Mothers’ Regulation Strategies in Response to Toddlers’ Affect: Links to Later Emotion Self-Regulation

Tracy L. Spinrad, The Arizona State University, Cynthia A. Stifter, Nancy Donelan-McCall, and Laura Turner, The Pennsylvania State University

Abstract

Recently, there has been a great deal of research on the socialization of children's emotions and self-regulation. In the present study, the specific strategies that mothers use to help their young children regulate their emotional responses were examined using a longitudinal design. Forty-three mother–toddler pairs were observed when toddlers were both 18 and 30 months of age, and mothers' attempts to regulate their toddlers' emotions during several emotion-eliciting tasks were transcribed from videotape. When the children were 5 years old, their responses to a disappointment task were observed. Results indicated a relation between mothers' regulation strategies in toddlerhood and children's facial and behavioral responses to the disappointment task measured at 5 years of age. Specifically, mothers' use of regulation strategies at 30 months, but not at 18 months, was positively related to children's appropriate emotional displays in response to disappointment. Moreover, the specific types of strategies that mothers used had differential associations to children's responses to disappointment. Findings are discussed in terms of the potentially important role of mothers' behaviors in the development of children's emotion self-regulation.

Keywords: emotion regulation; socialization; maternal strategies

Recently, there has been a great deal of interest in children's emotion regulation, and this capacity is believed to play a major role in children's social competence (Cassidy, Parke, Butkovsky, & Braungart, 1992; Eisenberg & Fabes, 1992, 1998; Saarni, Mumme, & Campos, 1998) and problem behaviors (Eisenberg et al., 2001). It has been proposed that emotion regulation develops and becomes more autonomous over the second and third years of life as a result of changes in children’s cognitive and language abilities (Kopp, 1989). Consistent with this notion, toddlers have been found to use more self-regulation of emotion than younger infants (Bridges & Grilnick, 1995; Mangelsdorf, Shapiro, & Marzolf, 1995; Parritz, 1996). Moreover, in childhood, as
cultural norms and rules are socialized, children come to understand display rules for emotion and start to regulate their emotional displays in accordance with cultural guidelines (Cole, 1986; Saarni, 1984).

Although many definitions of emotion regulation have been provided, most investigators agree that emotion regulation can be conceptualized as the processes involved in modulating, increasing, or redirecting emotional responses (Bridges & Grolnick, 1995; Thompson, 1994). Individual differences in regulation have been considered a part of temperament (Rothbart & Bates, 1998). However, environmental characteristics (particularly mothering behaviors) are thought to play a central role in the development of children’s emotion regulation, particularly in infancy (Gottman, Katz, & Hooven, 1996; Kopp, 1989; Thompson, 1994).

There are a number of ways that parents can influence infants’ and young children’s emotion regulation capacities (Eisenberg, Cumberland, & Spinrad, 1998). As a whole, the focus of research on the socialization of emotion and emotion regulation in infancy has been on mothers’ modeling of emotions (Malatesta, Culver, Tesman, & Shepard, 1989; Malatesta & Haviland, 1982) or maternal sensitive caregiving (Bell & Ainsworth, 1979; Braungart-Reiker, Garwood, Powers, & Notario, 1998; Bridges & Grolnick, 1995; Cassidy, 1994; Fish, Stifter, & Belsky, 1991). There is an additional view that children’s emotional competence stems from caregivers’ reactions to challenging situations or to episodes of toddlers’ positive and negative affect (Kopp, 1989; Thompson, 1990). As toddlers gain an understanding of the causes and consequences of emotional reactivity, mothers’ reactions to their affect are likely to provide rich opportunities for the socialization of emotion and emotion regulation. For example, maternal attempts to regulate their children’s emotions may not only result in altering their immediate emotional arousal but also may provide opportunities for supporting their children’s existing emotion regulation as well as teaching them new methods for self-regulating (Kopp, 1989).

Empirical evidence indicates that mothers use a variety of strategies in challenging situations with their toddlers (Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998; Stansbury & Sigman, 2000), and the use of these strategies has been related to toddlers’ age and level of distress. Specifically, Grolnick et al. (1998) found that mothers used less active engagement with their older as compared to younger toddlers, and mothers’ use of more active strategies was linked with children’s higher levels of distress. However, it is surprising that the link between mothers’ attempts to regulate their toddlers’ arousal and children’s later emotional competence has not been examined, particularly because mothers’ responses to their toddlers’ arousal are thought to shape children’s subsequent emotional reactions when the mother is not available (Grolnick et al., 1998).

