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Understanding Emotion Socialization Through Naturalistic Observations of Parent–Child Interactions

Objective: To describe children's emotion expressions, parent behavioral responses to their negative emotions, and children's subsequent emotional reactions.

Background: Past research typically has used questionnaires and structured laboratory studies to understand these constructs. The present study, by contrast, was designed to investigate how these behaviors unfold during families' everyday lives.

Method: Thirty-one families were recorded going about their daily lives as part of a larger study of the everyday lives of families; footage of a parent and target child (8–12 years of age) together on screen was divided into 30-second clips (N = 15,071). Children's expressions of positive and negative emotion were identified, and parent emotion coaching responses (those theorized to encourage emotion expression) and emotion dismissing responses (behaviors postulated to discourage emotion expression) to children's negative affective displays were coded.

Results: Multilevel modeling results indicated that children were more likely to react with

negative emotion following parents' critical statements and negative commands. However, parent ignoring increased the likelihood of positive or neutral emotional reactions.

Conclusion: Although sometimes classified as a dismissing response, parent ignoring may facilitate opportunities to practice emotion regulation.

Implications: These naturalistic observations can help to inform parent training programs about differential responses to children's expressions of negative affect.

The ability to express and regulate emotions and to decode emotion processes in others is a critical component of children's social and cognitive development as well as of their mental health. Inadequate development of these competencies places children at risk for developing both externalizing and internalizing disorders (Denham, 2007). These complex skills are acquired, in part, through repeated early experiences in the family environment (Repetti, Taylor, & Seeman, 2002), including through parent responses that communicate how emotions should be managed (Lunkenheimer, Shields, & Cortina, 2007). Parent responses to children's emotion expressions usually are studied under controlled conditions (Zahn-Waxler, 2010), but the correspondence between patterns observed in the laboratory and family behavior in everyday life remains an open

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question. The study described here offered a unique opportunity to address that gap in the research literature by recording emotion socialization as it naturally unfolds during everyday interactions between school-age children and their parents.

PARENT RESPONSES TO CHILDREN'S NEGATIVE EMOTIONS

Parents play an important role in school-age children's emotion socialization (Gentzler, Contreras-Grau, Kerns, & Weimer, 2005; McKee, Faro, O'Leary, Spratt, & Jones, 2015), and parent responses to young children's emotions predict children's emotional competence (Gentzler et al., 2005; Gottman, Katz, & Hooven, 1996). However, there has been only limited research investigating the immediate impact that specific parent responses have on children's affective experiences (Snyder, Stoolmiller, Wilson, & Yamamoto, 2003). It has been suggested that emotion expression is encouraged by behaviors that offer support and dampened by punishment or neglect of the emotion (Silk et al., 2011). Furthermore, researchers have posited that some parental responses to negative affect, such as anger, fear, and sadness, can reinforce negative emotions and, in turn, contribute to the development of psychopathology (Klimes-Dougan et al., 2007). Our study investigates parent responses that may help to shorten or prolong children's negative emotion expressions, particularly anger and sadness.

Parents' reactions to their children's emotions are shaped by their beliefs, feelings, and thoughts about emotions (Gottman et al., 1996). Gottman et al. (1996) have described two parenting metaemotion philosophies and the behaviors that correspond to them. An emotion coaching (EC) philosophy treats negative moods as an opportunity to teach coping skills by validating and labeling the distressing emotions and engaging children in problem-solving to handle the arousing situations. Validation of negative affect is believed to facilitate children's understanding and management of negative emotions (Wilson, Havighurst, & Harley, 2012). In contrast, an emotion-dismissing (ED) philosophy treats sadness and anger as potentially harmful states that should be minimized and the events or circumstances that gave rise to them as conditions that should be changed quickly (Gottman et al., 1996).

There are few direct observational studies of the frequency of parent EC and ED responses to children's emotions; instead, most of the research on this topic relies on parent questionnaire measures (Snyder et al., 2003). Two exceptions observed structured parent-child conversations and suggested that parents use a preponderance of EC responses during emotionally laden conversations in laboratory settings (Cassano & Zeman, 2010; Lunkenheimer et al., 2007). However, we do not know the extent to which those patterns are represented in less emotionally intense daily interactions with children.

There is evidence that parents' responses to emotion influence children's behavioral adjustment. One study of boys with disruptive behavior disorders found that when mothers provided more ED responses (e.g., dismissing statements and ignoring) during a structured conversation, their children were more likely to be rated by parents and teachers as showing callous-unemotional traits (Pasalich, Waschbusch, Dadds, & Hawes, 2014). The results of an intervention study that taught parents EC strategies, such as how to identify and empathize with children's emotions, suggest that changes in parent responses matter. After training, parents provided more EC responses, and there was a decline in children's behavior problems compared with a control group (Havighurst, Wilson, Harley, Prior, & Kehoe, 2010).

According to the theory behind parent metaemotion philosophy, ignoring and minimizing remarks are intended to diminish children's emotional experiences but actually end up exacerbating them (Gottman et al., 1996). However, there are other points of view about ED strategies. The parent training literature, which is based on social learning and operant conditioning theories (Kazdin, 1997), argues that children do not have the same immediate reactions to all dismissing behaviors. On the one hand, negative attention in the form of minimizing or punishing statements may inadvertently reinforce and increase the behavior (Pearl, 2009). Ignoring, on the other hand, may encourage children to try to develop self-soothing techniques instead of seeking parental attention in a maladaptive way.

