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Quantity and Valence of Early Parent Emotion Talk: Influences on Child Emotion Language Use and Adolescent Emotional Intelligence

By

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Abstract

Early parent-child emotion talk is one way children learn about emotions. In the present study, I explored whether individual differences in the quantity and valence of early parent emotion talk influenced children's use of emotion language. I also examined the relationship between individual differences in the quantity and valence of early parent emotion talk and children's later performance on a test of emotional intelligence. In addition to these two primary research questions, I inquired whether a child's gender affects the quantity and content of a caregiver's use of emotion talk. Natural language data from 31 children and their primary caregiver(s) was recorded at home in unstructured observations when the children were 14, 34 and 58 months old. Recordings were transcribed and coded for positive and negative valence emotion talk. Findings indicated that parents' and children's use of emotion talk positively correlated during the 34-month visit. When terms were averaged across the three visits to test for the effects of emotion valence, parents' use of positive emotion talk positively correlated with children's use of positive emotion talk and parents' use of negative emotion talk positively correlated with children's use of negative emotion talk. It was also found that parents' use of positive emotion talk positively correlated with children's scores on a test of emotional intelligence administered in the ninth grade. No gender differences in the frequency or valence of emotion talk between parents of daughters and parents of sons were found.

Introduction

Intelligence is a cornerstone of early development. When discussing children's intelligence, psychologists traditionally frame the construct in terms of cognitive intelligence. Broadly defined as a measure of an individual's capacity for complex cognitive processing and intellectual functioning (Brody, 1992), cognitive intelligence and cognitive development are highly related, especially in the first five years of life (De Ribaupierre & Lecerf, 2017). During this developmental period a child metamorphoses from a neonate consisting of a handful of reflexes to an individual who can problem solve, understand cause and effect relationships, make and execute plans, and remember facts and events (Aki, 2006). Past research has also extensively documented the relationship between cognitive intelligence and cognitive development and the quantity and quality of child-directed speech by caregivers. For instance, a significant body of research has found that the language young children are exposed to at home relates to vocabulary acquisition (Rowe, 2013), academic performance (Rowe et al., 2012), math skills (Gunderson & Levine, 2011), and spatial reasoning (Gentner et al., 2013). Together, these findings highlight the crucial role of cognitive intelligence as an apt predictor of academic achievement and the role of early language exposure in this process.

However, traditional conceptions of cognitive intelligence cannot fully describe an individual's intellectual capabilities. In addition to cognitive intelligence, emotional intelligence (EI) has also been found to correlate with positive academic outcomes (MacCann et al., 2020) and career success (Garcia & Costa, 2013). EI is defined as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer 1990, p. 189). Higher EI in children is associated with an increased ability to pay attention and later academic success (Raver et al., 2007). Higher

EI in children is also associated with more positive peer relationships, greater empathy, and later interpersonal success (Rivers et al., 2007). Conversely, behavior dysregulation in childhood and mood disorders (e.g., depression, anxiety) in adolescence are related to lower EI (Shonkoff, 2000). EI in children and adolescents has been largely assessed using self-report measures such as the "Bar-On Emotional Quotient Inventory: Youth Version (Short)" (Bar-On EQ-i:YV(S); Bar-On & Parker, 2000). According to the authors, the test comprehensively assesses youths' understanding of emotion states, their ability to empathize with others, and their ability to adapt to new environments (Bar-On & Parker, 2000). The Bar-On measure of EI is comprised of four core elements: intrapersonal capacities, adaptability, interpersonal capacities, and stress management. Taken together, these abilities are highly predictive of academic achievement and social success.

Like intelligence, language acquisition is not limited to any single domain of development. In addition to being a cognitive process, language learning also has a social-emotional component. Caregivers directly and indirectly use discursive means to guide children's emotional understanding and experience in everyday informal talk (Schiffrin & Ochs, 1986). Children's understanding of emotion is therefore socially shaped through culturally located meaning systems and vocabulary (Lutz, 1985). Emotion theorists hypothesized that acquiring this vocabulary may be an important element in emotional development (Hoemann et al., 2019; Shablack et al., 2019; Shablack & Lindquist, 2019). One hypothesis is that caregivers' use of emotion talk with young children positively relates to children's emotion word use and their ability to understand emotion concepts (Dunn & Brown, 1994). Emotion talk is here defined as verbal communication that refers to an emotion (e.g., happy, sad, angry) or emotion related behavior (e.g., cry, whine). For the purposes of this paper, I will use the terms emotion

talk and emotion language—words that describe an emotion—interchangeably. Also, feeling-state language—words that describe affect or mood (e.g., shy, bored, cranky)—and emotion language will not be treated as distinct categories.

Research on children's early acquisition of emotion labels and concepts has often focused on the description of normative feeling-state language development (Ridgeway et al., 1985; Wellman et al., 1995). A smaller body of research has explored individual differences in children's acquisition of emotion language and their understanding of emotion concepts (Denham, 1986; Dunn & Brown, 1994; Dunn, Brown, & Beardsall, 1991; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991). These studies contend that exposure to emotion language at home is an important source of early emotion language acquisition and emotion concept understanding.

Children's first exposure to emotion talk generally occurs at home, in the context of their relationships with their parents or primary caregivers. Research suggests that parents begin speaking to their children about emotions during infancy (Malatesta & Haviland, 1982). These early verbal interactions may lay the foundation for the development of children's later emotion language acquisition and conceptual understanding of emotion (Hoemann et al., 2019). Some studies on the normative development of emotion language in young children suggest that toddlers begin to use basic emotion-state language (e.g., sad, happy, mad) around their second birthday (Bartsch & Wellman, 1995; Dunn et al., 1987).

Meanwhile, older toddlers' (24-36 months) emotion language use suggests a relatively skilled understanding of emotion states. For instance, older toddlers are able to discuss emotions in terms of past and future events and can accurately refer to simple causes and consequences of emotion states (Bretherton et al., 1986; Dunn, Brown, & Bearsdall, 1991). Around this time,

children are also capable of using emotion vocabulary in reference to others, in addition to themselves (Dunn et al., 1987; Ridgeway et al., 1985), and can use emotion talk in the context of pretend play (Dunn et al., 1987). Older toddlers also begin to use emotion language to tease siblings and manipulate or influence the behavior of others (Dunn et al., 1987; Wellman et al., 1995). These developments support the data which suggest that by their third birthday children can comprehend that emotions are internal states, distinct from their antecedents or consequences (Wellman et al., 1995).