Although mothers’ use of regulation strategies would be expected to contribute to the success of children’s ability to regulate their emotions and emotional displays, the quality of the strategies mothers use may have differential effects. Mothers’ use of strategies such as comforting the child or explaining the situation or emotion might be expected to be associated with future emotional control. Mothers who are comforting or accepting of their toddlers’ emotional displays may provide an atmosphere in which toddlers feel free to express a range of emotions and learn to use their mothers for assistance during other challenging situations (Bridges & Grolnick, 1995; Cassidy, 1994; Thompson, 1990). Because these children are encouraged to express emotions, they may come to a greater understanding of emotions and their regulation. Alternatively, comforting may be a less optimal maternal strategy because it may focus the
child on his or her emotions rather than providing strategies to reduce his or her negative feelings. Although the use of this strategy in response to toddlers’ emotions has not been examined, Denham’s work supports the first assertion (Denham, 1997). Using a dollhouse procedure designed to assess preschoolers’ internal working models of their parents’ behaviors, preschoolers’ conceptions of their parents’ characteristic comforting reactions or reactions that involved sharing positive affect were found to be positively related to children’s emotional competence with peers (Denham, 1997). This finding suggests that parental comforting may be an effective strategy for children’s learning of emotion regulation or social skills.

Mothers’ use of explanations would also be expected to enhance children’s abilities to deal with emotions. Children who are provided with explanations may learn to clarify, interpret, and understand their own emotional states and appropriate ways of responding to feelings. Mothers who use explanations may be attempting to challenge their toddlers at a level that is slightly above their current capacities; this reasoning is in line with the Vygotskian notion of the ‘zone of proximal development’ (Vygotsky, 1962). Using this perspective, children may learn more sophisticated strategies to regulate emotions by using and practicing these strategies in interactions with others (Denham, 1998; Kopp, 1989; Thompson, 1990).

On the other hand, other strategies may negatively impact children’s future emotion regulation abilities. Strategies such as questioning the child’s emotion (i.e., ‘Why are you crying?’) may minimize the legitimacy of the child’s emotional experience. Over time, these children may learn to hide their emotions (but still experience heightened anxiety or arousal) and may avoid learning ways to effectively deal with negative emotions (Eisenberg, Fabes, & Murphy, 1996; Gottman et al., 1996). Indeed, parental minimizing reactions have been found to be related to more negative outcomes in preschool and school-aged children (Eisenberg, Fabes, Carlo, & Karbon, 1992; Eisenberg et al., 1996). Mothers, rather than attempting to regulate their children’s emotions, also may react by choosing to give in to the child’s desires or wishes. Such strategies might interfere with the child’s development of emotion regulation by not allowing the child to experience negative affect or to learn self-regulation strategies. In fact, granting the child’s wish may promote the escalation of negative emotion when the child is challenged.

Another strategy mothers have been found to use during potentially challenging situations for their toddlers is distraction. Evidence for the effectiveness of distraction of regulating emotions has been mixed. In some work, distraction has been found to be an effective strategy for reducing distress and controlling behavior (Gonzalez, Routh, & Armstrong, 1993; Mischel & Ebbesen, 1970; Putnam, Spritz, & Stifter, 2002). For example, children whose mothers used distraction during a painful immunization injection exhibited less distress than children whose mothers used comforting strategies (Gonzalez et al., 1993). On the other hand, Grodnick et al. (1998) found that when mothers used more active engagement and distraction strategies, children were more distressed when regulating independently. Thus, it is not clear whether the use of distraction promotes self-regulatory skills. In addition, none of these studies were longitudinal in design and thus have not addressed whether mothers’ use of distraction contributes to future emotion regulation in children.

Although most researchers have focused on the socialization of children’s negative emotions, mothers’ reactions to children’s positive emotions also may have important outcomes (Stifter & Moyer, 1991). It is likely that mothers’ strategies which either
maintain positive affect or reduce her child’s negative emotions would contribute to the development of self-regulation. In this study, we examine children’s responses to disappointment, a situation that requires the regulation of affect as well as the use of display rules (Saarni, 1999). This task is well suited as an outcome of mother regulation of both positive and negative expressions as the child is not only socialized to regulate his or her negative feelings about receiving an unwanted prize but also must abide by display rules requiring positive affect.

The purpose of the present study was to identify the strategies that mothers use (e.g., soothing, distracting, explaining the situation) in response to toddlers’ emotions at 18 and 30 months of age and to determine if mothers’ use of these strategies in toddlerhood was associated with children’s emotional expressions in response to disappointment at age 5. This outcome is of interest because children’s difficulties in regulating their displays of emotion have been associated with problem behaviors and peer rejection in young children (Cole, Zahn-Waxler, & Smith, 1994; Eisenberg et al., 1993). Our first hypothesis was that maternal regulatory strategies would change along with the developmental age of the child. As infants mature they become less and less reliant on external support for regulating their emotions. Second, we hypothesized that maternal regulatory strategies, particularly those that foster emotional understanding and support the expression of emotions, would be positively related to preschoolers’ self-regulated expression. Having been supported during challenging situations in the past, these children may have learned effective ways of dealing with emotions, how to differentiate between emotions, and cultural guidelines for the display of emotions. On the other hand, maternal reactions that are dismissing or disapproving may foster increased negative affect during disappointment because these children do not learn tools for regulating their affect. Moreover, when parents give in to their child’s wishes, children may be reinforced for expressing negative emotions and continue to express negative emotions in future challenging contexts. Because the disappointment paradigm was also designed to measure children’s strategies for regulation, we also explored the relations between children’s specific self-regulatory strategies displayed to disappointment and maternal strategies measured earlier. For example, mothers who use strategies designed to refocus the child’s attention would be expected to have children who are better able to use attentional strategies (i.e., distraction) in future regulatory situations.