The effect of an ED behavior may vary depending on the specific child emotion to which the parent is responding. Laboratory observations of the effects of different parent behaviors on 6-year-olds' anger displays were consistent with the idea that not all ED responses

have the same impact on children; the hazard rates of children's anger increased when children received verbally dismissive parent responses compared with when they received ignoring or validating responses (Snyder et al., 2003). A functionalist perspective on emotion suggests that emotion expressions serve specific goals, such as evoking particular responses from others. For example, children may exhibit sadness as a means of garnering support from caregivers and anger to communicate a desire to be left alone (Buss & Kiel, 2004). Translated into the terminology of meta-emotion philosophy, an EC response may be the aim of an expression of sadness, and ignoring, an ED response, may be the aim of an anger expression. Therefore, it may be important to consider the particular emotion that elicited a parental response to understand the child's subsequent emotional reaction.

Child and Parent Sex Differences

The gender of both the parent and the child also may influence emotion socialization interactions. A meta-analysis of 166 observational studies of school-age children's emotion expressions in structured situations concluded that girls are more likely to express positive and internalizing emotions (e.g., sadness, anxiety, and sympathy), and boys are more likely to exhibit externalizing emotions (e.g., anger; Chaplin & Aldao, 2013). There may be corresponding differences in how parents respond to sons' and daughters' emotion expression. Brody (1995) has suggested that, with the exception of anger, parents generally are more likely to support emotion expression in girls than in boys; however, they are more likely to attend to and reinforce boys' angry outbursts and to ignore girls' anger expressions. Differential responses to sons and daughters would be in line with Western societal norms that encourage boys to externalize and girls to internalize their distress (Chaplin & Aldao, 2013), and that pattern is supported both by observations of parent responses to boys and girls in the laboratory and by parent questionnaire data (Zeman, Perry-Parrish, & Cassano, 2010).

Researchers also have been interested in parent sex differences, but because fathers are absent from most emotion socialization studies, there have been few opportunities to compare their responses to mothers' responses.

Investigations that included both parents suggest that mothers are more likely to use or endorse using EC behaviors when faced with negative emotions, whereas fathers are more inclined toward ED behaviors (Blandon, 2015; Klimes-Dougan et al., 2007; Zeman et al., 2010). Similar parent sex differences were reported by college students when describing how their mothers and fathers had reacted to their expressions of emotion in childhood (Garside & Klimes-Dougan, 2002).

Most tests of parent sex differences in reaction to children's negative emotions are based on questionnaire data. A potential bias with this approach was highlighted in a study that compared parent self-reports with observations of their "coaching" and "dismissing" behaviors during a 3-minute discussion. No parent sex differences were evident during the discussion, but mothers reported more coaching responses on the questionnaires than did fathers (Baker, Fenning, & Crnic, 2011). The difference in results may raise questions about parents' abilities to accurately recall and summarize their behavior. At the same time, it is not clear how well laboratory paradigms represent the myriad real-life situations in which children express emotion while in the presence of their parents.

Present Study

The present study analyzes spontaneous interactions between parents and their 8- to-12-year-old children in everyday natural environments. Our primary goal is to describe three components of those interactions (a) children's emotion expressions, (b) parents' EC (i.e., reflective, supportive, and problem-solving statements) and ED behaviors (i.e., ignoring, minimizing or dismissing statements, critical statements, and negative commands) in response to the children's negative emotions, and (c) children's subsequent emotional reactions. We examine sex differences in children's emotion expressions and in parent responses. On the basis of prior research, daughters were expected to express more positive emotion and more sadness and sons to exhibit more anger. In addition, we expected mothers to provide more EC responses than fathers.

A second goal is to test for differences in the parental responses elicited by children's anger and sadness. According to a functionalist perspective (Buss & Kiel, 2004), child sadness was expected to elicit more EC than ED responses,

and anger was expected to elicit more ED than EC responses. We also examine whether parents' responses to anger and sadness differ for sons and daughters.

Third, children's emotional reactions to the different parent behavioral responses were examined in light of the distinction that the parent training literature makes between children's expected reactions to ignoring compared with other parent dismissing responses.

METHOD

This study describes children's expressions of emotion and parent behavioral responses in naturalistic recordings of families going about their daily lives. The recordings were collected as part of a broader investigation that included an intensive set of data collection procedures; family members were recorded by two videographers; completed questionnaires, diaries, and semistructured interviews; provided saliva samples on multiple occasions; and were observed in their homes by live researchers using scan sampling procedures (Ochs et al., 2006; Ochs & Kremer-Sadlik, 2013). Total compensation for all components of the study was \$1,000 per family. The analyses presented here focus on the subset of the data archive that is relevant to the specific aims of this study: the recordings of everyday family interaction. Before data collection, the study was approved by the local institutional review board, and parents' informed consent and children's assent were obtained.

Participants

Families in a major western metropolitan area of the United States with two cohabitating adults and two or three children living at home were recruited for a study of dual-earner, middle-class families. Fliers and newspaper advertisements were used to recruit a diverse sample of families with respect to both ethnicity and occupation (Ochs et al., 2006). All families held mortgages on their homes, and each adult in the household was employed at least 35 hours per week. One child, between the ages of 8 and 12 years, was designated as the target child.

This study focuses on a subset of data collected from 31 families, including two families headed by male same-sex couples. Video from an additional family with a child outside of the 8-to-12-year age range was used

to develop the coding systems. One parent in each of the same-sex couples was randomly chosen to assess father-child interactions. Thus, we analyzed data for 31 father-child dyads and 29 mother-child dyads.

