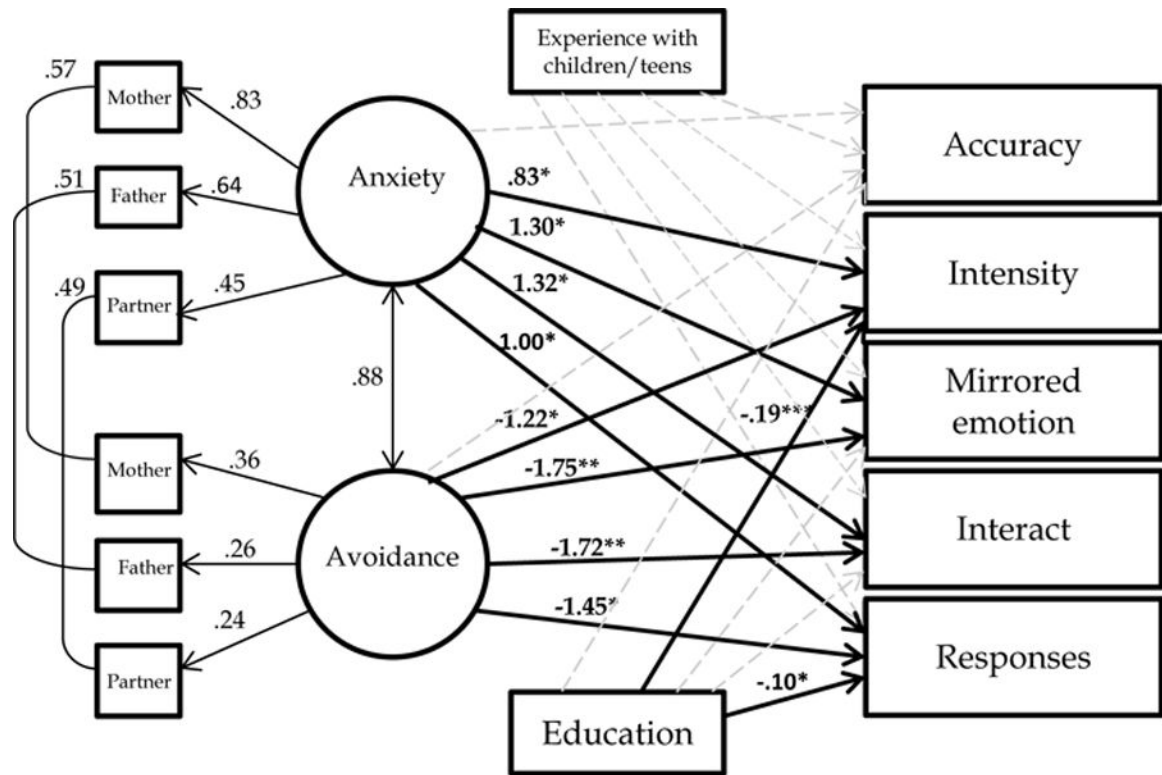


Figure 5. Final exploratory structural model for parents' attachment dimensions predicting responses to girls' positive emotions.

Note: Initial model fit: $\chi^2(48) = 116.86$, $\chi^2/df = 2.44$, $p < .001$, CFI = .92, RMSEA = .083, 90% C.I. [.06-.10], trimmed model fit: $\chi^2(35) = 83.00$, $\chi^2/df = 2.37$, $p < .001$, CFI = .94, RMSEA = .082, 90% C.I. [.06-.10]. VAF in intensity was 45%, in mirrored emotion was 77%, in willingness to interact was 73% and in responses was 58%.

Trimmed pathways are demarcated by broken lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 1