Method

Participants

The participants in this investigation included 43 mother–toddler pairs (23 boys; 20 girls) who were involved in a longitudinal study of infant temperament and its later correlates.1 Mother–toddler pairs were recruited from a community hospital shortly after the infant’s birth. The sample consisted of healthy, full-term infants from predominantly white/middle-class backgrounds. Mothers’ age at recruitment ranged from 16 to 42 ($M = 30.47$, $SD = 4.61$), and mothers’ education level ranged from 11 to 18 years ($M = 15.05$, $SD = 1.79$). The majority of parents were married (90.7%). All toddlers were tested within three weeks of turning 18 and 30 months of age. Participants returned when they were approximately 5 years of age (range = 52 to 70 months).
Procedures and Measures at 18 and 30 Months

The 18- and 30-month laboratory sessions were designed to elicit toddlers’ emotional reactivity and maternal behaviors. To elicit emotional reactivity in the 18- and 30-month-old toddlers, several laboratory procedures were administered. At both time points, mothers and toddlers participated in a standard clean-up procedure. Specifically, after a brief free-play period, mothers were instructed to direct their child to pick up the toys and place them in a basket. The clean-up procedure lasted 60 seconds or until all the toys were put in the basket. In addition, at 18 months, mothers and toddlers participated in a frustrating toy removal task (Spinrad & Stifter, 2002). Briefly, this procedure involves the toddlers being presented with an attractive toy, after which mothers were asked to place the toy in a plastic jar so that the toy was within sight of the infants, but not obtainable. At 30 months of age, mothers and toddlers were observed during the placement of electrocardiogram (ECG) electrodes on the child’s chest, a procedure that can be emotionally challenging for some children of this age. All mother–child utterances during these laboratory procedures were transcribed from videotape, and the procedures were combined for each age. When coders could not understand a speaker’s utterances, the content was resolved in conference with the other coders. If no resolution was made, the statement was indicated as inaudible on the transcript.

Toddler Affect. After the videotapes were transcribed, toddlers’ affect for each toddler conversational turn was coded from videotape using a 5-point scale ranging from high positive affect to high negative affect. A conversational turn was defined as all of one speaker’s utterances bounded by the utterances of another speaker (Dunn, Brown, Słomkowski, Tesla, & Youngblade, 1991), with utterances including vocalizations such as crying, shrieking, and grunting. High positive affect referred to turns in which the toddler was laughing or squealing. Low positive affect was scored when the child demonstrated a positive tone or smiled. In addition, positive exclamations (‘wow’ or ‘great’) were used to code positive affect when they occurred with positive facial expressions or tone. The turn was scored as neutral if the child did not express either positive or negative facial expressions or tones. Low negative affect utterances were characterized by frowns, a negative tone (mild fussing, whining), or negative exclamations (‘no, I’m not gonna’) that included negative facial expressions or tone. High negative affect was scored if the child was crying, screaming, made intense negative vocalizations or loud fussing. Interrater reliability was calculated on over 10% of the 18- and 30-month data with a mean Cohen’s Kappa of .89 for toddler affect at 18 months and .92 at 30 months.

Mother Regulation Strategy. Any mother-turn following the toddlers’ positive or negative affect was coded in one of four ways. (1) mother did not use a regulation strategy or affect label. For example, the mother may have ignored the child’s affect by continuing to focus on the activity that took place prior to the toddlers’ emotions; (2) mother used a strategy to regulate the child’s affective state; (3) mother labeled the child’s emotion; or (4) mother used a strategy to regulate the child’s affective state and labeled the child’s emotional state. Given that mothers’ regulation strategies were verbal strategies, a code of ‘no regulation or label’ did not indicate that the mother ignored the child completely. Rather, this code indicated that the mother continued to verbalize about something other than the child’s affect. For example, if a mother was
Mothers' Regulation Strategies

playing with a toy and exclaimed, ‘Watch me zoom!’ and the mother continued (following her toddler’s emotion) by saying, ‘Zoom, zoom,’ the turn would have been coded as ‘no regulation or label.’ The labeling code, which was adapted from Dunn et al. (Dunn, Bretherton, & Munn, 1987), included references to feeling states (e.g., mad, sad) and those in which the speaker used a phrase which connoted a feeling (e.g., ‘What’s the matter?’). Labeling of emotions did not include statements regarding desires or preferences (i.e., ‘You would like to keep playing’).