The median age for both mothers and fathers was 42 years with a range of 29 to 50 years for mothers and 32 to 58 years for fathers. Participating families came from diverse ethnic and cultural backgrounds, such as White, Black, Latino, East Asian, South Asian, and multiracial. Approximately 33% of the families had at least one member who identified as an ethnic minority. Six families included one parent who immigrated to the United States, and in three families, both parents identified as having an immigrant status. The median family income was \$100,000 (range = \$51,000–\$196,000), and the majority (65%) of spouses had completed college. Three of the 31 target children were in second grade, 13 in third grade, nine in fourth grade, three in fifth grade, and three in sixth grade. Four families had children who were adopted. There were 17 male and 14 female target children, and their mean age was 9.4 years ($SD = 1.2$).

Procedure

Videotaping. Families were recorded by two videographers on 2 weekdays and 2 weekend days without any prompts for particular activities or interactions. On weekdays, filming began when the families awoke; stopped after parents and children left for work and school, respectively; resumed again at the first contact between a parent and child after work and school; and continued until children went to sleep. In addition, families were filmed on Saturday and Sunday mornings as well as Sunday evenings until the children went to bed (Ochs et al., 2006). There was one camera assigned to follow each parent, and videographers followed parents even when they left their homes (e.g., visits to relatives' homes or community settings). Wireless microphones recorded all dialogue no matter which way participants moved or turned; researchers did not need to hover near family members.

Data culling. The processing of the recordings began by applying a standardized, quantitative approach to the data that began by identifying moments of parent-child interaction captured in the more than 1,600 hours of naturalistic video

data. Every instance in which a target child appeared on screen with at least one parent for at least 30 seconds was culled from the archive; longer clips were broken down into 30-second segments. A 30-second duration was chosen as sufficient to capture meaningful interactions but short enough to describe with acceptable interrater reliability (Ray & Tickle-Degnen, 2004). From each family's pool of 30-second clips, we selected 1 weekday and 1 weekend day that maximized the number of available mother-child and father-child clips and coded a maximum of 200 clips for each parent-child dyad on each of those 2 days. This process resulted in a final archive of 15,071 coded video clips; the weekday sample consisted of 3,804 mother-child and 3,403 father-child clips, and the weekend sample consisted of 3,720 mother-child and 4,144 father-child clips. Children in our study were observed with a parent for between 52 and 399 minutes ($M = 498$ thirty-second clips per child; $SD = 181$). Clips for mother-child dyads ranged between 27 and 200 minutes ($M = 258$ clips, $SD = 86$) and for father-child dyads also ranged between 25 and 200 minutes ($M = 243$ clips, $SD = 107$). Considering only the 29 families with mothers, we found that on weekdays children were more likely to be captured on screen with their mothers ($M = 131$ clips) than with their fathers ($M = 108$ clips), $t(28) = 2.29$, $p = .030$, $d = 0.42$. There were no statistical differences in the mean number of mother-child and father-child clips on weekend days.

Coding of emotion expressions and parent responses. Coding for this study took place in two phases. The goal of the first phase was to isolate the parent-child clips in which the target child expressed positive or negative emotion. The second phase focused on the clips in which children expressed negative emotion; the intensity of the children's negative emotions, parents' responses to the negative emotions, and children's subsequent emotional reactions to their parents' responses were coded. To address the challenges of reliably coding naturalistic video, within each phase, we had two coders independently rate all of the video clips from each family (2 days of mother-child clips and 2 days of father-child clips). The coder pairs, which varied across families, met to resolve all differences in their ratings until complete interrater agreement had been achieved. When the pair could not agree about a code, the clip

was brought to the full coding team for review and resolution. Although only the agreed-on codes were used in the analyses, our estimates of interrater reliability are based on the independent ratings that coders provided before meeting to resolve differences. The variables included in this report achieved coder agreement levels of 80% to 96% and kappa scores in the .50 to .76 range, indicating moderate to substantial interrater reliability (Viera & Garrett, 2005). In some cases, a high percentage of coder agreement yielded a relatively low kappa value; those apparent discrepancies are explained by very low base rates (i.e., the expected probability of not observing the phenomenon was very high; Feinstein & Cicchetti, 1990).

Identification of child emotion expressions. A team of 19 coders was trained (on pilot video clips in which a parent and a nontarget child were copresent) to identify when a child expressed an emotion and the moment the emotion display began. There are no existing systems for coding child emotion from naturalistic recordings of families, so new methods were devised for this study (see Sperling & Repetti, 2012). Emotions included expressions of Ekman's (1992) six universal emotions; our unique coding system included display characteristics such as vocal tone, nonverbal movements, facial expressions, and verbal expressions. The full range of emotion intensity was included (e.g., both a subtle eye roll and a temper tantrum would be coded as a display of anger; a smirk and a fit of hysterical laughter both would be coded as a display of happiness). Children expressed any emotion in 6,251 clips (41% of all clips; 88% agreement, $\kappa = .74$). Positive emotions such as happiness (e.g., smiles and laughter) were coded in 5,016 clips (33% of all clips; 90% agreement, $\kappa = .76$) and negative emotion was coded in 1,665 clips (11% of all clips; 93% agreement, $\kappa = .64$). Negative emotions included expressions of anger (e.g., furrowed eyebrows or stomping one's feet; 94% agreement, $\kappa = .59$) and sadness (e.g., tearfulness and pouting; 96% agreement, $\kappa = .53$).

