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Parental communication about emotional contexts: Differences across discrete categories of emotion

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Abstract

Parent socialization of emotion is critical for children's emotional development. One mechanism through which parents socialize emotional understanding is in their conversations about emotions with their children. Previous research has investigated parent-child discourse about emotions differing by positive and negative valence. This study examined how parents communicated about and differentially emphasized elements of discrete emotion contexts (anger, sadness, disgust, fear, joy). Caregivers described images of emotional contexts to their 18-month-old or 24-month-old infant. Findings indicated that parents talked more about sadness images than joy images. Furthermore, parents mentioned the emoter more in anger and sadness contexts and talked about the referent more in disgust, fear, and joy contexts. Parents also posed more questions to female than male infants, particularly when discussing anger, sadness, and disgust images. No age differences were observed for any measure. These findings provide new insight into how parents talk about and highlight aspects of discrete emotional contexts.

KEYWORDS

emotion, parent communication, socialization

1 | INTRODUCTION

Emotions provide information about the relationship of individuals with their environment. For example, appropriately engaging with a fearful individual involves coordinating attention not only to the fearful individual (i.e., the emoter), but also to the fear-eliciting stimulus (i.e., the referent). Thus, appreciating emotional contexts entails more than personal experience or perception of emotional signals; it involves understanding the relational significance of specific aspects of the emotional context and allocating attention accordingly (see Barrett & Campos, 1987; Walle, Reschke, & Knothe, 2017).

Learning to attend to relevant aspects of emotional contexts (e.g., the emoter, the referent) is a fundamental characteristic of emotional development (e.g., Baldwin & Moses, 1996). One mechanism through which children learn about emotions is by interacting with their caregivers (Eisenberg, Cumberland, & Spinrad, 1998). Adult communication about emotions helps guide the child's attention to particular aspects of emotional contexts (Thompson, 2006), thereby facilitating appropriate attention and responding. Examining how parents guide their children's attention to elements

of discrete emotion contexts has important implications for understanding parental socialization practices that contribute to infant's social and emotional development. The present study explored this topic by observing how parents discuss and highlight specific contextual elements as a function of discrete emotions.

2 | PARENT-CHILD CONVERSATIONS ABOUT EMOTIONS

Parents increase their use of mental state language across infancy and early childhood (Beeghly, Bretherton, & Mervis, 1986). Research examining parent emotion and mental state talk indicates important differences evident in the second year of life that are associated with concurrent (e.g., Drummond, Paul, Waugh, Hammond, & Brownell, 2014; Hornik & Gunnar, 1988) and downstream developmental outcomes (e.g., Denham, Zoller, & Couchoud, 1994; Dunn, Brown, & Beardsall, 1991). Parent talk about emotion and mental states has been linked with a range of concurrent social skills, such as prosocial behaviors at 18- and 30-months of age (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013), 3- and 5-year-olds emotional competence and theory of mind (LaBounty, Wellman, Olson, Lagattuta, & Liu, 2008; Racine, Carpendale, & Turnbull, 2007; Ruffman, Slade, & Crowe, 2002), and preschoolers' emotional understanding (Garner, Jones, Gaddy, & Rennie, 1997). Furthermore, the quality of such parent talk differs across child gender. Parents more frequently engage in emotion and mental state talk with daughters than sons, a finding observed in children ranging in age from 18 months to 5.5 years (e.g., Adams, Kuebli, Boyle, & Fivush, 1995; Drummond et al., 2014; Kuebli & Fivush, 1992). This disparity may help account for subsequent gender differences in emotional awareness (e.g., Feldman Barrett, Lane, & Schwartz, 2000) and regulation (e.g., McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). Thus, studying parent emotion talk, particularly in the second year of life, provides an important window into emotional development. However, this research has suffered from a critical limitation: collapsing all emotion categories together and not examining differences between emotion categories. Examining such differences is essential for understanding how infants and children develop distinct emotion categories and how parents may differentially emphasize particular aspects of specific emotions.

A longitudinal study by Lagattuta and Wellman (2002) provides evidence of possible differences between emotions. The investigators examined parent-child conversations about positive and negative emotions longitudinally from 2- to 5-years of age. Results indicated that parent-child conversations about negative and positive emotions differed in quality, but not in frequency. Specifically, in comparison to positive emotions, parent talk about negative emotions included larger emotion vocabularies, more frequent talk about the past, more mentioning of emotion causes, increased talk about other people, and more questions. These differences were present in 2-year-olds and became increasingly pronounced after the age of three.

Though informative, the above study only examined differences in parent talk by the valence (i.e., positive, negative) of emotion. However, a valence-based approach precludes a full understanding of the development of discrete categories of emotion (Walle & Campos, 2012). A recent study by Walle, Reschke, Camras, and Campos (2017) found that infants demonstrate distinct behavioral responses to discrete emotions gradually between 16 and 24 months of age. For example, 24-month-old infants were less likely to explore a referent when an experimenter expressed disgust than when she expressed sadness, and were more likely to socially avoid an *emoter* when she expressed anger than when she expressed sadness, fear, or disgust (16- and 19-month-old infants did not demonstrate these differences in responding). Examining how parents talk with their infant about discrete emotions during the second year of life, particularly at 18- and 24-months of age, may help elucidate the ontogeny of such differential responding to specific aspects of emotional contexts. The present study examined differences in the amount of parent talk and questions posed across discrete emotion contexts. Additionally, given the qualitative differences in relational significance across discrete emotion contexts, we further examined how parents differentially directed attention to specific aspects of discrete emotional contexts.