Moreover, when mothers used a regulation strategy, the type of strategy was coded. Seven types of maternal strategies were coded. Distraction was rated when the mother attempted to focus the child’s attention away from the distressing or exciting situation (e.g., ‘Look at the picture on the wall!’). Direct request referred to the mother making a direct request for the child to regulate his or her affect (e.g., ‘Come on now, stop crying’). Soothing and acceptance was scored when the mother attempted to soothe the child (e.g., ‘It’s OK, you’re all right’). Granting wish was defined as the mother meeting the child’s needs or requests (e.g., ‘All right, you can have the toy’). Questioning emotion was coded when the mother asked the child why he or she was upset or excited (e.g., ‘Why are you crying?’). Explanation was scored when the mother attempted to explain the emotion or the situation (e.g., ‘We’ll be done in a bit’). Finally, Bribery referred to the mother offering the child something in return for the child regulating his or her emotions (e.g., ‘If you stop crying now, we can go to McDonald’s when we’re done’). For each statement, more than one strategy could be coded. For example, a statement such as, ‘It’s OK honey, this is going to be over in a minute’ would be coded as both soothing and explanation. Because direct request and bribery were infrequently used by the mothers (less than 3% of strategies at 18 months and less than 7% at 30 months), these variables were dropped. Interrater reliabilities (Cohen’s Kappa) on over 10% of the sample ranged from .81 to 1.0 (percent agreement ranged from .96 to 1.0).

Data Reduction. To assess mothers’ strategy use in response to toddlers’ emotions, the frequency of mothers’ use of regulation strategies (either alone or with an affect label) was converted into a proportion score. This was accomplished by dividing the number of times the mother used a strategy (either alone or with an affect label) by the total number of turns in which the child displayed either positive or negative affect. If children did not express positive or negative affect during the laboratory procedures, they were dropped from the analyses for that time point (n = 2 at 18 months; n = 11 at 30 months). However, if the toddler expressed affect but the mother did not respond with a regulatory strategy, this resulted in a proportion score of 0 (n = 1 at 18 months; n = 12 at 30 months). In addition, a proportion score was created by dividing the frequency of each strategy by the total number of strategies used by the mothers. If mothers never used a regulation strategy in response to their toddlers’ emotions, these cases were dropped from analyses involving these variables.

Disappointment Task

The five-year laboratory session was designed to examine children’s emotion self-regulation. Children’s self-regulation of emotion was assessed during a disappointment paradigm (Cole, 1986) while their mothers were present. Children were asked to rank small prizes (including some undesirable items) at the beginning of the visit. Later, after completing a set of tasks, the child was seated with his or her mother and
given one of his or her last choice prizes. The experimenter remained in the room for 30 seconds after the child opened the wrapped prize (experimenter present condition). The experimenter then left the room for one minute (experimenter absent condition) after which she returned to rectify the situation and allow the child to exchange the prize. Children’s responses were observed during the experimenter present and experimenter absent conditions with the assumption that positive expressions during the experimenter present condition would indicate the ability to regulate their expression of disappointment. The majority of children were disappointed to receive their least favored prize as 98% of the children exchanged their prizes.

Children’s facial expressions of emotion (i.e., positive emotion, negative emotion) were coded from the videotapes of the five-year disappointment task. Coding of children’s facial expressions was based on procedures used by Cole (1986) and utilized facial action units described in Ekman and Friesen’s (1978) Facial Action Coding System (FACS). Positive expressions included lip corner pull/cheek raise (i.e., smiles). Negative expressions included lip corner depress/chin raise, lip tighten/lip press, lip biting, nose wrinkle/upper lip raise, and inner brow raise. Interrater reliability conducted on over 10% of the data was .92 (Cohen’s Kappa). In addition, children’s regulation strategies were coded, including using no strategy, seeking physical comfort from the mother (e.g., the child climbs into the mother’s lap), distraction (e.g., the child shifts behavior or own situations away from the unwanted prize; the child begins an alternative behavior such as playing with other objects in the room), mental re-evaluation of the situation (e.g., the child finds something good about the unwanted gift; ‘this isn’t so bad, the colors are pretty’) or causal discussion (e.g., the child engages in a discussion of the causes or consequences of his or her emotional reactions; ‘she knew I hated this, why did she give it to me?’). Because children’s strategies were relatively infrequent, interrater reliability was conducted on over 50% of the data and was .82 (Cohen’s Kappa). In addition, because seeking comfort was infrequently used by the children (only one child displayed this behavior), this variable was dropped.

**Results**

**Preliminary Analyses**

The means and standard deviations for the mother regulation data can be found in Table 1. T-tests were conducted to determine whether mothers’ use of regulation differed for boys and girls. There were no significant differences in mothers’ use of regulation strategies with their sons versus daughters at either 18 or 30 months of age, $t_s (39, 30) = .45$ and $-1.33, ps = n.s.$, nor were there any differences between boys and girls for the types of strategies mothers used at each age, $t_s (38) = -.01$ to $-.76, ps = n.s.$ at 18 months and $t_s (18) = -.04$ to $-1.37, ps = n.s.$ at 30 months. Finally, girls and boys did not differ in their use of emotion self-regulation at age 5, $t_s (41) = -.35$ to 1.0, $ps = n.s.$ Thus, the following analyses were conducted with the data collapsed across sex.