Emotion episodes. Clips in which the target child expressed a negative emotion advanced to a second phase of coding in which the unit of analysis switched from the 30-second clip to the "negative emotion episode." A few of the original 19 coders finished their coding obligations for that term, and new coders trained and

replaced them to sustain a total of 19 coders. The revised team of 19 coders was trained for this second coding phase. Episodes began with the onset of the emotion expression (identified in the first round of coding) and, as described subsequently, continued up to 40 seconds after the expression ended. There were more negative emotion episodes than emotion clips from the first phase of coding because multiple discrete expressions of negative emotion often were contained within a single 30-second clip. For each episode, the intensity of the child's initial negative emotion, the parent's behavioral response(s) to that emotion, and the child's emotional reaction to the parent's response(s) were described.

The intensity of the child's initially expressed negative emotion was rated on a 3-point rating scale (1 = *low intensity*, 2 = *medium intensity*, and 3 = *high intensity*). However, because highly intense expressions were rare ($n = 66$ across all dyads, days, and families), the ratings were reduced to a dichotomous rating. Low-intensity expressions were subtle or had only one observable form (e.g., furrowed brow). Medium- to high-intensity expressions received ratings of 2 or 3 or had two or more observable forms (e.g., frowned and whined; 80% agreement, $\kappa = .56$).

All parent behavioral responses within a window of 30 seconds that began at the end of the child's emotion expression were sorted into two broad categories: emotion coaching (EC) (88% agreement, $\kappa = .66$) and emotion dismissing (ED) behaviors (82% agreement, $\kappa = .61$). The EC responses included (a) reflective statements, such as "You're mad at me because I will not let you play for longer" (99% agreement, $\kappa = .56$); (b) problem-solving statements, such as "Can you think of a way that you both can play with the ball?" (99% agreement, $\kappa = .61$); and (c) supportive statements or behaviors, such as "You can do it; I know you can!" (88% agreement, $\kappa = .64$). Four ED behaviors were coded: (a) critical statements, such as "I'm getting tired of you" (90% agreement, $\kappa = .57$); (b) negative commands, such as "Stop shouting!" (91% agreement, $\kappa = .58$); (c) minimizing or dismissing statements, such as "You're fine; shake it off" (96% agreement, $\kappa = .50$); and (d) ignoring, which was coded whenever the parent had an opportunity to react but displayed no overt response, and whenever the parent abruptly changed the topic of conversation (85% agreement, $\kappa = .68$).

Our analyses exclude ($n = 394$; 19% of all episodes) all episodes in which the target parent did not have an opportunity to respond (e.g., the parent and child were on screen together but the parent could not see the child's emotion expression; 96% agreement, $\kappa = .60$), as well as those in which someone other than the target parent responded to the child's emotion, perhaps negating the need for the parent to respond (93% agreement, $\kappa = .67$). Cases in which the target parent offered more than one type of response in a single emotion episode ($n = 149$; 7% of all episodes) also were excluded. The final pool for analysis consisted of 1,580 negative emotion episodes ($M = 50.97$ per family, $SD = 48.49$, range = 1–224).

During a 10-second window that followed the parent's response, children's emotional reactions were coded as positive, negative, or neutral (i.e., no emotional reaction; 82% agreement, $\kappa = .58$). A single instance of a reaction of surprise was excluded from analyses. The intensity of positive and negative emotional reactions was scored in the manner described previously and, as noted earlier, ratings were dichotomized because of the low frequency of high-intensity ratings (total $n = 19$ across all episodes; low- versus medium- or high-intensity: 86% agreement; $\kappa = .68$).

RESULTS

Child Emotion in Everyday Family Life

Our first goal was to describe the frequency and intensity of child emotion behaviors, parents' behavioral responses to children's negative emotions, and child emotional reactions to each parent behavioral response. Descriptive statistics for each of these constructs are presented next.

Child emotion expressions. Children expressed emotion in 18% to 68% of their collection of 30-second parent-child clips ($M = 41\%$; $Mdn = 41\%$, $SD = 12\%$). The likelihood of expressing emotion did not differ statistically between boys and girls.

Positive emotions were expressed by children in 11% to 55% of their clips ($M = 32\%$ of all clips and 80% of emotion clips; $Mdn = 31\%$, $SD = 11\%$). To test the hypothesis that daughters would express more positive emotion, parent-child dyad sex differences in positive emotion expression were examined in a 2×2 analysis of variance (ANOVA; parent sex \times

child sex). A statistically significant main effect for child sex indicated that girls were more likely to express positive emotion ($M = 36\%$ of clips) than were boys ($M = 27\%$), $F(1, 56) = 7.83$, $p < .007$, partial $\eta^2 = .12$. Neither the main effect for parent sex nor the interaction between parent and child sex was statistically significant.

Negative emotions were expressed by children in 2% to 28% of their clips ($M = 11\%$ of all clips and 27% of emotion clips; $Mdn = 9\%$, $SD = 8\%$). Contrary to our expectation that sons would express more anger and daughters more sadness, there were no parent or child sex differences in how often children expressed negative affect. Children tended to express anger ($M = 8\%$ of clips, $Mdn = 6\%$, $SD = 6\%$, range = 1%–23%) about twice as often as they expressed sadness ($M = 4\%$ of clips, $Mdn = 3\%$, $SD = 4\%$, range 0%–6%). Dichotomized ratings of the intensity of expressions of sadness and anger indicated that negative emotions tended to be low to medium in intensity ($M = 1.36$, $SD = 0.20$), and there were no statistical differences between boys and girls or between weekdays and weekend days.