Importantly, at this developmental stage, not only are children acquiring emotion state language, they are also gaining insight into the nature of emotional processes (Dunn et al., 1994). At this point in development, children also begin to understand that emotions can be regulated and that expressions of emotion can be controlled (Bretherton et al., 1986). In addition, some preschoolers begin to recognize that the same event may be appraised in different ways by different people (Bartsch & Wellman, 1995; Wellman et al., 1995). There is also a growing awareness among children at this stage that emotions may have an influence on behavior long after the affective experience (Wellman et al., 1995). Especially noteworthy with regard to language learning, preschoolers begin to differentiate between similar valence emotions. That is, children begin to "differentiate within the broad feels-good and feels-bad categories" (Widen, 2013, p. 76). Toddlers rely on the words "happy" and "sad" (or "mad," in some cases) to describe all pleasant and unpleasant feelings. By five, children use a broader range of words to describe emotion states and can verbally and perceptually differentiate between same valence emotions (e.g., sad and scared, happy and excited; Widen, 2013; Widen & Russell, 2008).

The quantity and quality of language children are exposed to at home plays a significant role in children's emotional development. Past studies on individual differences in caregivers'

use of emotion state language have demonstrated a positive relationship between parental use and young children's own speech about emotions (Brown & Dunn, 1996; Cervantes & Callanan, 1998; Denham & Aurbach, 1995; Dunn et al., 1991). For instance, research suggests that the frequency of children's emotion talk covaries with the use of feeling-state language by mothers and older siblings (Dunn et al., 1987). Other data on caregivers' conversations about affect contend that children's recognition and understanding of emotion increases with increased maternal discussion of feeling-states (Denham et al., 1992; Dunn et al., 1991). For example, emotion perspective-taking skills positively correlate with family discussions about feeling-states (Dunn et al., 1991). Preschoolers who were exposed to more feeling-state language at home showed an increased ability to make correct judgments about the emotions of others three years later (Brown & Dunn, 1996). Similarly, preschoolers who reported that their parents discussed emotions with them were rated as exhibiting more prosocial behavior by teachers (Denham, 1997) and rated as being more popular among their peers (Laird et al., 1994). Collectively, these data support the theory that children's EI may be related to their exposure to emotion talk in the home.

In addition to parental propensity to use emotion language, children's gender can also play a role in the quantity and manner of caregiver's emotion talk. For example, Dunn et al. (1987) found that mothers and older siblings made more references to feeling states when talking to daughters than sons and that this increase positively correlated with girls use of emotion talk. Similar findings were observed by researchers who followed a group of children from 40 to 70 months. Parents of 40-month-olds discussed a greater quantity and range of emotions with girls than boys. By 70 months, the girls' verbal references to emotions had nearly quadrupled, while the boys' emotion language stayed about the same (Kubeli & Fivush, 1992). Another study

found that mothers' discussed sadness more with daughters and anger and disgust more with sons (Fivush, 1989). Moreover, discussions between mothers and daughters focused on the feeling-state itself, while mothers were more likely to emphasize the cause and effect of emotions with sons (Cervantes & Callanan, 1998; Fivush, 1989), suggesting that the emotional lives of girls and boys may be socialized in different ways beginning in the early stages of development.

Notably, most of the literature reviewed on the topic of parents' and children's use of emotion language was published over 20 years ago. More recent research on the topic of language's effects on socioemotional development in early childhood has focused on subjects such as mental state language (i.e., language about desires, emotions, and beliefs; Tompkins et al., 2018), the development of theory of mind (De Rosnay et al., 2014), and recognition of facial expressions of emotions (Widen, 2013). Much of the research that is most relevant to the current study on parent-child emotion talk was conducted in the 1980s and 1990s.

Significantly, few studies, past or present, have examined differences between emotional valence (i.e., the positive or negative character of an emotion) in parent-child emotion talk. Although, there is some precedent for doing so. Longitudinal research by Lagattuta and Wellman (2002) indicates that parent-child conversations about negative emotions involve a more extensive emotion vocabulary, more open-ended questions, and more discussion about others and past emotions. They also found that discourse about negative emotions involves more references to the causes of emotions and more connections made between emotions and other mental states. Similarly, a study by Fivish and Wang (2005) provides evidence that when reminiscing about the past, mothers and children use a wider variety of negative emotion words than positive emotion words. Conversely, when directed at the child, frequent hostile negative

parental emotion talk may be associated with lower socioemotional functioning and emotion understanding in children (Dunn & Brown, 1994; Eisenberg et al., 1998). Thus, the context of negative valence parental emotion talk appears to make a considerable difference in whether or not it will be positively associated with children's socioemotional development.

The present study provides a singular opportunity to explore the use of valence in naturalistic emotion talk with a sample of children who have been studied longitudinally from the time they were 14 months old through their adolescence. To my knowledge, no other study of early emotion talk has followed its toddler subjects beyond age six (Brown & Dunn, 1996). Further, unlike much of the research on early emotion language, this study uses data from natural speech samples rather than maternal self-assessments of emotion language use and includes subjects from diverse backgrounds. This study will also be among only a handful to specifically analyze the use of emotional valence in the context of caregiver-child emotion talk. This emphasis on valence may have implications for future interventions in the area of early childhood emotional development, especially EI.

In the present study, I explore whether individual differences in early parent-child emotion talk influence children's use of emotion language. Specifically, I will analyze data from natural speech samples recorded during home visits. These samples were gathered over three time periods: when the children were 14 months, 34 months, and 58 months old. I will inquire whether parents' use of emotion talk at the 14-, 34-, and 58-month visits relate to the children's use of emotion language at the 34- and 58-month visits. In doing so I will be replicating studies by Cervantes et al. (1991) who found that parent emotion talk correlated with child emotion talk measured at the same time point and Dunn et al. (1987) who found that parent emotion talk correlated with child emotion talk at a later time point. I will not measure children's use of

emotion language at the 14-month visit because of their limited capacity for expressive verbal language. In this study I will also examine the relationship between early individual differences in parental emotion talk and children's later performance on a test of EI (Bar-On EQ-i:YV(S); Bar-On & Parker, 2000). In addition to these two primary research questions, I inquire whether a child's gender affects the quantity and content of caregiver emotion talk.