Descriptive Information for Study Variables

Predictor Variables			
	<i>M</i>	<i>SD</i>	Range
Attachment			
Anxiety – mother	2.12	1.53	1 – 7
Anxiety – father	2.37	1.79	1 – 7
Anxiety – partner	2.32	1.69	1 – 7
Avoidance – mother	3.14	1.75	1 – 7
Avoidance – father	3.86	1.79	1 – 7
Avoidance – partner	2.12	1.26	1 – 7
Meta-emotion philosophy			
Emotion-coaching	3.82	.41	2.57 – 4.78
Dismissing	2.87	.39	1.84 – 3.96
Disapproving	2.57	.56	1.17 – 4.30
Value	4.78	.53	3.41 – 5.97
Guidance	4.69	.68	2.89 – 6
Relational	2.76	.76	1.00 – 5.16
Outcome Variables (collapsed across child gender)			
Negative Emotions			
Accuracy	86.01	11.12	44.44 – 100
Intensity (centered)	-.00	11.74	-31.75 – 30.75
Intensity (absolute value)	17.27	5.39	7.12 – 40.48
Mirrored emotion	53.64	16.83	0 – 94.83
Mirrored%	67.39	25.91	0 – 100
Interact	69.86	17.70	20.33 – 100
Response	36.19	12.94	4 – 82.56
Positive Emotions			
Accuracy	94.20	13.79	16.67 – 100
Intensity (centered)	.00	12.48	-32.04 – 26.46
Intensity (absolute value)	13.36	6.16	2.88 – 32.04
Mirrored emotion	79.54	13.27	45.33 – 100
Mirrored%	66.42	30.79	0 – 100
Interact	82.31	13.54	21.33 – 100
Response	82.66	14.21	43.33 – 100

Note. Mirrored% = percentage falling within one standard deviation around the Mirrored Emotion mean.

TABLE 2

Intercorrelations among MEP and Attachment Indicator Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Anxiety – mother	–											
2. Anxiety – father	.55***	–										
3. Anxiety – partner	.36***	.29***	–									
4. Avoidance – mother	.57***	.29***	.20**	–								
5. Avoidance – father	.27***	.54***	.20**	.40***	–							
6. Avoidance – partner	.15*	.12	.51***	.27***	.10	–						
7. Emotion-coaching	.03	.02	–.03	–.02	–.01	–.23**	–					
8. Dismissing	.10	–.03	.05	.16*	–.05	.19**	–.25***	–				
9. Disapproving	.06	.08	.19**	.10	–.05	.31***	–.39***	.61***	–			
10. Value	–.05	.04	–.10	–.04	.07	–.25***	.51***	–.42***	–.63***	–		
11. Guidance	–.10	–.00	–.18**	–.03	.07	–.24***	.30***	–.39***	–.32***	.34***	–	
12. Relational	.09	–.01	.10	.13	–.03	.22**	–.27***	.53***	.57***	–.34***	–.39***	–

* $p < .05$

** $p < .01$

*** $p < .001$.

TABLE 3
Intercorrelations among Predictor and Negative Emotion Outcome (collapsed across child gender) Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Anxiety – mother	–																	
2. Anxiety – father	–	–																
3. Anxiety – partner	–	–	–															
4. Avoidance – mother	–	–	–	–														
5. Avoidance – father	–	–	–	–	–													
6. Avoidance – partner	–	–	–	–	–	–												
7. Emotion-coaching	–	–	–	–	–	–	–											
8. Dismissing	–	–	–	–	–	–	–	–										
9. Disapproving	–	–	–	–	–	–	–	–	–									
10. Value	–	–	–	–	–	–	–	–	–	–								
11. Guidance	–	–	–	–	–	–	–	–	–	–	–							
12. Relational	–	–	–	–	–	–	–	–	–	–	–	–						
13. Accuracy	-.05	.01	-.10	.05	.03	-.19 ^{***}	.11	-.15 [*]	-.23 ^{***}	.23 ^{***}	.21 ^{***}	-.23 ^{***}	–					
14. Intensity (lefted)	-.13	-.07	.06	-.22 ^{***}	-.18 [*]	-.01	.08	.03	.06	-.15 [*]	.01	-.01	.07	–				
15. Intensity (absolute value)	.00	.00	.04	-.01	-.03	.07	.11	.05	.03	.06	-.03	.09	-.11	-.11	–			
16. Mirrored emotion	.05	.02	.05	-.13	-.10	-.10	.07	-.06	.08	-.09	-.02	.03	.11	.37 ^{***}	-.10	–		
17. Mirrored%	.10	.12	.03	.13	.15 [*]	.01	-.33 ^{***}	.10	.09	-.08	-.16 [*]	.12	-.01	-.16 [*]	-.08	.08	–	
18. Interact	-.01	-.00	-.11	-.09	-.05	-.23 ^{***}	.42 ^{***}	-.36 ^{***}	-.36 ^{***}	.28 ^{***}	.36 ^{***}	-.32 ^{***}	.26 ^{***}	.24 ^{***}	.06	.18 ^{**}	-.39 ^{***}	–
19. Response	.12	.09	.03	.05	.04	.09	.08	-.15 [*]	-.14 [*]	.18 [*]	-.07	-.06	-.14 [*]	-.16 [*]	-.16 [*]	-.04	.24 ^{***}	.01

Note. For ease of interpretation, only values not redundant with other tables are reported.