Parent behavioral responses. With negative emotion episodes ($n = 1,580$) as the unit of analysis, our data indicated that parents usually responded to children's negative emotions with ED responses ($M = 73\%$, $Mdn = 76\%$, $SD = 18\%$, range = 0% to 93%). Ignoring was the most common parent response to negative emotion ($M = 44\%$ of responses, $Mdn = 47\%$, $SD = 17\%$, range = 0%–71%), and this is how a majority (60%) of the ED responses were coded. The remaining three ED responses were observed less frequently: negative commands ($M = 13\%$ of responses, $Mdn = 14\%$, $SD = 9\%$, range = 0%–30%), critical statements ($M = 12\%$ of responses, $Mdn = 11\%$, $SD = 8\%$, range = 0%–33%), and minimizing or dismissing statements ($M = 4\%$ of responses, $Mdn = 3\%$, $SD = 5\%$, range = 0%–20%). EC responses were observed in 26% of the negative emotion episodes ($Mdn = 24\%$, $SD = 18\%$, range = 7%–100%); almost all of those were supportive statements ($M = 25\%$ of responses, $Mdn = 22\%$, $SD = 17\%$, range = 0%–100%). Reflective ($M = 1\%$ of responses, $Mdn = 0\%$, $SD = 2\%$, range = 0%–8%) and problem-solving ($M = 1\%$, $Mdn = 0\%$, $SD = 2\%$, range = 0%–7%)

statements were rare and are therefore dropped from all subsequent analyses.

We did not find that mothers were more inclined than fathers to provide EC responses; the only parent sex difference was a higher probability of negative commands by mothers ($M = 19\%$) than fathers ($M = 9\%$), $t(27) = 2.40$, $p = .024$, $d = .61$. A two-way (parent sex \times child sex) ANOVA yielded a statistically significant interaction between parent and child sex in the analysis of supportive statements, $F(1, 55) = 3.97$, $p = .051$, partial $\eta^2 = .07$, indicating that daughters were more likely to receive supportive statements from mothers ($M = 32\%$) than were sons ($M = 13\%$).

Children's emotional reactions. Children were most likely to display a neutral demeanor after their parents' responses ($M = 64\%$ of reactions, $SD = 23\%$), which may be expected given the mild intensity of most of the initial emotion expressions. Negative emotional reactions were observed in 29% ($SD = 21\%$) and positive emotional reactions were observed in 7% ($SD = 11\%$) of children's negative emotion episodes. Positive and negative emotional reactions generally were mild in intensity ($M = 1.25$, $SD = 0.18$). Two-way ANOVAs and independent-sample t tests uncovered no statistical differences between the reactions of boys and girls, mothers and fathers, or weekdays and weekend days.

Children's Emotions as Predictors of Parent Responses

Our second goal was to examine whether children's expressions of anger and sadness prompted different parent responses and whether the responses depended on parent and child sex. We expected that sadness would elicit more EC responses, and anger would be followed by more ED responses. Multilevel modeling (MLM) allowed us to analyze variance in the 1,580 negative emotion episodes, the unit of analysis coded for this study, while accounting for the nested structure of the data. In the models, which were tested with Stata Release 15 (StataCorp., 2017), episodes were nested within parent-child dyads (mother-child and father-child), which were nested within children. All of the variables in the models were scored dichotomously: The Level 1-dependent variable was a specific parent response in that

episode (e.g., ignoring; 1 = *that specific parent response*, 0 = *any other parent response*), and the two Level 1 predictor variables were the initial child negative emotion expression (0 = *sadness*, 1 = *anger*) and the intensity of that expression. Parent sex differences were tested at Level 2 (0 = *father*, 1 = *mother*), and child sex differences were tested at Level 3 (0 = *boy*, 1 = *girl*). Interactions between the specific emotion (anger vs. sadness) and each of the other predictor variables also were tested.

Results from the model testing supportive statements as the dependent variable are presented in Table 1. The overall model was statistically significant, $\chi^2(7) = 18.59$, $p = .010$, indicating that some variability in the observation of supportive statements was explained by the combination of predictor variables. The main effects for child initial negative emotion, initial negative emotion's intensity, and the interaction between the initial emotion and its intensity were not statistically significant. However, the main effect for child sex was statistically significant, indicating that girls were more likely than boys to receive supportive statements in response to their expressions of negative emotion, $B(29) = 0.66$, $p = .017$. There was no interaction between child sex and initial negative emotion. The main effect of parent sex was statistically significant: Mothers were less likely than fathers to make a supportive statement in response to a child display of negative emotion, $B(27) = -0.69$, $p = .009$. However, that finding was qualified by an interaction between parent sex and child initial negative emotion. Although, as already reported, there was no statistical difference between mothers' and fathers' propensities to respond to negative emotion with supportive statements, the interaction indicates that mothers were less likely than fathers to respond with supportive statements to expressions of sadness, but they were more likely than fathers to respond with support to an expression of anger, $B(1485) = 0.91$, $p < .001$.