3 | ATTENTIONAL ALLOCATION TO EMOTIONAL CONTEXTS

Although previous research has not examined how parents discuss discrete emotion categories with their children, theoretical and empirical studies of individuals' responding to specific emotions point to some likely distinctions. Indeed,

Barrett and Campos (1987) suggested differences between those emotions deemed relevant for one's survival (i.e., disgust and fear), which focus on a stimulus, and those more closely linked with social communication (i.e., anger and sadness), which focus on the self or a social partner. Work with adults provides evidence for differential allocation of attention to people and objects across different contexts as measured by both self-reported areas of interest and verbal descriptions (McIntyre & Graziano, 2016), though the authors did not specifically manipulate the discrete emotions in the images.

This is not to suggest that particular emotions are *either* about the referent *or* the emoter; rather, we posit that specific emotions differentially privilege attention to these aspects of the emotional context in order to facilitate the co-ordination of adaptive responding. Thus, these two elements provide a point of entry for examining possible differences in parent talk about discrete emotions. Below we provide evidence for discrete emotions that we propose are likely to be *emoter-focused* and those likely to be *referent-focused*.

3.1 | Emoter-focused emotions

Some emotional contexts are likely to draw one's attention to the individual expressing the emotion (i.e., the emoter) so as to coordinate an adaptive response to that person. Two emotions for which this may be the case are anger and sadness. For example, 18-month-old infants who witness an adult react angrily to the actions of another are less likely to repeat the action in the presence of the angry individual, but do not necessarily avoid the object that was acted on (Repacholi, Meltzoff, & Olsen, 2008). Similarly, observing an individual expressing sadness often elicits infant prosocial behavior towards the emoter (e.g., hugging the experimenter, giving her a toy), not the source of the distress (e.g., the destroyed drawing) (e.g., Brownell et al., 2013; Spinrad & Stifter, 2006; Svetlova, Nichols, & Brownell, 2010; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Such behaviors necessitate that the infant increase attentional focus to the emoting individual, not necessarily the object related to the emotion (e.g., the anger-eliciting action or sadness-inducing event). Such responses suggest that individuals may allocate more attention to the emoter in both anger and sadness emotional contexts.

3.2 | Referent-focused emotions

Other emotional contexts may direct one's attention and responding to the referent of the emotion. Research on responses to disgust and fear contexts provide evidence that individuals are likely to focus more attention on the disgusting or fearful referent than the person displaying the emotion. Disgust motivates individuals to avoid illness and disease-causing substances (see Oaten, Stevenson, & Case, 2009) and such avoidant behavior in response to disgust stimuli is observable in 2.5-year-olds (Stevenson, Oaten, Case, Repacholi, & Wagland, 2010). Likewise, 14-month-old infants explore a toy significantly less following an adult's fear display towards the object (Walden & Ogan, 1988), and work on the visual cliff demonstrates that 12-month-old infants appreciate the target of a caregiver's fear (i.e., the drop-off) and modify their behavior in relation to the referent accordingly (e.g., Sorce, Emde, Campos, & Klinnert, 1985). Furthermore, a recent study by Vaish, Grossman, and Woodward (2015) in which an adult communicated a blend of fear and disgust towards a referent resulted in infants being less likely to hand that object to a different, non-emoting adult. Thus, disgust and fear contexts likely increase one's attention towards the disgust- or fear-eliciting stimulus.

3.3 | What about joy?

Research is mixed with regard to how attention may be allocated to joy contexts. Infants demonstrate increased proximity to and exploration of positively labeled objects (Carver & Vaccaro, 2007; Hertenstein & Campos, 2004; Hornik, Risenhoover, & Gunnar, 1987) and reference the emoter less if she communicates positive affect (Moses, Baldwin, Rosicky, & Tidball, 2001). However, infants also prefer to look at individuals expressing a positive emotion than a negative emotion (Grossmann, Striano, & Friederici, 2007) and adults are more likely to affiliate with individuals perceived as happy (for a review, see Lyubomirsky, King, & Diener, 2005). Additionally, in the aforementioned study by Vaish

et al. (2015), infants who observed an adult emoter positively towards an object were not more likely to give this object to a different adult. Thus, it is unclear how individuals may differentially direct attention to the emoter and referent in joy contexts.

4 | CURRENT STUDY

The above review demonstrates that parent talk about emotions with their children is an important context for exploring early emotional development. Furthermore, the literature suggests some likely differences in how parents may discuss particular emotions with their children, as well as possible gender differences in such conversations. However, research on this topic has only focused on emotion valence (i.e., negative vs. positive), ignoring the qualitative differences between discrete emotions.