In order to quantify parent-child emotion talk, I will code emotion words in the child-directed speech of caregivers. I will also examine the valence of the emotion words. In emotion research, valence refers to whether an emotion state is favorable/desirable, positive valence (e.g., happy, excited), or unfavorable/undesirable, negative valence (e.g., sad, angry). As demonstrated in the above review, research suggests that studying parent-child emotion talk provides important information about children's emotional development and valence may be an important factor.

My predictions regarding parent-child emotion talk are threefold. First, parents' use of emotion talk during the first visit (14-month-old), the middle visit (34-month-old), and the third visit (58-month-old) will positively correlate with children's use of emotion talk during the middle visit and the third visit. Specifically, parents' use of emotion talk will correlate with children's use of emotion talk at the same time point and parents' use of emotion talk will correlate with children's use of emotion talk at a later time point. Second, parents' use of emotion talk will positively correlate with children's scores on a test of EI administered in the ninth grade. Third, parents will use more emotion talk with girls than with boys. Because previous literature has not specifically explored the effects of valence on the relationship between parent and child emotion talk, there are no specific predictions for valence-based analyses. All analysis of valence is exploratory in nature and intended to generate hypotheses for future research.

Method

Participants

The subjects of this study were 31 typically developing children and their primary caregiver(s). In 29 cases the primary caregiver was the mother. In two cases, the mother and father served as dual primary caregivers. Primary caregiver was defined as the parent who was primarily responsible for childcare. These children and their parents were participants in a larger longitudinal study of language development in the greater Chicago, Illinois area ("Language Development Project"). They were recruited in 2000 to represent the racial, ethnic, and economic diversity of Chicago. The sample was recruited via mail and advertisement in a free parenting magazine to participate in a language development study. Children with diagnosed developmental disorders were not eligible to participate.

The participants were all monolingual English-speakers and included 13 girls and 18 boys. Among the children, 20 (64.5%) were White/Caucasian, five (16.1%) were Black/African American, three (9.7%) were Hispanic/Latinx, and three (9.7%) were identified as mixed race, based on parent reports. This sample of children included 10 (32.3%) only children, 12 (38.7%) children with one sibling, five (16.1%) children with two siblings, three (9.7%) children with three siblings, and one (3.2%) child with five siblings.

All but two parents reported having at least some college experience: 15 (48.3%) reported having an advanced degree, 10 (32.3%) reported having a college degree, four (13.0%) reported having some college or trade school experience, and two (6.4%) reported having a high school education or GED. Among the two dual caregiver families, the mother's education level was used.

At the beginning of the study period, two (6.4%) families reported annual household incomes of less than $15,000, six (19.4%) had incomes between $15,000 and $34,999, four (13.0%) had incomes between $35,000 and $49,999, nine (29.0%) had incomes between $50,000 and $74,999, five (16.1%) had incomes between $75,000 and $99,000, and five (16.1%) reported incomes greater than $100,000. For participating, parents received $10 to cover travel expenses and children received a small toy.

The larger Language Development Project included 64 typically developing children. Due to the amount of missing data among that sample of 64 participants, a subsample was taken. The subsample of 31 children considered in this study included those participants who had data for the first, middle, and last home visits and who sat for the test of EI. Appendix A compares the sociodemographic characteristics of the subsample of 31participants considered in the present study with the sociodemographic characteristics of the sample of 64 participants in the Language Development Project.

Procedure

Researchers visited these families in their homes every four months from age 14 months to 58 months (4.8 years), for a total of 12 visits. During these unstructured home observations, researchers videotaped 90-minute parent-child interactions. A researcher was present as the video was recording. Other family members were also permitted to be present. Parents and children were instructed to behave normally. The recordings captured typical daily interactions between children and their primary caregivers such as playing with toys, reading books, and eating meals.

Because not all subjects participated in every visit, in the present study I examined the first visit (14-month-old), the middle visit (34-month-old), and the final visit (58-month-old), which were all attended by the 31 participants in this study.

When children reached the ninth grade (14-16 years old, average age 15.5 years old), these same participants were administered a self-report measure of EI.

Transcriptions. The focal child's speech was manually transcribed for all visits. Additionally, the primary caregiver's speech was transcribed when he or she was speaking to the focal child or a sibling under the age of 13. In the case of dual caregivers, speech from both parents was transcribed. The speech from others present at the time of the visit including siblings, other children, and adults was not transcribed. All dictionary words, onomatopoeic sounds (e.g., "meow"), evaluative sounds (e.g., "uh-oh"), and language read aloud from books were transcribed. Ritualized or memorized speech such as songs and prayers were not transcribed. Transcription reliability was determined by having a second transcriber transcribe 20% of the videotapes. Reliability was assessed at the utterance level and was achieved when transcribers agreed on at least 90% of the transcription decisions.

Coding. I conducted a computerized keyword search of the transcripts for 150 emotion talk terms. I defined emotion talk as any speech employing emotion vocabulary and/or feeling-state terms (Eisenberg, 1998; Lutz, 1983). Table 1 lists the target emotion words and expressions that were found in the transcripts. A complete list of the terms included in my search and the number of utterances for each term can be found in Appendix B. This list was adopted from previous emotion language studies, especially Lagattuta and Wellman (2002). Additional terms came from reading the transcripts themselves and from a Google search for "emotion words for preschoolers." All three visits were coded for emotion talk use by parents. Only the second and

third visits were coded for the children's use of emotion talk. This decision was made to account for the fact that most of the children were not speaking during the 14-month-old visit.

I reviewed each computer-generated search result in the context of the transcript to ensure that the key terms conveyed emotional meaning. Non-affect meanings of words were excluded from the analysis (e.g., "like" when used to make a comparison). Words such as "good" and "bad" were only counted when they referred to an affective state, not when they were used to make a moral judgment or refer to behavior (e.g., "be good"). I excluded the word "yucky" when used in reference to food. Also, I did not include emotion behaviors (e.g., whining, smiling, laughing) or any forms of nonverbal communication that were transcribed in my count, although I did include the use of words used to describe said behaviors (e.g., "stop crying"). I did include emotion words from storybooks since children's literature is one way young people learn about affect (Bednarek, 2008). I did not treat affect- and feeling-state words (e.g., shy, bored, cranky) and emotion words (e.g., happy, sad, angry) as distinct categories. I did not include physiological state terms (e.g., hungry, tired). Finally, if an utterance included more than one emotion word or if a word was repeated, I counted these terms separately. Once all emotion words were identified they were then categorized as either negative or positive in valence. Terms with neutral valence (e.g., okay, astonished) were not counted in any of the analyses.