When ignoring was the dependent variable, the overall model was not statistically significant, $\chi^2(7) = 12.05$, $p = .100$ (see Table 1). In this case, the main effect of the child's initial negative emotion was the only statistically significant predictor of ignoring behavior in this model; as expected, parent ignoring was more likely to be a response to an anger expression than to an expression of sadness, $B(1485) = 0.54$, $p = .045$. The MLMs testing the three verbally

Table 1. Multilevel Modeling Analyses for Child Negative Emotion Predicting a Parent Behavioral Response

Predictor variables	Model 1: Supportive ^a			Model 2: Ignoring ^b		
	<i>B</i>	<i>SE_B</i>	<i>p</i>	<i>B</i>	<i>SE_B</i>	<i>p</i>
Level 1						
Child initial negative emotion	-0.46	0.32	.159	0.54	0.27	.045
Child initial negative emotion intensity	-0.06	0.25	.801	0.36	0.22	.099
Child initial negative emotion × intensity	0.06	0.29	.846	-0.25	0.25	.314
Level 2						
Parent sex	-0.69	0.26	.009	0.04	0.22	.848
Parent sex × child initial negative emotion	0.91	0.29	<.001	-0.43	0.24	.072
Level 3						
Child sex	0.66	0.28	.017	-0.24	0.28	.390
Child sex × child initial negative emotion	-0.13	0.28	.649	0.12	0.24	.628

Note. *B* = coefficient of a fixed effect. Three-level models were tested with Stata Release 15 (StataCorp., 2017) to predict specific parent responses to children's initial expressions of anger versus sadness. Level 1 predictor variables were the child's initial negative emotion (0 = sadness; 1 = anger) and the intensity of the initial emotion (0 = low, 1 = medium/high). The Level 2 predictor variable was parent sex (0 = father; 1 = mother). The Level 3 predictor variable was child sex (0 = boy; 1 = girl). Predictor estimates have $df = 1485$, except parent sex ($df = 27$) and child sex ($df = 29$).

^a $\chi^2(7) = 18.59$, $p = .010$. ^b $\chi^2(7) = 12.05$, $p = .100$.

dismissive responses as outcomes did not yield any statistically significant results.

Parent Responses as Predictors of Children's Emotional Reactions

The third goal was to examine children's emotional reactions to the different parent responses. Again, the negative emotion episode was the unit of analysis in a series of MLMs; in this case, the dependent variable was the child's proximate emotional reaction (within a 10-second window) to the parent response. Because positive emotional reactions rarely occurred, the outcome

Table 2. Multilevel Modeling Analyses for Parent Responses Predicting Children's Negative Emotional Reactions

Predictor variables	Model 1: Supportive ^a			Model 2: Critical ^b			Model 3: Negative ^c			Model 4: Minimizing/ dismissing ^d			Model 5: Ignoring ^e		
	<i>B</i>	<i>SE_B</i>	<i>p</i>	<i>B</i>	<i>SE_B</i>	<i>p</i>	<i>B</i>	<i>SE_B</i>	<i>P</i>	<i>B</i>	<i>SE_B</i>	<i>p</i>	<i>B</i>	<i>SE_B</i>	<i>p</i>
Level 1															
Parent response	-0.41	0.33	.220	1.09	0.38	.004	1.72	0.35	<.001	0.95	0.63	.134	-1.48	0.29	<.001
Child initial negative emotion	-0.38	0.15	.011	-0.42	0.14	.004	-0.26	0.15	.082	-0.40	0.14	.004	-0.48	0.16	.003
Parent response × child initial negative emotion	-0.07	0.31	.815	0.03	0.36	.933	-0.50	0.33	.131	0.36	0.54	.504	0.34	0.28	.212
Level 2															
Parent sex	-0.00	0.18	.987	0.11	0.19	.549	0.01	0.18	.943	0.03	0.16	.874	-0.05	0.19	.784
Parent sex × parent response	0.11	0.29	.718	-0.63	0.34	.063	-0.14	0.33	.646	-0.53	0.58	.356	0.11	0.26	.669
Level 3															
Child sex	0.44	0.38	.251	0.47	0.38	.217	0.61	0.38	.105	0.48	0.37	.197	0.25	0.38	.502
Child sex × parent response	0.23	0.30	.445	0.12	0.34	.719	-0.62	0.33	.058	-0.26	0.54	.625	0.46	0.26	.079

Note. *B* = coefficient of a fixed effect. Three-level models were tested with Stata Release 15 (StataCorp., 2017) to predict children's negative emotional reactions to specific parent responses. Level 1 predictor variables were the child's initial negative emotion (0 = sadness; 1 = anger) and the parent's response to that expression (0 = the specific parent behavioral response of interest was not observed; 1 = the specific parent behavioral response of interest was observed). The Level 2 predictor variable was parent sex (0 = father; 1 = mother). The Level 3 predictor variable was child sex (0 = boy; 1 = girl). Predictor estimates have *df* = 1485, except parent sex (*df* = 27) and child sex (*df* = 29).

^a $\chi^2(7) = 13.32, p = .065$. ^b $\chi^2(7) = 36.76, p < .001$. ^c $\chi^2(7) = 56.91, p < .001$. ^d $\chi^2(7) = 17.28, p = .016$. ^e $\chi^2(7) = 66.84, p < .001$.

was scored as either 0 (*positive, neutral, or no emotional reaction*) or 1 (*negative emotional reaction*). The five specific parent behavioral responses—supportive statements, critical statements, negative commands, minimizing or dismissing statements, and ignoring—were tested as predictors in separate models. In each model, the three predictor variables tested at Level 1 were (a) the parent behavioral response (1 = that specific response, 0 = any other response), (b) the initial child emotion to which the parent was responding (0 = sadness, 1 = anger), and (c) the interaction between the specific parent behavioral response and child initial negative emotion. Parent sex was included at Level 2 and child sex at Level 3. Interactions between the parent behavioral response and the Level 2 and Level 3 variables (parent sex and child sex) also were tested. Results are reported in Table 2.