The present study investigated how parents differentially discuss discrete emotional contexts (anger, sadness, disgust, fear, and joy) in a picture book task. Eighteen- and 24-month-old infants were included because infants in this age range demonstrate an emerging appreciation for discrete emotions (see Walle, Reschke, Camras, et al., 2017) and this is a period of considerable emotional development (see Walle & Campos, 2012). Amount of parent talk about the emotional contexts was predicted to increase with infant age (e.g., Lagattuta & Wellman, 2002). Additionally, and in accordance with prior research, we predicted that parents would talk more to girls than to boys about the emotional contexts (e.g., Drummond et al., 2014; Kuebli & Fivush, 1992).

Our specific predictions regarding parent talk about discrete emotional contexts were three-fold. Firstly, we predicted that parents would mention the *emoter* more when describing anger and sadness contexts than fear and disgust contexts. Secondly, we predicted that parents mention the *referent* more when describing fear and disgust contexts than anger and sadness contexts. No a priori predictions were made for joy contexts. Thirdly, we predicted that parents would pose more questions to their infant about negative emotional contexts than positive emotional contexts.

5 | METHOD

5.1 | Participants

Thirty-nine infant-parent dyads (37 mothers) completed the study. Infants were divided into 2 age groups: 18-month-olds ($n = 20$, 11 female; $M_{\text{age}} = 18.69$, $SD = 0.62$) and 24-month-olds ($n = 19$, 10 female; $M_{\text{age}} = 23.88$, $SD = 1.38$). An additional 9 dyads took part in the study but were excluded due to technical malfunction ($n = 1$) or infant fussiness ($n = 8$). Participants were recruited from the California San Joaquin Valley. The majority of families had an income between \$25,000 and \$40,000 (range: less than \$25,000–\$120,000). Infant reported ethnicity was 67% Latino and 33% Non-Latino. Dyads spoke in either English ($n = 27$) or Spanish ($n = 12$), whichever language the parent was most comfortable speaking.

5.2 | Materials

5.2.1 | Stimuli

A custom-made word-less picture book was comprised of ten 8" × 10" photographs. Each image depicted an emotional scene featuring a single emoter (a male or female child) posturally and facially displaying one of five discrete emotions (anger, sadness, disgust, fear, joy), and a clear, familiar referent related to the emotion (e.g., a piece of broccoli, a spider, a puppy). Affective expressions were consistent with previous research on emotional displays (e.g., Ekman, Friesen, & Ellsworth, 1972). All emotion images were of normal, everyday intensity—no gruesome (e.g., amputation images) or obscene (e.g., fecal matter, racial prejudice) images were included. The images were identified from the Internet by a trained researcher and selected to be similar with respect to the emoter and referent in each context. Sample images from the picture book are provided in Figure 1. Descriptive information regarding the size of the



FIGURE 1 Sample images from the picture book activity (from upper left: anger, disgust, joy, fear). All images were presented in random order, with exception that the same emotion was not repeated sequentially

emoter (facial area) and referent (object area) in each image and a description of each image are provided in the Appendix (see Tables A1 and A2).

5.2.2 | Stimuli validation

A separate sample of 77 adult participants (37 female; $M_{\text{age}} = 19.97$, $SD = 1.66$) validated each of the picture book images. Raters viewed the complete image and identified the emotion expressed by the child in each image from a list of 6 emotions (anger, sadness, disgust, fear, joy, and surprise) and an open-ended 'other' option. Answers to the other option that fit within an emotion family (e.g., happy, frustrated, scared, afraid) were collapsed into the aforementioned emotion categories; otherwise they were retained as 'other' and counted as disagreement. Percentage agreement (i.e., identifying the intended emotion for the image) and Fleiss' kappa values were used as convergent means for validating emotional stimuli (e.g., de Gelder & Van den Stock, 2011). The overall agreement for the target emotion (i.e., the intended emotion of the image) was 91% (Anger = 84%, $k = 0.89$; Sadness = 98%, $k = 0.97$; Disgust = 97%, $k = 0.96$; Fear = 80%, $k = 0.86$; Joy = 94%, $k = 0.96$).

5.3 | Procedure

Each dyad participated in a single lab visit lasting approximately 15–30 min. Upon arrival, a trained researcher provided an overview of the procedures to the parent. After all questions were answered, parents were asked to complete consent documents and a demographic questionnaire. While the parent completed these forms, the child engaged in a short warm-up period during which s/he played with toys in the room with a second researcher.

5.3.1 | Picture book activity

The parent was asked to describe the picture book to their child. The 10 images were randomly ordered with the exception that the same two emotions were never displayed in succession. The child was seated on the parent's lap or next to the parent on a couch. Parents were instructed to describe each image to their child as if it were a separate story and progress through the book at their own pace. The picture book activity lasted an average of 3.80 minutes ($SD = 1.35$). A video camcorder on a tripod recorded all verbal and non-verbal behaviors.