When comparing mothers’ responses to positive and negative emotion, mothers tended to regulate their 18-month-olds’ negative affect more than their positive affect, $t (26) = -3.48, p < .001$. Moreover, in response to positive affect, mothers were most likely to use soothing and acceptance as a regulation strategy. Mothers’ use of distraction, granting the child’s wish, and questioning emotion were used more in response to negative emotions as opposed to positive emotions, $t_s (20) = 2.84$ to $-4.58,
 Mothers’ Regulation Strategies

47

Because of our small sample size and the small number of responses to toddlers’ positive and negative emotions, we found that separating maternal responses to positive and negative emotions increased our missing data and reduced our power to predict children’s self-regulation at five years considerably. Thus, despite the differences in mothers’ strategies to positive and negative emotions, we combined maternal responses to the two valences of emotions.

As the age range of the preschoolers was quite broad for the five-year visit, we examined the relation between age at the five-year visit and children’s facial responses and self-regulation. Pearson correlations revealed that older preschoolers used more distraction as a strategy, \( r(41) = .33, p < .03 \). Because minimal age differences were found, and because age at the preschool visit was not expected to affect the predictive relation from maternal regulation at 18 and 30 months to preschoolers’ self-regulation, preschoolers’ age was not controlled in the analyses.

Mothers’ Regulation Use at 18 and 30 Months of Age

Longitudinal analyses were conducted using repeated measures ANOVA \( (n = 30) \). Findings indicated that mothers’ use of regulatory strategies was significantly greater at 18 months than at 30 months of age, \( F(1,28) = 16.70, p < .0003 \). As the proportions of specific regulation strategies at 18 and 30 months were only available for those mothers who exhibited the strategies, longitudinal developmental analyses were not possible \( (n = 18) \).

Mothers’ Use of Regulation and Children’s Facial Expressions During Disappointment

To examine whether mothers’ regulation was associated with children’s facial responses to the disappointment paradigm, Pearson correlations were computed. We

<p>| Table 1. Means and Standard Deviations of Maternal Regulation Variables at 18 and 30 Months of Age |
|---------------------------------|---------------------------------|------------------|------------------|
|                                  | 18 Months                       | 30 Months        |</p>
<table>
<thead>
<tr>
<th></th>
<th>( M )</th>
<th>SD</th>
<th>( M )</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother Regulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Label Alone</td>
<td>.01</td>
<td>.03</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Strategy Use Alone</td>
<td>.59</td>
<td>.20</td>
<td>.39</td>
<td>.36</td>
</tr>
<tr>
<td>Strategy Use and Affect Label</td>
<td>.03</td>
<td>.04</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>Type of Strategy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distraction</td>
<td>.12</td>
<td>.15</td>
<td>.09</td>
<td>.14</td>
</tr>
<tr>
<td>Soothing/Acceptance</td>
<td>.42</td>
<td>.29</td>
<td>.31</td>
<td>.29</td>
</tr>
<tr>
<td>Granting Wish</td>
<td>.12</td>
<td>.19</td>
<td>.09</td>
<td>.16</td>
</tr>
<tr>
<td>Questioning</td>
<td>.25</td>
<td>.25</td>
<td>.15</td>
<td>.30</td>
</tr>
<tr>
<td>Explanation</td>
<td>.06</td>
<td>.13</td>
<td>.29</td>
<td>.29</td>
</tr>
</tbody>
</table>
expected children of mothers who used more regulatory strategies to display more positive affect to disappointment, especially when the experimenter was present. There were no significant relations between mothers’ use of regulation with their 18-month-old and children’s positive or negative facial responses to the disappointment task (experimenter present and experimenter absent conditions (see Table 2)).

However, when mothers used more regulation strategies in response to their toddlers’ affect at 30 months, children displayed more positive facial affect during the experimenter present, and absent conditions. In addition, mothers who used more strategies at 30 months had children who displayed less negative affect when the experimenter was present (see Table 2).