Materials

The Bar-OnEQ-i:YV(S) (Bar-On & Parker, 2000) is a self-report measure of EI. The test contains 30 items and uses a 4-point Likert-style format. The test assesses youths' ability to understand feelings, empathize with others, and adapt to new and changing environments and contexts (Bar-On & Parker, 2000). Examples of questions featured on the test include, "I can

easily describe my feelings" and "I know when other people are upset, even when they say nothing." The test has four subscales: interpersonal, intrapersonal, adaptability, and stress management, and a positive impression scale (i.e., a scale that measures the extent to which a respondent is answering questions to present an overly favorable impression). For the purposes of this study, I focused on the overall EI scores only. The participants were administered the test in the ninth grade.

Analysis

The emotion term is the primary unit of analysis. In order to examine the relationship between parents' use of emotion terms and children's use of emotion terms, I first used descriptive statistics to compare the use of terms by visit and by valence. I then conducted statistical analysis using bivariate correlations. Specifically, a correlation matrix was calculated to assess relationships between parents' emotion talk during the first, middle, and last visits as well as children's emotion talk during the middle and last visits. Spearman's rank correlation test was chosen because the data violated multiple assumptions of Pearson's product moment correlation test. A Bonferroni post hoc test was performed to adjust for multiple comparisons. I then averaged terms across the three visits (two visits for children) to test for effects of emotion valence. I used Spearman's rank correlation tests to explore whether the valence of parents' emotion term use related to the valence of children's emotion term use. Additionally, I used Spearman's rank correlation tests to analyze the relationship between parents' use of positive valence, negative valence, and total emotion terms and children's EI scores. To examine the relationship between parents' use of positive valence, negative valence, and total emotion terms and children's gender I compared means using independent samples t-tests. All emotion term

coding was done using MAXQDA Analytics Pro Version 2020.4.1. All statistical analysis was done using IBM SPSS Version 24.

Table 1

Emotion Keyword Search Terms Found in Transcripts

Negative Valence Terms			Positive Valence Terms	
Afraid	Don't love	Scared/Scary	Alright	Love
Angry	Embarrassed	Shocked	Better	Peaceful
Annoy	Fear	Shy	Brave	Pleasant
Anxious	Frustrated	Sorry	Care	Pleased
Awful	Furious	Unhappy	Curious	Proud
Bad	Fuss	Upset	Delighted	Sassy
Bashful	Grouchy	What's the	Ecstatic	Silly
Bored	Grumpy	matter?	Enjoy	Smile
Bothered	Guilty	What's wrong?	Excited	Surprised
Clingy	Hate	Whine	Fine	
Concerned	Hurt	Worry/worried	Friendly	
Confused	Lonely	Wound-up	Fun/Funny	
Cranky	Mad	Yucky	Glad	
Crazy	Miss		Good	
Cry	Nervous		Goofy	
Disappointed	Not fun/funny		Happy	
Disgusted	Not happy		Interested	
Don't care	Not interested		Laugh	
Don't like	Sad		Like	

Note. All lexical terms were searched for in all their variations (e.g., surprise, surprised, surprising).

Results

Use of Emotion Language by Parents and Children

The total number of emotion terms coded from these 93 transcripts was 2,884 terms. Transcription reliability was determined by having a second transcriber transcribe 20% of the videotapes. Reliability was achieved when transcribers agreed on at least 90% of the transcription decisions. The number of emotion terms for all participants combined included

2,109 terms for adults and 775 terms for children. Once all the terms were coded, they were categorized as either negative or positive in valence. Of the 2,884 terms, 1,787 were positive and 1,097 were negative in valence. The parents used 1,285 positive and 824 negative terms. The children used 502 positive and 273 negative terms. Table 2 shows the total number of emotion terms used by parents and children across valence and visit.

Table 2

Number of Emotion Terms Used by Parents and Children

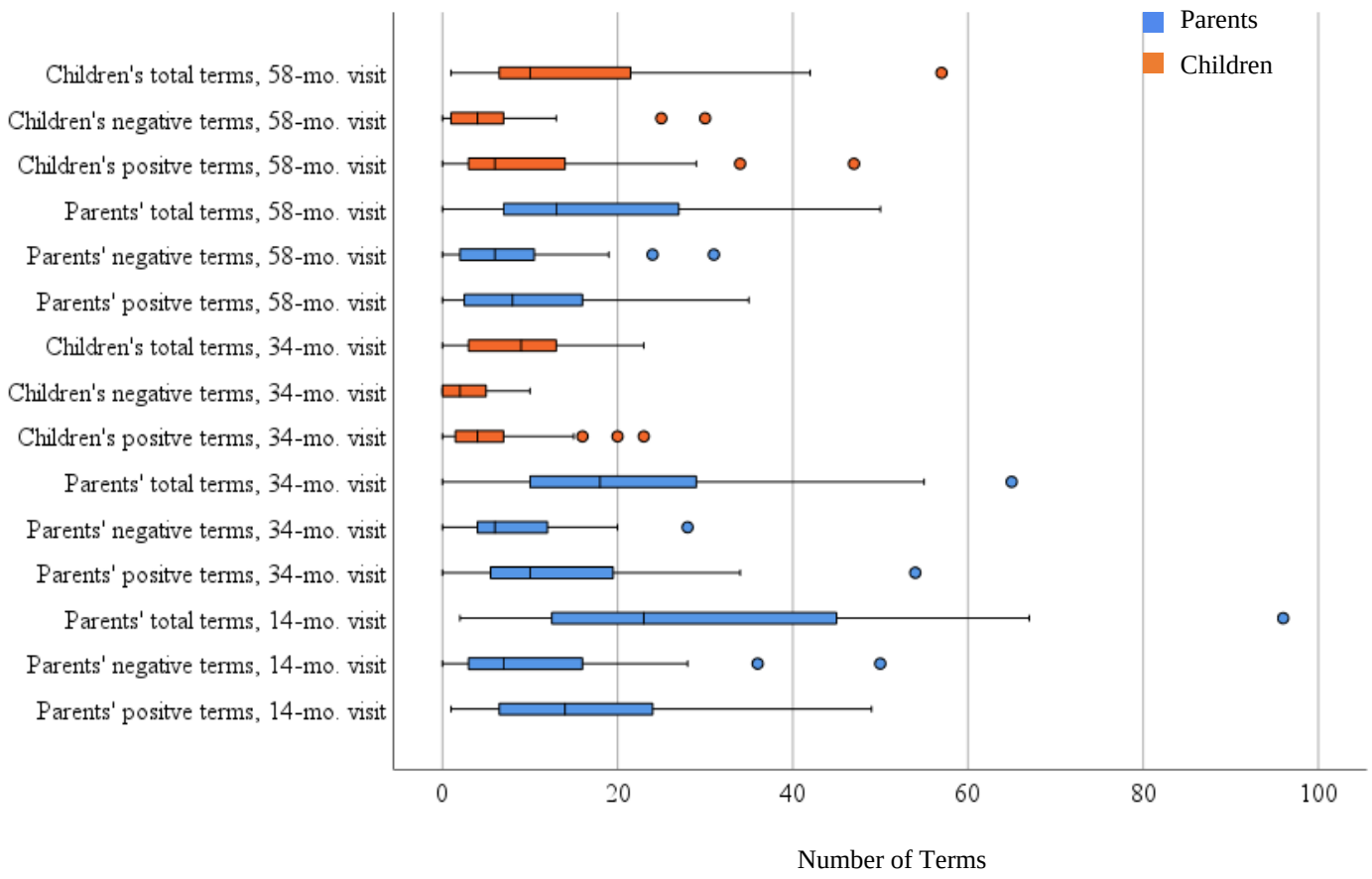
Child age (months)	Parents			Children		
	Total emotion terms	Positive valence terms	Negative valence terms	Total emotion terms	Positive valence terms	Negative valence terms
14	915	569	346	—	—	—
34	653	400	253	275	178	97
58	541	316	225	500	324	176