5.4 | Coding

Trained researchers transcribed verbatim all English and Spanish verbalizations by the parent during the picture book activity. A primary coder then counted the frequency of parent word types and specific verbalizations of interest (see below). A secondary coder was used to code 25% of the transcripts. Pearson's correlation coefficients of inter-rater agreement for the frequency of each variable are reported below, along with corresponding mean difference statistics and limits of agreement (LOA; see Bland & Altman, 1986).

5.4.1 | Parent words

The number of on-task words (i.e., words pertaining to each image) spoken by the parent (reliability: $r = .95$, $M_{\text{difference}} = -0.27$, $SD_{\text{difference}} = 3.56$, 95% CI $[-7.39, 6.85]$, LOA = ± 7.12). Talk relating to off-task topics (e.g., the parent promising the child a trip to the store after the visit), attempts to obtain the child's attention, or responses to the child's fussiness were excluded from the total amount of parent words.

5.4.2 | Emoter

Parent on-task words referring to the individual displaying the emotion in each image (reliability: $r = .83$, $M_{\text{difference}} = -0.24$, $SD_{\text{difference}} = 1.21$, 95% CI $[-2.66, 2.18]$, LOA = ± 2.42). Words indicating the emoter included, but were not limited to: *he, she, him, her, boy, and girl*.

5.4.3 | Referent

Parent on-task words referring to the object or situation towards which the emotion was directed in the image (reliability: $r = .81$, $M_{\text{difference}} = -0.07$, $SD_{\text{difference}} = 1.28$, 95% CI $[-2.63, 2.49]$, LOA = ± 2.56). Words indicating the referent included but were not limited to: *green juice, broccoli, dog, puppy, ice cream, spider, and homework*.

5.4.4 | Emotion label

Parent on-task words that labeled the target emotion or related emotion terms (reliability: $r = .81$, $M_{\text{difference}} = -0.10$, $SD_{\text{difference}} = 1.03$, 95% CI $[-2.16, 1.96]$, LOA = ± 2.06). Words indicating the target emotion for anger (e.g., mad, frustrated), sadness (e.g., depressed, down, blue), disgust (e.g., gross, yucky, icky), fear (e.g., afraid, scared, frightened), and joy (e.g., happy, joyful) were coded as labeling the emotion.

5.4.5 | Parent questions

Parent questions about each image were coded ($r = .97$, $M_{\text{difference}} = -0.19$, $SD_{\text{difference}} = 0.57$, 95% CI $[-1.33, 0.95]$, LOA = ± 1.14). Only questions in reference to the picture book (e.g., is he sad or happy that his ice cream fell?) were counted. Questions that were rhetorical (e.g., she is mad, huh?) or unrelated to the page (e.g., you want your snack?) were excluded.

6 | RESULTS

6.1 | Analytic strategy

Parent communication was analyzed separately for each of the above variables using mixed linear models with a compound symmetry covariance structure.¹ We present results by emotion valence (*positive*: joy; *negative*: sadness, fear, anger, disgust) and discrete emotion category; the former was included to accommodate comparison with prior research and the latter that was of central interest to the study. Analyses of the independent variables were conducted with the following models in Statistical Package for the Social Sciences, Version 23.

The analysis of parent words included Picture Emotion and Infant Gender as main effects, as well as Trial Number to control for fatigue, Language Spoken (i.e., English or Spanish), Infant Age, and Family Income. Analyses of specific word/verbalization types (i.e., emoter, referent, emotion labels, parent questions) included main effects

of Picture Emotion and Gender, as well as Parent Words to control for parent verbosity, Trial Number, Language Spoken (i.e., English or Spanish), Infant Age, and Family Income. Additionally, analyses examining parent mentioning of the emoter or referent included the size of the respective element in the image to control for differences across images in the size of the specific element (i.e., size of the emoter or the referent). Zero-order correlations revealed that neither mentioning of the emoter and emoter size ($r = -.08, p = .12$), nor mentioning of the referent and referent size ($r = -.03, p = .56$) were significantly correlated. However, the respective sizes accounted for some of the variance in the emoter and referent models, and were thus included in the models as control variables (see Supporting Information Tables S2 and S3).

Results for analyses by emotion valence include the unstandardized regression coefficients and corresponding means and SDs of each valence. The main effects (i.e., Discrete Emotion and Gender) for the discrete emotion category models are presented with corresponding standardized effect sizes (η^2) in the text. Additionally, each model also included pairwise comparisons for significant main effects and included a Bonferroni correction. Results with adjusted p values are displayed below, as well as in Table 1. Results from the full models including all variables of interest (i.e., Emotion, Gender) and control variables (i.e., Trial, Page Words, Language Spoken, Infant Age, Family Income) are presented in Supporting Information Tables S1–S5. In addition, the random effects for each model is reported in Supporting Information Table S6 and the -2 log restricted likelihood estimates of the full models in comparison to empty models is reported in Supporting Information Table S7.

6.2 | Parent words

6.2.1 | Emotion valence

Parents used more words when describing negative emotion contexts ($M = 32.38, SD = 18.38$) than positive emotion contexts ($M = 27.97, SD = 15.42$), $F(1, 321) = 8.52, p = .004, b = 4.66, SE = 1.60$. However, no effect of infant gender was present, $F(1, 32) = 0.001, p = .98, b = 0.12, SE = 5.05$.