Although we would not expect mothers to respond to every instance of their toddlers’ positive or negative affect, it is interesting to note that a number of mothers never attempted to regulate their toddlers’ affect ($n = 1$ at 18 months, $n = 12$ at 30 months). Children whose mothers ignored their affect may be delayed in learning display rules for emotions because their mothers did not take important opportunities to teach them about emotions. Thus, we further examined the relation between mothers’ regulation strategies and children’s facial responses to disappointment by comparing these mothers to mothers who used a regulation strategy at least one time in response to their toddlers’ emotions ($n = 40$ at 18 months, $n = 20$ at 30 months). Because all but one mother used a regulation strategy at 18 months, this comparison was made using the 30-month data only. One-way analysis of variance revealed sig-

### Table 2. Pearson Correlations Between Mothers’ Regulation Strategies and Children’s Facial Expressions

<table>
<thead>
<tr>
<th>Mothers’ Strategy</th>
<th>E Present</th>
<th>E Absent</th>
<th>18 Months</th>
<th>30 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Strategy</td>
<td>$-0.20$</td>
<td>$-0.02$</td>
<td>$-0.19$</td>
<td>$0.19$</td>
</tr>
<tr>
<td>Distraction</td>
<td>$-0.08$</td>
<td>$-0.14$</td>
<td>$-0.18$</td>
<td>$0.00$</td>
</tr>
<tr>
<td>Soothing</td>
<td>$-0.08$</td>
<td>$-0.10$</td>
<td>$-0.14$</td>
<td>$-0.04$</td>
</tr>
<tr>
<td>Granting Wish</td>
<td>$0.08$</td>
<td>$0.57^{***}$</td>
<td>$-0.03$</td>
<td>$0.38^{*}$</td>
</tr>
<tr>
<td>Questioning</td>
<td>$-0.01$</td>
<td>$0.12$</td>
<td>$0.12$</td>
<td>$-0.19$</td>
</tr>
<tr>
<td>Explanation</td>
<td>$0.18$</td>
<td>$-0.15$</td>
<td>$0.21$</td>
<td>$-0.03$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>30 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of strategy</td>
</tr>
<tr>
<td>Distraction</td>
</tr>
<tr>
<td>Soothing</td>
</tr>
<tr>
<td>Granting Wish</td>
</tr>
<tr>
<td>Questioning</td>
</tr>
<tr>
<td>Explanation</td>
</tr>
</tbody>
</table>

*p < .10; *p < .05; **p < .01; ***p < .001.
significant effects for the mother regulation groups. Preschoolers whose mothers used regulation strategies were significantly higher on positive affect when the experimenter was present \( F(1,30) = 11.76, p < .002 \) \( (M = 26.22, SD = 11.14) \) than preschoolers whose mothers did not use a strategy \( (M = 14.36, SD = 12.82) \). Similarly, children whose mothers used a strategy were significantly lower on negative affect when the experimenter was present than children whose mothers did not use a strategy at 30 months, \( F(1,30) = 5.03, p < .03 \) \( (M = 1.16, SD = 3.29) \) for children whose mothers used a strategy, and \( M = 4.07, SD = 4.58 \) for children whose mothers did not use a strategy.

**Mothers' Specific Regulation Strategies and Children's Facial Expressions During Disappointment**

We were also interested in determining whether mothers’ specific strategies (i.e., distraction, soothing, granting the child’s wish, questioning, explanation) would relate to children’s facial responses to disappointment. It was expected that mothers’ use of strategies such as distraction, soothing the child and explanation would be positively related to children’s ability to mask their disappointment because these strategies are likely effective in reducing children’s negative affect. On the other hand, granting the child’s wish may actually promote increased negative affect in children. Pearson correlations revealed a positive relation between mothers’ use of granting the child’s wish at 18 months and children’s negative affect in response to the disappointment task during the experimenter present and absent conditions. That is, children who showed more negative affects to disappointment were more likely to have mothers who granted their wishes in response to their negative affect when toddlers were 18 months of age. No other specific strategies at 18 months were related to children’s facial responses to disappointment (see Table 2).

Next, the relations between mothers’ specific strategies at 30 months to children’s facial responses to the disappointment were examined. Contrary to prediction, Pearson correlations indicated that mothers who used more soothing and acceptance at 30 months had children who displayed less positive emotions during the experimenter present condition. Mothers’ use of questioning the child’s emotions at 30 months was positively correlated with children’s negative emotions during the experimenter absent condition (see Table 2).

**Mothers’ Use of Regulation and Children’s Self-Regulation Strategies**

While entirely exploratory, we did expect that mother’s use of regulation when her child was a toddler would be related to her child’s self-regulation strategies. This expectation was not met. Of the eight possible correlations, none was significant. Moreover, there were no differences in children’s self-regulation for preschoolers whose mothers used regulation versus mothers who did not regulate their toddler’s affect (see Table 3).

**Mothers’ Specific Regulation Strategies and Children’s Self-Regulation Strategies**

Not only did we expect that mothers’ use of regulation strategies would be related to children’s self-regulation of emotion, but we also anticipated that the specific strategies that mothers chose would be associated with children’s regulatory responses when
disappointed. Consistent with our hypotheses, mothers who used more soothing and acceptance as a regulation strategy at 18 months had children who used more distraction and were less likely to use ‘no behavioral strategy.’ On the other hand, mothers who questioned their children’s emotions at 18 months had children who used no behavioral strategy in response to being disappointed. Finally, mothers’ use of distraction at 18 months was negatively related to children’s use of distraction at preschool age. No significant relations were revealed for mothers’ specific regulation strategies used with 30-month-olds and children’s later self-regulation at 5 years of age (see Table 3).