Note. The number of emotion terms used by parents and children shown by visit and valence.

The mean number of emotion utterances by parents over the course of all three visits was 68.03 (*SD* = 44.50). The mean number of emotion utterances by children over the course of the second and third visit was 25.00 (*SD* = 16.21). Figure 1 shows the distribution in number of emotion words used by parents and children at each visit by valence. As shown, the amount of positive, negative, and total emotion talk differed greatly among the participants.

Figure 1

Distribution of Emotion Terms Used by Parents and Children



Note. Boxplot of positive and negative valence and total emotion terms used by parents and children during the 14-, 34-, and 58-month visits. Children's use of emotion terms during the 14-month visit was not coded for. Boxes enclose the middle 50% of values or the interquartile range. The line in the box indicates the median for each group. The extending lines indicate the top and bottom 25% of values. Outliers are indicated with dots.

Relationship Between Use of Emotion Language Between Parents and Children

A correlation matrix assessed relationships between parent and child emotion talk across 3 different time points. Ten Spearman correlation tests were carried out with a Bonferroni adjusted alpha level of .005 per test (.05/10). Tests revealed a significant relationship between

parents' and children's use of emotion talk during the 34-month visit (r_s (29) = .53, p = .002). Parents' use of emotion talk at the 58-month visit positively correlated with parents' use of emotion talk at the 14-month visit (r_s (29) = .61, p = .000) and the 34-month visit (r_s (29) = .50, p = .004). After adjusting for multiple comparisons, no statistically significant correlation was found between parents' use of emotion talk at the 14-month visit and parents' use of emotion talk at the 34-month visit (r_s (29) = .41, p = .023). Also, children's use of emotion talk at the 34-month visit did not correlate with children's use of emotion talk at the 58-month visit (r_s (29) = .09, p = .623). Further, children's use of emotion talk at the 34-month visit did not correlate with parents' use of emotion talk at the 14-month visit (r_s (29) = .15, p = .428) or the 58-month visit (r_s (29) = .30, p = .108). Similarly, children's use of emotion talk at the 58-month visit did not correlate with parents' use of emotion talk at the 14-month visit (r_s (29) = .05, p = .778), the 34-month visit (r_s (29) = .08, p = .673), or the 58-month visit (r_s (29) = .28, p = .128; see Table 3).

Table 3

Correlations Between Parents' and Children's Use of Emotion Talk by Visit

	1	2	3	4	5
1. Parents' total terms, 14-mo. visit	—				
2. Parents' total terms, 34-mo. visit	.41* (.023)	—			
3. Parents' total terms, 58-mo. visit	.61** (.000)	.50** (.004)	—		
4. Children's total terms, 34-mo. visit	.15 (.428)	.53** (.002)	.30 (.108)	—	
5. Children's total terms, 58-mo. visit	.05 (.778)	.08 (.673)	.28 (.128)	.09 (.623)	—

Table 3 (continued)

Note. Correlations between parents' use of emotion terms during the 14-, 34-, and 58-month visits and children's use of emotion terms during the 34- and 58-month visits. Children's use of emotion terms during the 14-month visit was not coded for.

p-values are in parentheses

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant after the Bonferroni correction, .005 level (2-tailed)

When the terms were averaged across the three visits (across two visits for children) to test for valence effects, there was a statistically significant positive correlation for parents' use of positive emotion talk and children's use of positive emotion talk ($r_s(29) = .36$, $p = .049$). Likewise, there was a statistically significant positive correlation for parents' use of negative emotion talk and children's use of negative emotion talk ($r_s(29) = .37$, $p = .042$).

Relationship Between Parents' Emotion Talk and Children's Emotional Intelligence

Correlation tests were carried out to assess the relationship between parents' positive, negative, and total emotion term use, averaged across the three time points, and children's EI scores. The mean EI score across participants was 109.58 (SD = 15.34). Results of Spearman's correlation tests suggest that there was a statistically significant correlation between EI scores and parents' use of positive valence emotion talk ($r_s(29) = .37$, $p = .041$), but not negative valence emotion talk ($r_s(29) = -.02$, $p = .923$) or overall emotion talk ($r_s(29) = .20$, $p = .278$).