6.2.2 | Discrete emotions

The analysis of Parent Words revealed a significant main effect of Picture Emotion, $F(4, 318) = 3.09, p = .02, \eta^2 = 0.04$. However, Parent words did not differ by Infant Gender, $F(1, 32) > 0.00, p = .98, \eta^2 > 0.00, b = 0.10, SE = 5.05$.

Pairwise comparisons examined differences in Parent Words between discrete emotional contexts. Parents used significantly fewer words in describing Joy images than images depicting Sadness, $t(318) = 3.27, p = .01, d = .37$.

6.3 | Emoter

6.3.1 | Emotion valence

Parents mentioned the emoter significantly more often when describing negative emotion contexts ($M = 4.27, SD = 2.89$) than positive emotion contexts ($M = 3.56, SD = 2.43$), $F(1, 322) = 4.99, p = .03, b = .65, SE = 0.29$. However, no effect of infant gender was present, $F(1, 32) = 0.54, p = .47, b = 0.49, SE = 0.67$.

6.3.2 | Discrete emotions

Analysis of parent mentioning the emoter revealed a significant main effect of Picture Emotion, $F(4, 317) = 28.05, p < .001, \eta^2 = 0.26$, but not Infant Gender, $F(1, 30) = 2.02, p = .17, \eta^2 = 0.06, b = 0.47, SE = 0.33$.

Pairwise comparisons were conducted to examine differences in mentioning the emoter across discrete emotions. Parents referred to the emoter significantly more often for Anger images than images depicting Disgust, $t(316) = 5.92, p < .001, d = .68$. Fear, $t(318) = 9.15, p < .001, d = 1.01$, and Joy, $t(315) = 5.20, p < .001, d = .72$. Additionally, parents referred to the emoter significantly more often for Sadness contexts than contexts of Disgust, $t(317) = 4.45, p < .001, d = .64$, Fear, $t(315) = 8.25, p < .001, d = .92$, and Joy, $t(319) = 3.95, p = .001, d = .66$. Parents also referred to the

TABLE 1 Observed means and standard deviations of each main variable across discrete emotions

Variable	Anger	Sadness	Disgust	Fear	Joy
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Total words	30.32 (17.09)	33.97 _J (16.94)	32.52 (19.67)	32.71 (19.80)	27.97 _S (14.42)
Emoter	5.14 _{D**} F _{**} J _{**} (3.11)	5.36 _{D**} F _{**} J _{**} (2.98)	3.64 _{A**} S _{**} F _{**} (2.36)	2.92 _{A**} S _{**} J _{**} D _{**} (2.30)	3.56 _{A**} S _{**} F _{**} (2.43)
Referent	1.49 _{D**} F _{**} J _{**} (1.27)	2.59 _{D**} F _{**} J _{**} (2.08)	3.47 _{A**} S _{**} (2.72)	3.64 _{A**} S _{**} (2.63)	3.08 _{A**} S _{**} (1.89)
Emotion labels	1.82 _{J**} (1.61)	1.66 (1.26)	1.71 _J (2.01)	1.55 (1.32)	1.03 _{A**} D _* (0.97)
Parent questions					
Male infants	1.40 _{Fe*} (1.61)	1.39 _{Fe*} (1.96)	1.24 _{Fe**} (1.26)	1.65 (1.87)	1.76 (1.46)
Female infants	2.28 _{Ma*} (2.27)	2.46 _{Ma*} (2.25)	2.95 _{Ma**} (3.17)	2.26 (2.41)	2.44 (2.27)

Note. Observed means with standard deviations in parentheses. Letters next to each mean (S = sadness, F = fear, A = anger, D = disgust, J = joy) designate which pairwise comparisons were significantly different (* = $p < .05$, ** = $p < .01$). For example, parents labeled the emotion significantly more in Anger contexts than in Joy contexts. For parent questions, differences in the vertical subscripts next to each mean (Ma = male infants, Fe = female infants) designate which pairwise comparisons were significantly different by gender (* = $p < .05$, ** = $p < .01$). For example, parents asked significantly more questions to female infants than male infants when discussing Anger contexts.

emoter significantly more often for Disgust than Fear, $t(316) = 3.69, p = .003, d = .31$, and for Joy than Fear, $t(318) = 4.27, p < .001, d = .27$.

6.4 | Referent

6.4.1 | Emotion valence

Parents did not differ in their mentioning the referent when describing positive emotion contexts ($M = 3.08, SD = 1.89$) than negative emotion contexts ($M = 2.80, SD = 2.40$), $F(1, 323) = 0.51, p = .48, b = 0.20, SE = 0.27$, and no effect of infant gender was present, $F(1, 32) = 0.001, p = .98, b = 0.01, SE = 0.44$.