**Discussion**

The ways that parents contribute to their children’s social and emotional competence has been a focus of considerable research. The main goal of this study was to investigate whether children’s experiences with their mother during interactions involving positive and negative emotions would be related to children’s later self-regulation as measured by their ability to mask disappointment. Our findings revealed that mothers’ attempts to regulate their children’s emotions changed with age but that only their general attempts to regulate children’s emotions at 30 months (but not at 18 months) were related to children’s self-regulation abilities. Indeed, compared to mothers who missed all opportunities to regulate their child’s affect, maternal regulation at 30 months had more positive outcomes.

We had anticipated that mothers’ regulatory strategies would be guided by the child’s developmental level, and this hypothesis was confirmed. The proportion of
mothers’ regulation strategies, based on the number of opportunities that mothers had to regulate their toddlers’ emotions, decreased between 18 and 30 months of age. As Kopp (1989) suggested, our data support the premise that mothers serve as a mechanism for regulating their children’s affect until children acquire the necessary skills for regulation. During the period between 18 and 30 months of age, children’s language and cognitive abilities increase dramatically, and these skills likely contribute to children’s self-regulation of emotion (Dunn et al., 1987; Kopp, 1989). Thus, mothers may have responded to this increased capacity by decreasing their regulation attempts. This age-related difference is further demonstrated by the finding that mothers increased their use of explanation as a strategy between 18 and 30 months of age. Because explanations require cognitive and linguistic sophistication, mothers may not have used this strategy with their younger toddlers.

In addition to finding that maternal strategies used with 30-month-olds were related to children’s later self-regulation of emotion, our results showed an effect for the quality of mothers’ strategies. Specifically, two strategies appeared to negatively impact children’s responses to disappointment: granting the child’s wish and questioning the child’s emotions. Mothers’ use of granting the child’s wish at 18 months predicted children’s negative affect at age 5. When mothers ‘give in’ to their children’s requests during emotion-eliciting contexts (e.g., ‘OK, you can have the toy!’), children are actively reinforced for expressing negative emotions and use this strategy to get what they want (both in the specific context and in future challenging situations), or in the five-year disappointment task, to express their distress at not getting what they wanted. This finding is consistent with Baumrind’s work on permissive parenting (Baumrind, 1971). In families with permissive parents who are lax in discipline and allow children to express their impulses, children tend to engage in undercontrolled behavior (Baumrind, 1973). Thus, by indulging children during challenging situations, parents fail to take advantage of opportunities for their children to learn ways of dealing with future emotions. Although granting the child’s wish predicts negative affect in the long term, it should be noted that parents probably use this behavior because it is immediately reinforced, and thus may be adaptive in the short run.

In addition, questioning the child’s emotion appeared to be related to children’s lack of self-regulation skills. It may be that questioning the child’s emotions is viewed as a minimizing response. Minimizing reactions have been linked to negative outcomes in children, such as avoidant coping and low levels of social competence (Eisenberg et al., 1992; Eisenberg et al., 1996). Rather than supporting their children’s feelings, questioning does not provide the tools or encouragement for children to learn self-regulation skills. Another possibility is that mothers who use questioning are less ‘in tune’ with their toddlers’ emotions and use this strategy to clarify what their child is feeling. Although these mothers may make attempts to understand their children’s emotions, perhaps the use of this strategy is indicative of a negative parent–child relationship. Children’s insecure attachment relationships and feelings about their caregivers are believed to be an important influence in the development of self-regulation (Cassidy, 1994; Thompson, 1998).

One unexpected finding concerned mothers’ use of soothing and acceptance. We expected that this strategy would be positively associated with children’s self-regulation, and, consistent with this hypothesis, mothers’ use of this strategy at 18 months was predictive of children’s use of distraction as a strategy at 5 years. However, contrary to expectation, mothers’ use of soothing and acceptance at 30 months was related to children’s unregulated facial responses at age 5. It is possible that in early
toddlerhood, mothers’ soothing behaviors, similar to research on maternal sensitivity, help children to reduce negative arousal or encourage children to express positive emotions. These behaviors may teach children to develop strategies so as to deal with emotions appropriately. With development, however, this strategy does not appear to function in the same way. One possible explanation for these results is that by 30 months of age, children have a number of self-regulation skills (Kopp, 1989) and do not necessarily need to be directly comforted during challenging situations. Rather, children in later toddlerhood may perceive the mothers’ comforting reactions as frustrating or require more cognitively advanced input from their mothers, such as explaining the situation or cause of emotion. Indeed, further inspection of our data revealed that explanation at 30 months of age was marginally positively related to children’s emotion management.