Columns without values have been removed.

* $p < .05$

** $p < .01$

*** $p < .001$.

TABLE 4
Intercorrelations among Predictor and Positive Emotion Outcome (collapsed across child gender) Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Anxiety – mother	–																		
2. Anxiety – father	–	–																	
3. Anxiety – partner	–	–	–																
4. Avoidance – mother	–	–	–	–															
5. Avoidance – father	–	–	–	–	–														
6. Avoidance – partner	–	–	–	–	–	–													
7. Emotion-coaching	–	–	–	–	–	–	–												
8. Dismissing	–	–	–	–	–	–	–	–											
9. Disapproving	–	–	–	–	–	–	–	–	–										
10. Value	–	–	–	–	–	–	–	–	–	–									
11. Guidance	–	–	–	–	–	–	–	–	–	–	–								
12. Relational	–	–	–	–	–	–	–	–	–	–	–	–							
13. Accuracy	.10	.07	–.09	.04	–.04	.01	–.10	.06	.07	–.09	.11	–.00	–						
14. Intensity (lefted)	–.19 ^{**}	–.12	–.08	–.23 ^{**}	–.18 ^{**}	–.08	–.00	–.01	.01	–.06	.09	–.01	.06	–					
15. Intensity (absolute value)	.01	.00	.02	.06	–.05	.03	.16 [*]	–.09	.02	.06	–.02	.03	–.05	.06	–				
16. Mirrored emotion	–.19 ^{**}	–.13	–.14	–.17 [*]	–.10	–.26 ^{***}	.24 ^{***}	–.15 [*]	–.14 [*]	.16 [*]	.32 ^{***}	–.12	.11	.58 ^{***}	.15 [*]	–			
17. Mirrored%	–.13	–.06	–.08	–.01	.09	–.01	–.19 ^{**}	.04	.01	–.04	.02	.01	–.03	–.09	–.47 ^{***}	–.05	–		
18. Interact	–.17 [*]	–.07	–.13	–.18 [*]	–.09	–.19 ^{**}	.20 ^{**}	–.15 [*]	–.08	.15 [*]	.38 ^{***}	–.14 [*]	.10	.54 ^{***}	.09	.78 ^{***}	–.02	–	
19. Response	–.22 ^{**}	–.15 [*]	–.10	–.15 [*]	–.11	–.18 ^{**}	.17 [*]	.03	.02	–.01	.26 ^{***}	–.00	.14 [*]	.51 ^{***}	.09	.68 ^{***}	–.02	–.02	.66 ^{***}

Note. For ease of interpretation, only values not redundant with other tables are reported.

Columns without values have been removed.

* $p < .05$

**

$p < .01$

$p < .001$.

Intercorrelations among Negative and Positive Emotion Outcome (collapsed across child gender) Variables

TABLE 5

	1	2	3	4	5	6	7
1. Accuracy-negative	—						
2. Intensity (centered)-negative	—	—					
3. Intensity (absolute value)-negative	—	—	—				
4. Mirrored emotion-negative	—	—	—	—			
5. Mirrored%-negative	—	—	—	—	—		
6. Interact-negative	—	—	—	—	—	—	
7. Response-negative	—	—	—	—	—	—	—
8. Accuracy-positive	.15*	-.07	.00	-.03	-.09	.01	-.13
9. Intensity (centered)-positive	-.03	.55***	.24**	.23**	-.30***	.21**	-.35***
10. Intensity (absolute value)-positive	.02	.14*	.38***	.07	-.26***	.17*	-.02
11. Mirrored emotion-positive	.17*	.27***	.25***	.23**	-.52***	.45***	-.33***
12. Mirrored%-positive	.04	-.14	-.22**	-.08	.22**	-.18**	-.01
13. Interact-positive	.13	.26***	.19**	.18**	-.42***	.45***	-.28***
14. Response-positive	.10	.21**	.20**	.15*	-.33***	.27***	-.48***

Note. For ease of interpretation, only values not redundant with other tables are reported.

Columns without values have been removed.

* $p < .05$

** $p < .01$

*** $p < .001$.