6.4.2 | Discrete emotions

Analyses examining differences in parent mentioning the emoter revealed significant main effects of Picture Emotion, $F(4, 320) = 21.67, p < .001, \eta^2 = 0.2$. No significant effects were present for Infant Gender, $F(1, 32) = 0.001, p = .98, \eta^2 < .001, b = 0.005, SE = 0.17$.

Pairwise comparisons examined differences in parent mentioning of the referent between discrete emotions. Parents talked about the referent significantly more often for Disgust images than Anger, $t(320) = 4.88, p < .001, d = .93$, and Sadness images, $t(320) = 4.06, p < .001, d = .36$. Additionally, parents talked about the referent significantly more often for Fear images than Anger, $t(319) = 7.46, p < .001, d = 1.04$, and Sadness, $t(319) = 4.70, p < .001, d = .44$. Parents talked about the referent significantly more in Joy images than in Anger, $t(320) = 6.74, p < .001, d = .99$, and Sadness, $t(322) = 3.97, p < .001, d = .25$.

6.5 | Emotion labels

6.5.1 | Emotion valence

Parents labeled the emotion significantly more often when describing negative emotion contexts ($M = 1.68, SD = 1.58$) than when describing positive emotion contexts ($M = 1.03, SD = 0.97$), $F(1, 322) = 13.41, p > .001, b = 0.61, SE = 0.17$. However, the effect of infant gender was not significant, $F(1, 32) = 3.24, p = .08, b = 0.51, SE = 0.29$.

6.5.2 | Discrete emotions

Examination of parent use of emotion labels revealed a significant main effect of Picture Emotion, $F(4, 318) = 3.39, p = .01, \eta^2 = 0.04$, but no significant effect of Infant Gender, $F(1, 31) = 3.53, p = .07, \eta^2 = 0.10, b = 0.51, SE = 0.27$.

Pairwise comparisons indicated that parents labeled the emotion significantly more often for Anger images than Joy images, $t(317) = 3.18, p = .02, d = .6$, and for Disgust images more often than Joy images, $t(318) = 2.90, p = .04, d = .43$.

6.6 | Parent questions

6.6.1 | Emotion valence

Parents asked as similar number of questions to their infant when describing positive emotion contexts ($M = 2.12, SD = 1.95$) and negative emotion contexts ($M = 1.98, SD = 2.24$), $F(1, 314) > 0.001, p = .99, b = 0.004, SE = .23$. However, a trending effect of infant gender was present, $F(1, 31) = 3.38, p = .076, b = 0.90, SE = 0.35$, with parents posing slightly more questions to girls ($M = 2.48, SD = 2.49$) than to boys ($M = 1.48, SD = 1.64$). Closer examination using pairwise comparisons indicated that parents asked more questions about negative emotions to girls ($M = 2.49, SD = 2.54$) than to boys ($M = 1.42, SD = 1.68$), $t(34) = 2.56, p = .015, d = .50$, but the differences between positive emotions was not significant (Girls: $M = 2.44, SD = 2.27$; Boys: $M = 1.76, SD = 1.46$), $t(87) = 1.14, p = .26, d = .36$.

6.6.2 | Discrete emotions

The total number of parent questions across discrete emotions was analyzed. The main effect of Picture Emotion was not significant, $F(4, 310) = 0.92$, $\eta^2 = 0.01$, $p = .46$. However, a significant main effect of Infant Gender was present, $F(1, 31) = 5.72$, $p = .02$, $\eta^2 = 0.16$, $b = 0.88$, $SE = 0.37$, with parents asking more questions to girls ($M = 2.48$, $SD = 2.49$) than to boys ($M = 1.48$, $SD = 1.64$).

Analyses also examined whether this gender difference in parent questions was present across emotion contexts. Pairwise comparisons revealed that parents asked significantly more questions to female infants than male infants for Disgust, $t(84) = 3.48$, $p < .001$, $d = .71$, images, and trending differences in the same direction were present for Anger, $t(83) = 1.91$, $p = .06$, $d = .45$, and Sadness, $t(85) = 1.73$, $p = .09$, $d = .51$. However, no gender differences were found for Fear, $t(86) = 0.90$, $p = .37$, $d = .28$, and Joy, $t(86) = 1.14$, $p = .26$, $d = .36$.

7 | DISCUSSION

This study found that parents differentially emphasized aspects of emotional contexts as a function of the emotion when describing emotion contexts to their 18- or 24-month-old infant. Although these differences were present between positive and negative valence of emotion, the analyses comparing discrete emotion categories provided important nuance to more clearly interpret the results (a point elaborated upon below). The total amount of parent talk to their infant varied across discrete emotion categories, with parents talking more about sadness contexts than contexts of joy. Parent emotion labeling also differed across emotion contexts, with joy being labeled significantly less than anger and disgust contexts. Further examination of what parents discussed with their infant revealed several noteworthy distinctions between discrete emotions. In line with our predictions, parents mentioned the emoter significantly more often when discussing anger and sadness contexts than disgust, joy, and fear contexts, with fear being lower than all other emotions. Conversely, parents talked about the referent more in disgust, fear, and joy contexts than in sadness and anger contexts. These differences in parent talk about discrete emotions mirror some findings of infant behavioral responses to such contexts, specifically infants' physical avoidance of disgust referents, engagement with sad emoters, and social avoidance of angry emoters (Walle, Reschke, Camras, et al., 2017). However, it should be emphasized that although the frequency of parents' mentioning the emoter and the referent varied across discrete emotions, this does *not* signify that parents talked exclusively about one element or the other. Emotions are relational, and thus parent mentioning of *both* the emoter and referent (as well as other aspects of the context) should be expected so as to communicate the relational elements of the emotional context.