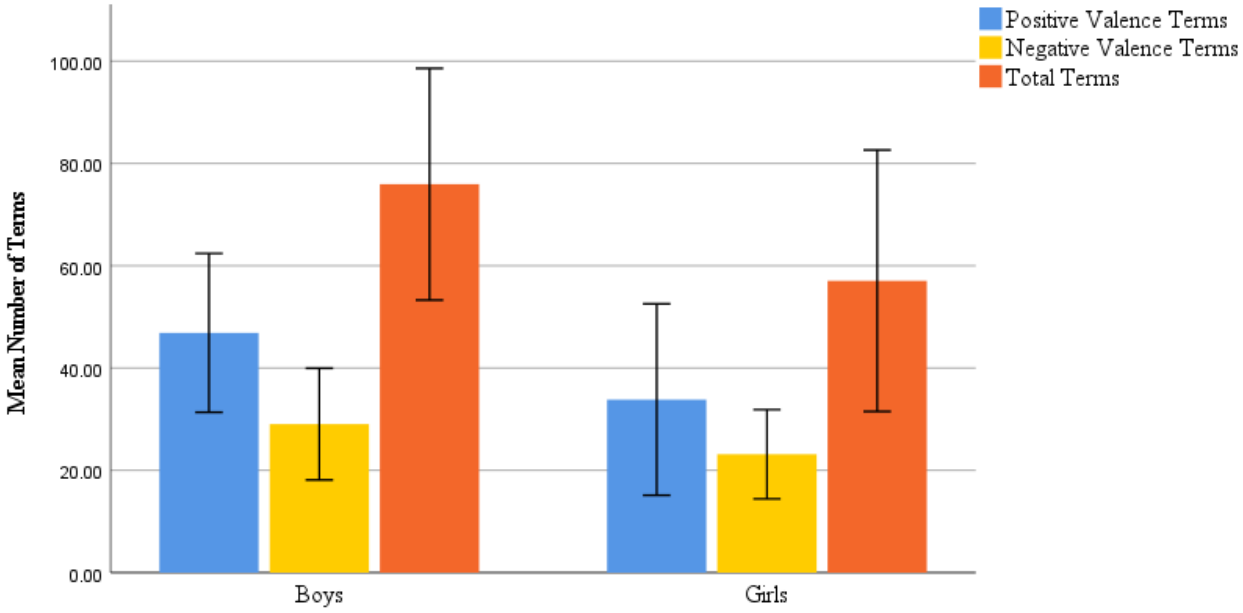
Gender Differences in Parents' Emotion Talk

Independent samples t-tests were conducted to examine the relationship between parents' use of positive valence, negative valence, and total emotion terms, averaged across the three time points, and children's gender. Results suggest that there was no significant difference between

the total amount of emotion talk parents used with girls (M = 57.08, SD = 42.29) and boys (M = 75.94, SD = 45.55), $t(29) = 1.17$, $p = .251$. This trend was consistent across valence. For positive valence terms, no significant difference between the amount of emotion talk parents used with girls (M = 33.85, SD = 30.98) and boys (M = 46.89, SD = 31.29) was detected, $t(29) = 1.15$, $p = .259$. Similarly, there was no significant difference between the amount of negative emotion talk parents used with girls (M = 23.15, SD = 14.44) and boys (M = 29.06, SD = 21.96), $t(29) = .844$, $p = .406$. These results suggest that neither the quantity nor the content of parental emotion talk differed significantly with a child's gender (see Figure 2).

Figure 2

Parents' Use of Emotion Talk Based on Children's Gender



Note. Parents' mean use of positive and negative valence and total emotion talk based on children's gender. The statistics are based on emotion term use averaged across the three time points.

Discussion

The purpose of the present study was to examine the association between parents' use of emotion talk and children's use of emotion talk and between parent-child emotion talk and children's EI. This study also explored whether a child's gender affects parents' emotion talk. In addition, this study inquired whether the valence of parental emotion talk made a difference in children's emotion talk, children's EI, or was affected by a child's gender. Based on a review of the parent-child emotion language literature, it was hypothesized that children who heard more emotion talk from their caregivers would use more emotion talk. Moreover, it was predicted that parents who used more emotion talk would have children with higher EI. Additionally, it was predicted that parents would use more emotion talk with girls than with boys. Because the analyses of the effects of valence on the relationship between parent and child emotion talk were exploratory in nature, no specific predictions were made for valence-based analyses.

A multi-method, longitudinal approach was utilized with a population of 31 children and their primary caregiver(s). Unstructured natural language data was collected when the children were age 14, 34, and 58 months old. The data was then transcribed and coded for the use of positive and negative valence emotion talk. In the ninth grade the same children completed a test of EI. Analyses were completed to examine the correlation between parent emotion talk and child emotion talk and parent emotion talk and children's EI test scores. Additional analysis was done to establish if parent directed speech towards sons differed from parent directed speech towards daughters.

My first hypothesis was that parents' use of emotion talk when the children were 14, 34, and 58 months old would positively correlate with children's use of emotion language at 34 and 58 months old. Specifically, I predicted that parents' use of emotion talk would correlate with

children's use of emotion talk at the same time point and parents' use of emotion talk would correlate with children's use of emotion talk at a later time point. My second hypothesis was that parents' use of emotion talk when children were 14, 34, and 58 months old would positively correlate with children's performance on a test of EI administered in the ninth grade (Bar-On EQ-i:YV(S), Bar-On & Parker, 2000). My third hypothesis was that parents would use more emotion talk with girls than with boys. Because the analyses of valence were exploratory, I did not make specific predictions for valence. All analyses of valence were conducted so that future research has hypotheses to test.

The present study found a statistically significant positive correlation between parents' use of emotion talk during the 34-month visit and children's use of emotion talk during the 34-month visit. There was no statistically significant correlation between parents' use of emotion talk during the 58-month visit and children's use of emotion talk during the 58-month visit. Likewise, there was no statistically significant correlation between parents' use of emotion talk at one time point and children's use of emotion talk at a later time point.

The finding that parents' use of emotion talk during the 34-month visit correlates to children's use of emotion talk during the 34-month visit, but that parents' use of emotion talk during the 58-month visit and children's use of emotion talk during the 58-month visit did not correlate is consistent with the results of Cervantes et al (1991). These researchers found that two-year-olds' total emotion talk positively correlated with mothers' total emotion talk, but that 3- and 4-year-olds' emotion talk only related to certain aspects of mothers' emotion language use. One possible explanation for these findings is that the relationship between parents' emotion language use and children's emotion language use is specific to a certain developmental time period. Possibly, as children get older there is a decrease in the amount of emotion talk between

primary caregivers and children. This change may coincide with children's entrance to preschool or increased involvement with other family members, such as siblings or secondary caregivers. It is also possible that as children age individual characteristics of the child, such as level of extroversion, become more important factors in their language use.

