

Maternal sensory sensitivity and response bias in detecting change in infant facial expressions: Maternal self-efficacy and infant gender labeling

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Received 25 April 2006; received in revised form 6 September 2006; accepted 1 December 2006

Abstract

This study examined the role of maternal cognitive sets regarding infant gender on maternal response; participants were 69 mothers, each with a 6-month-old infant. Signal detection methodology was used to assess maternal sensory sensitivity and response bias to subtle changes in positive and negative infant facial expressions as a function of maternal self-efficacy, operationalized by low, moderate, and high illusory control, and maternal perceptions of infant gender, experimentally manipulated through labeling. For the positive expression, mothers who received the female manipulation exhibited greater sensory sensitivity and responded with a less conservative response bias compared with mothers who received the male manipulation. For the negative expression, only mothers with high illusory control were differentially sensitive to the manipulation; those who received the male manipulation exhibited less sensory sensitivity than those who received the female manipulation. Results are discussed in the context of the gendered socialization of emotion.

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Keywords: Signal detection methodology; Sensory sensitivity; Response bias; Infant gender labeling; Maternal self-efficacy; Infant facial expressions

The mother–infant dyad is a system in which emotional transactions form the basis for mutually rewarding communication, with early experience being fundamental in the later organization of affect (Emde, 1980; Stern, 1985; Tompkins, 1962). For the infant, affective signals are the primary means of communication by which he or she engages the caregiver, although the still-face paradigm has demonstrated that from a very early age the infant also attempts to regulate maternal affective displays (Cohn & Tronick, 1983; Mayes & Carter, 1990; Tronick, Als, Adamson, Wise, & Brazelton, 1978). On the other hand, the mother engages the infant in an attempt to modulate the emotional expression of her infant during face to face interaction, frequently through modeling or instrumental conditioning (Malatesta, Culver, Tesman, & Shepard, 1989). As such, a mother relies on changes in her infant's facial and vocal expression to provide her with feedback as she attempts to regulate the infant's affect.

Mothers are differentially sensitive to these affective signals, with sensitive responding to displays of infant emotion thought to impact the child's emotional development by providing a context for maintaining positive affect and

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regulating negative affect (Eisenberg, Cumberland, & Spinrad, 1998; Kopp, 1989; Spinrad & Stifter, 2002; Thompson, 1990). Maternal display of interest to early infant affect was shown to predict positive infant affect, whereas tendencies to ignore sadness and pain, but not anger, were associated with more sadness and anger in 2-year-olds following a brief separation from their mothers (Malatesta et al., 1989). Others have reported that infants whose mothers were more responsive to their emotional cues were less likely to react negatively and used more regulatory behaviors, such as gaze aversion, than did infants whose mothers were less sensitive to their cues (Cohn & Tronick, 1983; Field, 1981; Gable & Isabella, 1992; Stifter & Moyer, 1991). Also, 2-year-olds whose mothers responded with “calm neutrality” were less likely to become angry and were more capable of responding positively to persons other than their mothers than were toddlers of other mothers (Denham, 1993).

Mothers' response to children's affective displays as a function of child gender have also been reported, with studies suggesting that children's earliest years, infancy through 5 years, are especially important for the gendered socialization of emotion (see Lytton & Romney for a meta-analytic review, 1991). Studies report that mothers showed more expression and positive affect toward daughters during first and second years (Malatesta et al., 1989) and more smiling toward their 3–6-month-old daughters (Malatesta & Haviland, 1982) than toward sons. However, a greater matching of mother's emotional responses in affective exchanges with sons as compared with daughters has been reported, with it argued that greater matching of affective exchanges serves an important developmental function that may lead to a sense of control and effectance for the infant (Robinson, Little, & Biringen, 1993; Tronick & Cohn, 1989; Weinberg, Tronick, Cohn, & Olson, 1999); and although, mothers of male and female infants were approximately equal in emotional communication, mothers exhibited a greater variety of emotions in communication with daughters (Biringen et al., 1999). Furthermore, parents who were less supportive of their children's negative emotions tended to view their children, especially sons, as prone to negative emotions (Eisenberg, Fabes, & Murphy, 1996). This differential response of mothers to their sons' and daughters' emotions is coupled with differences in their children's emotional behavior. For example, if mothers had reported restrictiveness in response to their sons' negative emotions, their sons later reported personal distress when confronted with others' distress, but did not want others to know (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991).

Although it is recognized that mothers' perceptions of and expectation for their infants can influence their caregiving behavior and interactions with their infants (e.g., Olexa & Stern, 1999), the role of perceptions and expectations was not addressed in the studies cited earlier on maternal response to infant affective signaling. Yet, it is believed that cognitive sets serve as a perceptual filter (Bugental & Shennum, 1984) guiding these perceptions and hence directing the interaction process (Bugental, Blue, & Lewis, 1990; Parkes, Stevenson-Hinde, & Marris, 1991; Stern, Karraker, McIntosh, Moritzen, Olexa, 2005). Thus, in interpreting the results of studies on the effects of infant gender on mothers' response to affective expressions of their infants we must contend with the fact that maternal perceptions and expectations are confounded with actual characteristics of the infant in their influence on maternal response. The experimental labeling technique has been used to disentangle mothers' perceptions from infants' actual characteristics. Labeling studies, such as those manipulating the temperamental (Donovan, Leavitt, & Walsh, 1997), health (Bisping, Steingrueger, Oltmann, & Wenk, 1990), and birth (Stern, Karraker, Meldrum-Sopko, & Norman, 2000; Stern et al., 2005) status of the infant have shown that mothers' cognitive sets guide their perceptions in a manner thought to affect caregiving behavior.

Three goals guided this research in an effort to expand the existing literature on maternal responsiveness to gender-related differences in infant affective signaling. The first goal was to disentangle the role of mothers' perceptions of and expectations for gendered behavior from actual characteristics of the infant by using the labeling technique to isolate the effects of these variables on maternal response. Relevant are data from studies which manipulated gender through labeling an identical infant as either male or female. Ensuring that infant behavior and appearance are held constant, the possibility that inherent male-female differences are confounded with effects of parental cognitive sets regarding gendered stereotypes can be eliminated. In a review of the effects of gender labeling as a determinant of adults' responses including behavioral responses, perceptions of the infant via rating scales, or toy choice (Condry & Condry, 1976; Haviland, 1977; Seavey, Katz, & Zalk, 1975; Will, Self, & Datan, 1976), Stern and Karraker (1989) reported that labeling effects, while not strong, were present, and in those instances where effects were demonstrated, differential response to the infant was attributed to the influence of gender stereotyping. In addition to these classic studies, it was more recently reported that highly stereotyped men tended to rate an infant labeled male as more angry than an infant labeled female (Plant, Hyde, Keltner, & Devine, 2000). Together these findings suggest that adults' gender stereotypes of emotion and behavior likely affect the socialization of children beginning in infancy. In fact, if

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