Additionally, parents asked more questions to girls than boys, particularly when discussing anger, sadness, and disgust contexts. Previous research indicates that parents initiate and elicit more conversations about emotions and mental states with daughters than sons (Drummond et al., 2014; Dunn, Bretherton, & Munn, 1987). The use of questions may be one way to engage in such discussions. However, and contrary to our predictions, no other gender differences were present for any of the other variables of interest. Previous research indicates that parents reminisce about past events and talk more about anger with their sons than their daughters (Fivush, 1989) and talk more about sadness with daughters than with sons (Fivush, Brotman, Buckner, & Goodman, 2000). However, gender differences may be dependent on the types of conversations and contexts in which the conversations occur (Fivush, 2007), and also the age of the child, which may account for the relatively few gender differences in the present study.

Surprisingly, how parents talked about discrete emotions with their 18- and 24-month-old infants did not differ for any of the observed variables. These findings are somewhat discrepant with those by Lagattuta and Wellman (2002), who found an increase in the quantity of negative emotion talk with infant age, though the authors also reported a lack of age differences in quality of talk about negative and positive emotions. The difference in results across studies may stem from the ages tested or methodology employed (e.g., at home recordings vs. a semi-structured picture book activity).

7.1 | The value of examining discrete emotion categories

The present investigation extends our understanding of how parents talk about emotions with their children, which to date had only examined differences by emotion valence. The results clearly demonstrate the added value of analyzing discrete emotion categories. Consider the discrepancy in results between valence and discrete emotions for parent questions. While the valence analyses indicated that parents directed more questions to girls than to boys, the discrete analyses provided a much clearer picture, indicating this gender difference was specific to anger, sadness, and disgust, but not fear. Moreover, collapsing across discrete negative emotions hid some meaningful differences between discrete emotions. Specifically, mentioning the referent was higher for fear and disgust than for anger and sadness. However, analyzing this variable by valence resulted in a similar combined average for negative and positive valence, as combining the two high and two low negative emotions washed out the effect.

Given the importance of parent-child discussion of emotions (see Thompson, 2006), the observed differences between discrete emotions likely plays an important role in fostering children's emotional development. Parents in the current study showed differences in how they talked about discrete emotions to their infants, and infants in the present study were younger than most previous work on this topic. Such findings indicate that this differential parental talk about emotions may be a socialization process present early in development.

Infant exposure to talk about emotions is related with their emotional understanding (Garner et al., 1997) and socioemotional development (Laible & Song, 2006), and influences their responding to others' emotions (e.g., Newton, Goodman, & Thompson, 2014). Parent focusing of attention towards the emoter or the referent when discussing discrete emotions may foster adaptive attentional allocation by the infant when confronted with emotion contexts. For example, increased parent focus on the emoter in sadness contexts may influence infant's prosocial responding to sad individuals whereas focus on a disgusting referent may result in physical avoidance of the object. Further study of how parent talk about discrete emotions corresponds with differential behavioral responding to such emotions (Walle, Reschke, Camras, et al., 2017) can inform our understanding of how parent socialization of emotion corresponds with infant functional affective responding (see Walle & Campos, 2012). More broadly, considering qualitative differences in the value and function of discrete emotions will sharpen our focus on how socialization practices, such as parent talk about emotions, facilitate emotional development.

7.2 | Limitations and future directions

The above findings suggest a number of important considerations and directions for future research. Firstly, although this study used carefully selected images with strict criteria for inclusion, further standardization of images is desirable. Specifically, the images used varied slightly with regard to the size of and distance between the emoter and the referent, the corresponding background scene, and the level of concreteness of the referent (e.g., a sad girl on a phone may provide a less concrete referent than a boy disgusted by a green drink). Although we controlled for differences in the size of the emoter and referent in our analyses, the use of more standardized images (e.g., full bodied emoters, white backgrounds) would help to further address this issue.

Secondly, additional paradigms are needed to assess attentional allocation to emotion contexts. Examining children's own verbal descriptions of emotion contexts would help clarify whether the descriptive patterns of the parent transfer to their child. Additionally, although previous research has demonstrated coherence in individuals' online processing and verbal descriptions as measures of attentional allocation (McIntyre & Graziano, 2016), we cannot say with certainty that verbal descriptions by the parent and child mirror differences in the real-time processing of specific contextual elements (e.g., emoter, referent). Measuring eye gaze patterns to aspects of emotional contexts would provide a convergent research operation to further examine attentional allocation to discrete emotion contexts. Moreover, this methodology would allow greater flexibility in the ages that could be tested, particularly preverbal infants. For example, examining young infants' visual patterning to discrete emotions could tease apart evolutionary vs. socialization factors of observed differences of attentional allocation. Future research could also examine infant behavioral responding to specific aspects of discrete emotional contexts (e.g., avoiding the emoter vs. avoiding the referent) to

instantiate how differential attentional allocation is utilized to co-ordinate adaptive responding. Furthermore, one could examine differences in how specific aspects of emotional contexts are remembered (e.g., the fearful stimulus over the fearful person; the angry person over the source of anger).