The overall model testing parent supportive statements, the primary EC behavior, as a predictor of children's negative emotional reactions was not statistically significant. However, the overall models for all four of the specific ED

responses were statistically significant, which suggests that parents' ED responses were associated with children's subsequent emotional reactions. Recall that we were interested to see whether all ED responses elicited negative emotional reactions or if ignoring would have a different impact compared with verbally dismissive responses. There was an increased likelihood of an immediate negative emotional reaction following parents' critical statements, $B(1485) = 1.09, p = .004$, and negative commands, $B(1485) = 1.72, p < .001$, but the main effect for minimizing or dismissing statements as a Level 1 predictor was not statistically significant. However, consistent with the parent training literature, ignoring was more likely to predict a positive or neutral emotional reaction, $B(1485) = -1.48, p < .001$. The main effect for initial child negative emotion was a statistically significant predictor in four of the five models; in these models, sadness was more likely than anger to be followed by a negative emotional reaction. The Level 1 interaction between the child's initial emotion and the

parent's behavioral response was not a statistically significant predictor in any of the models; nor were the main effects of parent and child sex, or any of their interactions with the parent behavioral responses.

An additional correlational analysis was conducted with the dyad as the unit of analysis to test associations between parent responses and children's emotional reactions. Across all of a dyad's emotion episodes, we computed the proportion of parent responses represented by each specific behavior (e.g., proportion of all responses that were negative commands) and the proportion of negative emotional reactions displayed by the child. None of the correlations were statistically significant.

DISCUSSION

A research literature built on self-reports and observations of behavior in controlled situations has revealed much about children's emotions and parents' responses to them, but conclusions based solely on those approaches may not adequately reflect the behavior that children typically exhibit and, therefore, the responses they receive in their daily lives (Bai, Repetti, & Sperling, 2016). This naturalistic observational study helps to bridge a gap in our understanding of school-age children's spontaneous emotion expressions in family settings and parents' reactions to expressions of negative emotion. More than 15,000 video clips in which a parent and target child appeared on screen together were coded and analyzed to achieve a fly-on-the-wall perspective on emotion socialization practices as they spontaneously unfold in families. Child displays of negative emotion were fairly rare, mild, and short-lived. In this context, the most common parent response was to ignore the negative affect, which increased the likelihood that the child would switch to a neutral or positive expression. This contrasts with parents' verbally dismissive responses, such as critical statements and negative commands, which were more likely to be followed by children's negative emotional reactions.

Children's Expressions of Emotion in the Family

Children expressed emotion in fewer than half of the clips; when they did display affect, it was positive more than three quarters of the time.

As expected, the girls in our study expressed positive emotion more often than did the boys. Unlike child emotion expressions in structured settings, however, the boys did not show more anger or fewer expressions of sadness than did girls (Chaplin & Aldao, 2013). Perhaps boys' and girls' negative emotion expressions are more similar when children are in the comfort of their own homes. Interestingly, there were no differences in rates of emotion expression when children were with mothers versus when they were with fathers. Following parents' responses to initial negative emotion displays, children usually had a neutral demeanor, which speaks to the brief duration of most of the negative affective episodes that we observed. However, when children did emotionally react to a parent's response, the reaction typically had a negative valence, and it was more likely to follow initial expressions of sadness than anger.

Parent Responses to Children's Negative Emotion

Researchers sometimes ask parents how they respond to their children's negative emotions and group their descriptions into "coaching" and "dismissing" behaviors. However, past research has indicated that it may be worthwhile to investigate how specific parent responses in each of those categories uniquely affect children (Snyder et al., 2003). Unlike laboratory studies, in which a preponderance of parent responses to children's emotionally salient experiences are coaching behaviors (Cassano & Zeman, 2010; Lunkenheimer et al., 2007), in our study we found that, in the face of predominantly mild expressions of negative emotion, ignoring was the modal parent response. When a parent responded verbally to the child's negative emotion, supportive statements (EC responses) were most common. Many episodes that accounted for the verbally dismissive responses consisted of children complaining about not wanting to do chores, such as clean their rooms. For example, in response to a child whining that he did not understand his math homework, his mother responded with the negative command, "Think about it!" With the exception of mothers' greater use of negative commands, mothers and fathers generally responded in similar ways to children's negative emotions. Previous analyses of the video dataset have shown that, compared to fathers, mothers spent more time engaged

in chore-like activities and less time in leisure activities at home; in particular, they were more often observed supervising children's homework (Broege, Owens, Graesch, Arnold, & Schneider, 2007; Saxbe Repetti, & Graesch, 2011). Mothers may have provided more negative commands because they were more involved in overseeing children's completion of daily tasks.

The rate of parent directives and other verbally dismissive responses to negative emotion was matched by the rate of supportive statements, but reflective and problem-solving statements, other EC responses and strategies that typically are encouraged by parent training programs (Webster-Stratton, 1994), were rare in this study. Parents were more likely to offer supportive statements to girls' negative emotions, which is consistent with research indicating that most emotions are more likely to be encouraged in daughters than in sons. A supportive response is illustrated by a father's offer of sympathy by saying, "Sorry, sorry" after his daughter yelled while he was trying to help her comb tangles out of her hair. We did not find support for the idea that parents are more inclined to ignore daughters' expressions of anger (Brody, 1995). Instead, our finding concerning supportive statements seems more in line with male and female college students' retrospective descriptions of their childhoods (Garside & Klimes-Dougan, 2002).