The finding that there was no statistically significant correlation between parents' use of emotion talk at one time point and children's use of emotion talk at a later time point is surprising. Indeed, this finding is inconsistent with Dunn et al. (1987) who found that references to feeling states made by mothers when children were 18 months positively correlated with children's language about feeling states at 24 months. The current study analyzed the relationship between parents' emotion language use at 14 months and children's emotion language use at 34 months and parents' emotion language use at 34 months and children's emotion language use at 58 months. It is possible that the length of time between the observations in the current study was too long to detect the effect of parent emotion talk on child emotion talk.

This study also sought to investigate the role of valence in early parent-child emotion talk. Notably, when emotion terms were averaged across the three visits (across two visits for children) to test for valence effects, the relationship between parents' and children's use of emotion talk was statistically significant for both positive valence talk and negative valence talk separately. This finding demonstrates that the relationship between parent and child emotion word use is not driven by one specific valence of emotion terms. Although it was found that the frequency of parents' use of positive and negative emotion talk positively correlated with children's use of positive and negative emotion talk, respectively, the results were only moderately statistically significant. This occurrence suggests that individual differences in

children's use of emotion talk are also influenced by other factors. One possible explanation is that siblings and peers play a significant role in young children's emotion language learning and use. Some research suggests that preschool children make more references to mental states in their conversations with peers and siblings than in conversations with their mothers (Brown et al., 1996; Brown & Dunn, 1992). It could be that even at this young age, age-mates are contributing to children's socialization of emotion. Nevertheless, much of the evidence gathered from former studies substantiates a link between parents' use of emotion language and children's use of emotion language, as demonstrated in the review. In addition to replicating these previous findings, the current study extended these previous findings to demonstrate that this relationship is not specific to one valence of emotion talk but exists independently for both positive and negative valence emotion language.

Another unique contribution of the present study to the broader parent-child emotion language research base was the inclusion of a measure of EI administered during adolescence. Results provided mixed support for the hypothesis that parental emotion talk would positively correlate with children's EI. Specifically, parents' positive valence emotion talk positively correlated with EI scores, but there was no statistically significant correlation between parents' use of negative valence emotion talk or overall use of emotion talk and children's EI. A number of interpretations of the current study's findings concerning emotion talk and EI are possible. First, it may be that parent emotion talk is not strongly associated with EI. It is conceivable that a variety of other factors may be more important predictors of EI than caregiver emotion talk. Second, it may be that negative emotion talk, in particular, does not relate to EI or is even detrimental to EI.

Child rearing practices beyond parent-child communication about emotion are one factor that may be an important predictor of EI. According to the parenting literature, parental responsiveness, parental positive demandingness (i.e., developmentally appropriate maturity demands and expectations), parental negative demandingness (i.e., psychological control, inconsistent and punitive discipline, and harsh disciplining), and parental emotion-related coaching are the four main dimensions of parenting that are relevant to EI. While parental negative demandingness is related to children's lower EI, parental responsiveness, parental emotion-related coaching, and parental positive demandingness are all related to higher levels of EI in children (Alegre, 2011). Although parental emotion-related coaching is a verbal process that involves emotion talk, parental responsiveness and parental positive demandingness are processes that may take a nonverbal form or involve communication that is not based on emotion language.

Similar to child rearing practices, aspects of the parent, beyond her/his communicativeness about emotions, may be related to children's EI. For example, parents' EI may be an important predictor of children's EI. In fact, some genetics research even suggests that EI is heritable (Kosonogov et al., 2019). Children use parents as social referents. Parents that model emotionally intelligent behavior, such as exhibiting empathy, emotion understanding, and emotion regulation, may have more emotionally intelligent children. Children's personalities may also be a predictor of EI. For instance, self-report questionnaire style EI tests, such as the Bar-On EQ-i (Bar-On & Parker, 2000), show moderate-to-strong correlations with five-factor model personality measures (Austin et al., 2005). During adolescence peers also may play an important role in emotional development. Friends begin to take on more of an emotional support

role and thus have the power to shape adolescent emotion socialization (Legerski et al., 2015). Siblings may play a similar role (Brown et al., 1996).

However, since positive emotion talk did correlate with EI, one possible interpretation of the findings is that there is something about negative emotion talk that does not contribute to EI. For example, frequent familial expressions of negative emotion, especially when directed at the child may be negatively associated with children's socioemotional functioning and ability to understand emotions (Dunn & Brown, 1994; Eisenberg et al., 1998).

Contrary to expectations, the present study did not find that parents used more emotion talk with girls than with boys. The lack of support for the hypothesized relationship is inconsistent with some previous research (e.g., Dunn et al., 1987; Kubeli & Fivush, 1992). Yet, a recent meta-analysis of 34 independent group samples by Anzar and Tenenbaum (2019) found that there was no difference in the frequency of emotion talk between mothers of girls and mothers of boys. These results are consistent with my findings. Possibly parent-child emotion talk was a more gendered process in the past and this trend is shifting. It is also possible that with my limited sample size, my analyses were underpowered to detect a gender difference.

Several limitations of the present study should also be noted. First, it is important to bear in mind that the results are correlational. It is possible that parents' increased frequency of use of emotion language causes children's increased frequency of use of emotion language and increased EI scores. However, it is equally possible that children who use more emotion language elicit more emotion talk from their parents and that children who have higher EI elicit more positive emotion talk from their parents. It is also likely that parents that differ in their amount of emotion talk differ in other substantial respects, such as parenting practices.

Moreover, I did not look at emotion talk as a proportion of total speech. It may be that talkative parents have generally talkative children, and emotion words in both groups increased with overall word use. It could also be that parents that used more emotion talk used more child-directed speech in general. It is possible that the general increase in parent-child communication is the cause of the children's increased use of emotion talk and increased EI scores. Yet, the fact that the relationship between parental emotion talk and EI scores was specific to positive valence words suggests that the results are more than just an effect of general communication levels.