Finally, and perhaps most intriguing, is studying differences in parent directing of child attention to aspects of emotional contexts as a function of the cultural and family context. Culture influences how emotions are experienced and perceived (e.g., Markus & Kitayama, 1991; Matsumoto, 1993), and may affect how individuals attend to elements in emotional contexts (e.g., Masuda et al., 2008) and the socialization practices that direct infant attention (e.g., Friedlmeier, Corapci, & Cole, 2011; Wang & Fivush, 2005). Although the majority of participants in this study (67%) identified as Latino, examining cross-cultural differences was not an intended aim. Cultural differences may exist in the quantity of emoter or referent labels for discrete emotions, as well as the quality of these verbalizations, such as highlighting these elements in isolation or in relation with one another (e.g., Masuda & Nisbett, 2001; Wang & Fivush, 2005). For example, consider this parent's description: 'Oh, look at this boy! He's got such a sad look on his face and look why. He's spilled his ice cream. It's down there; his ice cream fell and he's sad'. The parent is not simply pointing out the boy and the ice cream, but is emphasizing both the physical and mental relations between the two elements in the emotional context. Research examining such aspects would further delineate the development and manifestation of attentional allocation to emotional contexts. Moreover, considering differences across discrete emotions rather than merely emotional valence will elucidate important distinctions in how emotional development varies across cultures and contexts.

ENDNOTE

¹ Comparison of fit indices (i.e., AIC and BIC) of various covariance structures (i.e., compound symmetry, compound symmetry heterogeneous, Toeplitz, diagonal, and unstructured) revealed that a compound symmetry covariance structure was best suited for the data.

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

TABLE S1 Mixed model for parent words

TABLE S2 Mixed model for parent mentioning the emoter

TABLE S3 Mixed model for parent mentioning the referent

TABLE S4 Mixed model for parent labeling the emotion

TABLE S5 Mixed model for parent questions

TABLE S6 Random effects estimates for repeated measures models

TABLE S7 Two Restricted log likelihood of full and empty models

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APPENDIX

TABLE A1 The size(cm) of the emoter and the referent in each image

	Male		Female	
	Emoter	Referent	Emoter	Referent
Anger	72.50	62.50	22.50	102.00
Sadness	13.50	5.00	159.50	22.50
Disgust	63.00	21.00	56.00	51.50
Fear	4.00	131.25	210.38	67.50
Joy	104.50	180.00	104.00	76.50

TABLE A2 Descriptions of each image included in the story book task

Image emotion	Child emoter gender	
	Male	Female
Anger	<p>Boy seated at a table with his left hand holding his head up and his elbow on the table. His angry face is directed towards the camera. There is a book in front of him and his right hand holds a pencil. Image captures the tabletop and the upper portion of the child. The background is white.</p>	<p>Girl has both hands on her hips and is standing behind a large suitcase. Her angry face is directed towards the camera. The image captures the girl's full body. The background is white.</p>
Sadness	<p>Boy at amusement park. His face is expressing sadness and directed towards his hands that hold an empty ice cream cone. The dropped ice cream is located in front of his right foot in the bottom left of the image. The image captures the full body of the boy and an out of focus rollercoaster is in the background.</p>	<p>Girl is holding a phone to her ear with her right hand. Her face is downcast and expressing sadness. The image captures her shoulders to the top of her head. The background is white.</p>
Disgust	<p>Boy is holding a green smoothie away from himself with his right hand. His disgusted face is directed towards the drink. The image captures the boy from the waist up. The background is white.</p>	<p>Girl is holding a broccoli floret in front of her face with her right hand. Her disgusted face is directed towards the broccoli floret that she is holding. She is seated at a table that holds a plate of broccoli. The image captures the table and the upper body of the child.</p>
Fear	<p>Boy in a sparsely decorated room standing on a chair against a wall. His hands are on either side of his face, which is expressing fear towards a Great Dane dog near his feet. The dog is gazing at the child's face in a non-aggressive manner. The dog is located near the middle of the image and the boy is to the left of the dog.</p>	<p>Girl is backing away with mouth open. Her fearful face is directed towards a spider held by a pair of hands coming off the right of the image. The image captures the girl above the torso and the entire spider, and has a white background.</p>
Joy	<p>Boy holding a present with both hands. His right hand is hidden behind the box. His happy face is directed towards the camera. The image captures the child's torso and above. The background is white.</p>	<p>Girl holding a puppy. She is kneeling down with her arms around the puppy. Her body and face are directed towards the camera with a clear smile. The image captures the entire body of the girl and puppy. The background is an out-of-focus room.</p>