It is reasonable to wonder about the effects of the cameras on the participants' behavior. Our impression is that these busy two-earner families had to get on with their lives and quickly accommodated to the unusual circumstances. Of course, questions about possible observer effects can only be addressed in comparison to other methodologies. It is a simple matter to indulge self-presentation biases in questionnaire or interview studies (e.g., circling a number on a response scale to present the family in a particular way), but much more challenging to respond in real time to actual behavior and emotion expressions in a manner that is not natural. The controlled and time-limited circumstances of typical laboratory observational studies may be more likely to elicit behavior outside of participants' norms compared with behavior while engaged in daily routines and responding in the moment to several others (Gardner, 2000). The extended period of observation in the larger study on which this analysis was based (i.e., more than 40 hours of recordings per family) and

the many ongoing activities and demands—such as homework, meal preparation and clean up, bills and other paperwork, phone calls, getting ready for school and work, sports and other after-school activities—surely impeded any attempt to continually monitor and edit behavior to conform to some unnatural standard. Thus, even relatively intrusive naturalistic observational techniques have advantages over other methods commonly used to assess parenting behavior (Repetti, Reynolds, & Sears, 2015; Sears, Repetti, Reynolds, & Sperling, 2013).

Links Between Parents' Responses and Children's Negative Emotional Reactions

Although we did not observe supportive statements having the encouraging effect on children's emotion that is sometimes predicted by an EC philosophy (Gottman et al., 1996), ED responses were linked with children's emotional reactions. At the episode level, a parent's *verbal* ED response was more likely to be followed by a child's negative emotional reaction than by a positive or neutral one. As suggested by the parent training research literature, verbally dismissing responses may inadvertently reinforce children's emotion expression and exacerbate their affective experiences (Anastopoulos, Shelton, DuPaul, & Guevremont, 1993). This was illustrated by an interaction in which the child was sad about her loose tooth and declared "It is," to insist that it really was loose. When the mother responded with "Shh," the daughter reacted negatively by putting her mouth in front of the mother's face, raising her voice, and saying, "Look!"

Whereas verbal ED responses seemed to have prolonged the expression of negative affect and attention-seeking, children who were ignored were more likely to switch to a neutral or positive state. For example, after a mother interrupted her son's play by asking him what he wanted to eat, he raised his voice with an irritated tone and said, "Mac cheese or chicken nuggets!" The mother started to talk to her daughter, and the son returned to playing with a neutral demeanor. Although sometimes classified as a dismissing response, parent ignoring may provide children with opportunities to practice managing mild feelings of anger and sadness independently and to develop emotion regulation skills. Research indicates that parents' responses predict young children's emotional competence (Gentzler

et al., 2005; Gottman et al., 1996) and contribute to mental health (Klimes-Dougan et al., 2007). Therefore, the short-term associations observed in this study may have long-lasting impacts.

Clinical Implications

The spontaneous family interactions that we observed suggest that children predominantly experience negative affect as mild, short-lived states, which are less intense than those that are elicited by most laboratory paradigms or that are the focus of questionnaire measures. These are the primary affective experiences that provide children with opportunities for emotion regulation and socialization and can be used as a foundation for prevention and intervention programs. This study suggests that when children experience mildly intense negative emotions, it may be beneficial for parents to ignore these expressions and provide children with opportunities to practice self-regulation skills. By working through their reactions to everyday stressors with their families, children fine-tune skills that help them navigate social conflicts and stress management, which they can apply to interactions outside of the home (Repetti & Robles, 2016). EC responses may be more appropriate when children experience intense emotions and benefit from validation as well as assistance in regulating their emotions. In these instances, dismissing responses may be harmful and, in the long term, contribute to internalizing and externalizing problems (Klimes-Dougan et al., 2007). Therefore, it may be useful for parent training programs to teach parents how to respond differentially to children's mild and intense expressions of negative affect.

Limitations and Future Directions

The richness of naturalistic observations, a primary strength of this study, imposed limitations. To address the challenge of achieving high interrater reliability, we built redundancy into the system by having two people independently rate each clip and then jointly resolve any coding differences so that the final data set reflected 100% interrater agreement. Another example is that the intensity of the video recording protocol constrained the number of participants. The enhanced statistical power that would have

been afforded by a larger sample of families might have allowed tests of individual, family, and group differences. For example, there may be differences in the responses of biological parents versus stepparents and among families from different social classes as well as different ethnic or cultural groups. Collection of self- and parent-report data in addition to naturalistic recordings may be able to offer additional insight into emotion socialization processes among families.

In addition, future research would benefit from examination of the specific context in which the child expresses negative emotion. For example, child anger in the context of misbehavior may be more likely to prompt an ED response, but an expression of anger while the child describes being mistreated by a peer may be more likely to elicit a validating EC response. The presence of siblings and the public versus private nature of the setting are two other (among many) factors that may shape parent behavior and could be included in analyses of naturalistic data. Finally, the ubiquity and power of parent ignoring suggest that future laboratory investigations should include conditions that do not compel verbal responses from parents. Such studies could begin to delineate the circumstances under which parents refrain from acknowledging or actively responding to their children's negative emotion displays and investigate how those responses may impact children's behavior.

Despite its limitations, this study represents one of the first explorations of parents' responses to school-age children's spontaneous emotion expressions in everyday life. Our naturalistic observational study of emotion socialization practices revealed that children's displays of negative emotion were fairly infrequent, brief, and mild in intensity. Parents most commonly responded to these expressions by ignoring them, which increased the likelihood that the child would switch to a neutral or positive expression. In contrast, parents' verbally dismissive responses were more likely to be followed by children's negative emotional reactions. When supportive responses were observed, they were more likely to be offered to daughters than to sons. More naturalistic research on parents' responses to children's negative emotions could help to refine parent training programs that aim to facilitate boys' and girls' emotional development.

AUTHOR NOTE

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