An additional goal of this investigation was to determine the relation between mothers’ use of distraction as a regulatory strategy and children’s later self-regulation. Previous findings on mothers’ use of distraction have been inconsistent; and similarly, our study had mixed results. Mothers’ use of distraction at 18 months was negatively related to children’s self-regulation (distraction) at age 5. On the other hand, there was a nonsignificant trend for mothers who used more distraction as a regulatory strategy at 30 months of age to have children who expressed more positive emotion in response to the disappointment task. These findings, albeit mixed, may be explained by considering the child’s abilities to regulate attention at each age. Recently, Posner and Rothbart (1998) proposed that executive attention (effortful attentional processes), which shows initial gains in development in the early months of life, is still quite immature at 24 months of age. In the third year of life, the ability to use executive attention increases markedly (Posner & Rothbart, 1998). Perhaps because of younger toddlers’ immature attentional systems, mothers’ use of distraction (a means to shift the toddlers’ attention) may be ineffective. However, by 30 months, when children’s executive attention becomes more mature, the use of distraction may be an effective tool for teaching regulatory skills. Recent research has demonstrated that mothers’ contingent use of distraction at 30 months of age was related to children’s success during a delay task (Putnam et al., 2002).

Although the current study provides an important first step in understanding the role of maternal regulation on children’s later self-regulation, our study of maternal regulation is limited in several ways. First, our study was limited by the small sample size and missing data. Our sample size was particularly problematic because some toddlers did not express any positive or negative affect, and even when toddlers did express emotion, some mothers did not use a regulation strategy (particularly at 30 months). Thus, our power was reduced in many analyses. Our findings should be replicated using a larger sample, and investigators should observe mothers’ regulation strategies in situations that elicit more frequent and intense positive and negative emotions. In such situations, not only would toddlers be more likely to express positive and negative emotions, but mothers also would be more likely to use a regulatory strategy.

In addition, because of our small sample size, we were limited in investigating the ways that mothers’ regulation strategies differed in response to children’s positive and negative affect. It may be that mothers’ regulation of positive emotions would contribute to children’s learning appropriate display rules differently than mothers’ regulation of negative emotions. Because most research has focused on negative rather
than positive emotions in response to challenging situations, it is clear that more work in this area is needed.

Another issue that deserves consideration is mothers’ use of regulation strategies to prevent their toddlers from becoming negative in challenging situations. Because our coding system required that mothers use a regulation strategy following their child’s emotional display, mothers’ pre-emptive strategies were not assessed. For example, mothers might expect their children to become negative during a situation such as a toy removal task and in turn may distract their child with the goal of protecting him or her from experiencing negative affect. It is likely that these pre-emptive strategies are important behaviors, particularly in response to toddlers who are characteristically emotionally reactive. Future research would benefit from taking a closer look at the types of behavior mothers use to prevent their children from experiencing negative affect and how these behaviors reflect mothers’ perceptions of their child’s temperament.

Despite these limitations, among the strengths of this study was the fact that mothers’ strategies following their children’s emotions were observed. Thus, only maternal behaviors contingent to toddlers’ emotions were coded and examined. This feature gives us confidence that mothers’ reactions to children’s emotions, as compared to mothers’ general emotional tone or expressions of emotions, serve as important tools for children’s later self-regulation. In addition, this study was longitudinal in nature allowing for the investigation of changes in mothers’ strategies with age and prediction to future emotion regulation abilities in children.

In sum, the results of the present study serve as a step in studying the role of early maternal regulation strategies on children’s self-regulation. It appears that what mothers say (and presumably, what they do) following their toddlers’ emotions has an important influence on children’s later self-regulation. These findings underscore the importance of mothers as socializing agents for children’s emotionality and emotion regulation.

References


Mothers’ Regulation Strategies


Acknowledgments

The research reported in this article was supported by grant from NIMH (MH44324) awarded to the second author. The authors wish to acknowledge the assistance of the parents and children who participated in this study.

Notes

1. The longitudinal study was originally designed to follow children only until the toddlers were 18 months of age, and thus many subjects were lost due to moving from the area or not wishing to participate in any more visits. Of the 100 original participants, 74 were tested at 18 months, 60 returned for the 30-month visit, and 49 were tested at the five-year laboratory session. The participants in this study included only those mother–toddler pairs who had data available at all three visits.

2. We also examined the developmental data using mixed linear modeling, including fixed effects that provided estimates of change in mothers’ regulation from 18 to 30 months of age and random effects (i.e., subjects). This method allows missing data to be incorporated, and we conducted these analyses by use of PROC MIXED in SAS. Because only two time points were considered, it was not necessary to test alternative models. Results confirmed that mothers used more regulation strategies at younger ages, $F(1,29) = 11.43$, $p < .002$. In addition, mixed models revealed that mothers of 18-month-olds used fewer explanations than mothers of 30-month-olds, $F(1,17) = 18.08$, $p < .001$. There were no significant age differences in mothers’ use of distraction, soothing, granting the child’s wish, or questioning.