Another limitation is the small sample size. Because this study only involved 31 pairs of participants, we cannot be confident that the sample utilized is representative of the larger population. A further limitation of the present study is that the transcripts were coded for emotion talk and sorted by valence by a single coder. Usually, a language coding project such as this one would have two or more coders and a high level of intercoder agreement before being analyzed statistically. Although I did follow a set of guidelines, as laid out in the Method section, there is always some room for subjectivity in such a task, thus multiple coders are preferable. Relatedly, inclusion of the terms "like," "don't like," and "sorry" could have skewed the analysis. These three emotion terms were uncharacteristically frequent (see Appendix B) and are not primarily used to talk about emotion, but to express preference or apologize. In addition, I did not conduct within-valence correlations for each time point separately. Because of a dearth in previous literature in this area, I did not have any specific longitudinal hypotheses related to valence. Future studies could investigate the developmental effects of parents' use of positive and negative valence emotion talk on children's use of positive and negative valence emotion talk over time. One final limitation associated with this study is that the increase in family wise error rate across the reported statistical analysis was not controlled for in the valence analyses.

Because the valance analyses were exploratory in nature, I did not correct for multiple comparisons.

Decades of theory and research have emphasized the importance of parent-child emotion talk. Although there is a breadth of research on parent-child communication about emotions, the research on emotion talk and children's EI is still very limited. Results of the present study indicate that there may be a relationship between these two constructs. Because EI has been shown to be an important determinant of both social-emotional wellbeing and academic success, findings such as this have important implications. These results suggest that future interventions should consider the crucial role that caregiver-child emotion talk may play in fostering children's EI. Future research would benefit from the analysis of the specific content of parent-child conversations about emotional states beyond valence, and how it relates to EI, instead of just focusing on quantity. For example, it may make a significant difference if negative valence terms are used by parents to reprimand children versus reminisce about a negative, past event. It would also be interesting and potentially beneficial to explore parent-child emotion talk and EI in a sample of non-typically developing children. Finally, experimental studies that can potentially establish a causal relationship between caregiver-child communication about emotions and EI should be conducted.

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Appendix A
Sociodemographic Characteristics of Participants

Sociodemographic Characteristics	Subsample		Language Development Project Sample	
	n	%	n	%
Gender				
Boys	18	58.0	33	51.6
Girls	13	42.0	31	48.4
Primary caregiver				
Mother	29	93.6	56	87.5
Father	0	0	2	3.1
Dual	2	6.4	6	9.4
Number of siblings				
0	10	32.3	18	28.1
1	12	38.7	25	39.1
2	5	16.1	12	18.8
3	3	9.7	7	11.0
4	0	0	1	1.5
5	1	3.2	1	1.5
Child's race/ethnicity				
White/Caucasian	20	64.5	36	56.2
Black/African American	5	16.1	14	21.9
Hispanic/Latinx	3	9.7	8	12.5
Mixed race	3	9.7	6	9.4
Primary caregiver's highest educational level				
Some high school	0	0	1	1.5
High school or GED	2	6.4	8	12.5
Some college or trade school	4	13.0	11	17.2
Bachelor's degree	10	32.3	23	36.0
Advanced degree	15	48.3	21	32.8
Annual household income				
< $15,000	2	6.4	5	7.8
$15 – 34,999	6	19.4	13	20.3
$35 – 49,999	4	13.0	8	12.5
$50 – 74,999	9	29.0	13	20.3
$75 – 99,999	5	16.1	11	17.2
> $100,000	5	16.1	14	21.9

Note. n = 31 for the subsample and n = 64 for the Language Development Project sample. Among the dual caregiver families, the mother's education level was used.

Appendix B
Complete List of Emotion Terms Included in Keyword Search* and Number of Utterances

Admire	0	Disgust	1
Affectionate	0	Don't care	19
Afraid	3	Don't like	190
Aggravate	0	Don't love	1
Agitate	0	Down	0
Agreeable	0	Ecstatic	1
Alone	0	Embarrassed	3
Alright	2	Energized	0
Angry	25	Enjoy	7
Annoy	3	Enthusiastic	0
Anxious	1	Excite	42
Ashamed	0	Exclude	0
Awful	3	Fear	4
Bad	3	Fed-up	0
Bashful	2	Fine	16
Better	31	Friendly	2
Blah	0	Frighten	2
Blissful	0	Frisky	0
Bored/Boring	20	Frustrated	7
Bother	5	Fun/Funny	288
Brave	2	Furious	1
Bugged	0	Fuss	8
Bullied	0	Generous	0
Calm	0	Giddy	0
Capable	0	Glad	0
Care/Caring	5	Gloomy	0
Cheerful	0	Good	19
Clingy	2	Goofy	14
Clumsy	0	Grateful	0
Concerned	2	Grouchy	2
Confident	0	Grumpy	5
Confused	4	Guilty	1
Content	0	Happy	47
Cranky	8	Hate	10
Crazy	41	Hopeless	0
Cry	57	Horrified	0
Curious	2	Hurt	14
Delight	1	Hysterical	0
Desire	0	Ignored	0
Depressed	0	Impatient	0
Destructive	0	Important	0
Disappoint	1	Inhibited	0

* All lexical terms were searched for in all their variations (e.g., cry, cried, crying).

Insecure	0	Sad	32
Intense	0	Safe	0
Interested	4	Sassy	6
Irritated	1	Satisfied	0
Jealous	0	Scare/Scary	84
Jolly	0	Secure	0
Joy	0	Sensitive	0
Laugh	27	Serious	0
Left out	0	Shame	0
Like	832	Shocked	3
Lonely	2	Shy	10
Lost	0	Silly	197
Love	203	Smile	63
Mad	20	Sorry	206
Mellow	0	Startled	0
Miss	12	Stubborn	0
Miserable	0	Surprised	4
Moody	0	Tearing	0
Nasty	0	Tender	0
Nervous	8	Terrific	0
Not fun/funny	23	Terrified	0
Not happy	1	Testy	0
Not interested	2	Thrilled	0
Ornery	0	Ticked-off	0
Overwhelmed	0	Timid	0
Peaceful	1	Touchy	0
Pleasant	1	Unhappy	1
Pleased	4	Unpleasant	0
Proud	12	Upset	19
Pumped	0	What’s the matter?	57
Relaxed	0	What’s wrong?	55
Relieved	0	Whine	1
Remorse	0	Worry/worried	30
Respected	0	Wound up	3
Responsible	0	Yearn	0
Rotten	0	Yucky	33