

Infants' Responses to Ambiguity in the Context of Parental Affect

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Introduction

Beginning at about eight months of age, infants use parental affect to interpret novel situations. This phenomenon is known as social referencing (SR; Sorce et al., 1985) and has primarily been studied in situations invoking fear, like the visual cliff (Walden, 1993). However, not much is known regarding whether infants younger than 8-months are influenced by parental affect under conditions of ambiguity, including fear. Some studies show that infants younger than 8 months use "social looking" meaning they attend to parental emotional cues which are not yet contagious to them (Mireault et al., 2014; Walden et al., 2007). This study investigated whether parents' smiling/laughing and fearful emotional cues influence younger infants' behavior including gazing, social looking, smiling, distress and approach/avoidance when confronted with ambiguity.

We used a within-subjects experimental design hypothesizing that parental neutral affect would influence infants to employ more gazing and less social looking. We also expected parental smiling/laughing would influence infants toward more social looking and smiling/laughing. Finally, we expected parental fear to influence infants to look away from the stimulus.

Method

Participants

Six-month-olds ($N=29$; 15 females) were recruited using public birth records from the Vermont Department of Health. Data collection was conducted in infants' homes. The majority of infants participated with their mothers ($M = 32.69$ yrs, $SD = 4.56$) who were primarily white, married (93%), middle class ($M = \$82k$, $SD = \$42k$), college educated ($M = 17.18$ yrs, $SD = 1.83$), and worked part-time ($M = 25.3$ hrs/wk, $SD = 1.78$).

Measures

Research assistants worked in pairs coding infant behaviors from video, and maintained strong inter-rater reliability ($k = 0.89-.95$) across behaviors. All behaviors were measured for both frequency and duration (seconds).

Gazing was defined as "looks towards the stimulus or research assistant", as the two were confounded.

Social Looking was defined as "looks towards the parent".

Look Away was coded whenever infants stopped looking at the stimulus (i.e., looked off to the side or down). Depending on context, looking away is considered a measure of boredom (Baillargeon, 1987) or avoidance (Weinberg & Tronick, 1994).

Smiling/Laughing were coded together when infants smiled or laughed at the parent (coded as "smiles at parent") or the stimulus/research assistant (coded as "smiles at event").

Distress was coded when infants fussed toward the parent (coded as "distress toward parent") or the stimulus (coded as "distress toward event"). Since only 3 infants showed distress, there was insufficient variability to include it in the analysis.

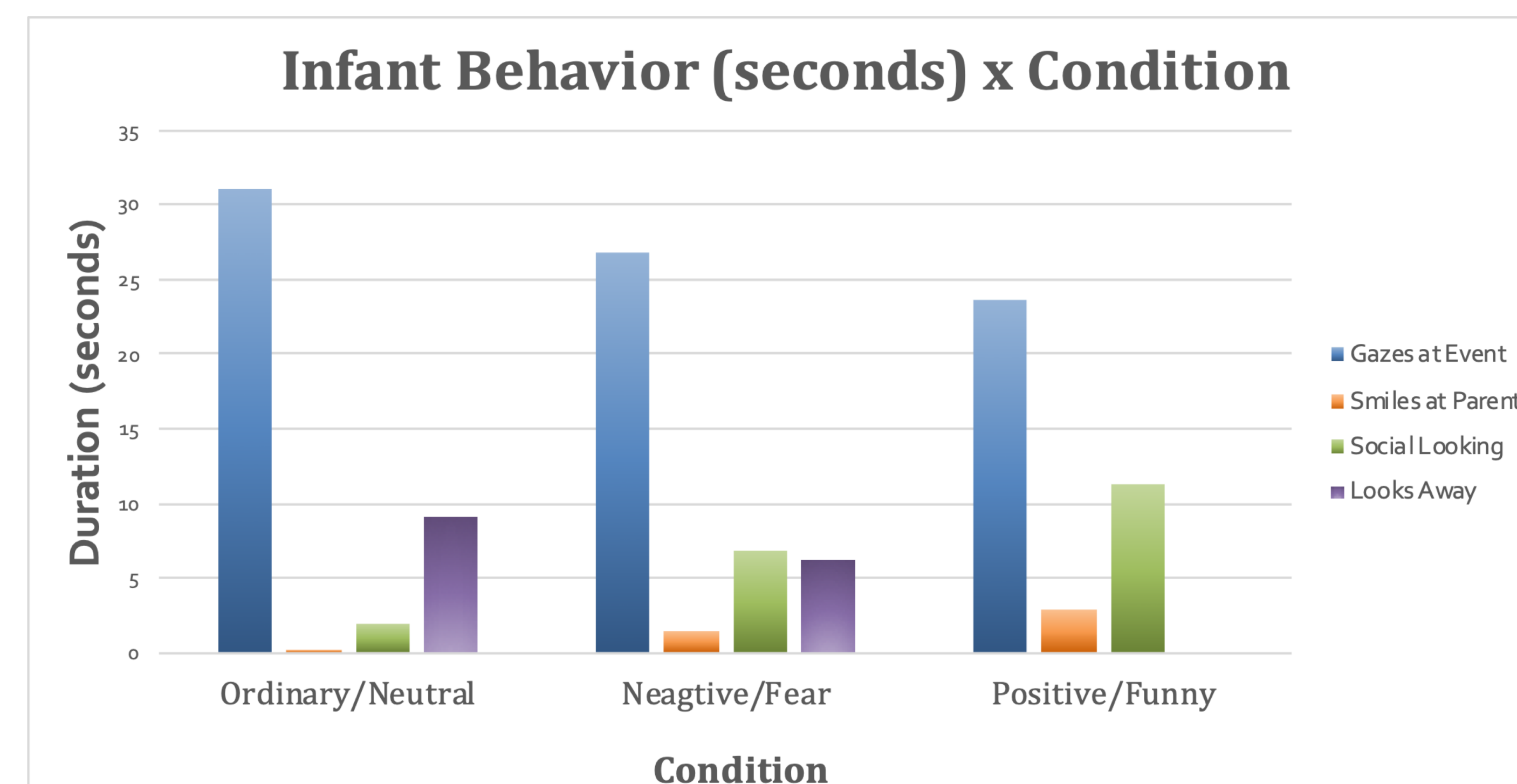
Approach/Avoidance was coded on a likert scale (1=avoids with distress, 2 = avoids, 3=no response, 4= interest with no affect, 5=interest with mild positive interest, 6= enthusiastic interest), but insufficient variability prevented its analysis.

Procedure

Each infant was seated 18 inches away from the parent and experimenter in a triangular configuration. The experiment involved three events each lasting 45 seconds. The first event (control condition) consisted of the experimenter wearing a blank mask and moving his/her head from side to side, while s/he and the parent remained neutral. The second and third events were fearful or funny events, defined by the parents' affective cues toward the event, and as described by Eckman et al. (2002). Two stimuli were used for both fearful and funny events: the same mask worn in the control condition but embellished with plastic "googly" eyes or white tufts of hair. Thus, infants saw either the eye-mask or the hair-mask combined with parental cues of fear (gasping, recoiling, and fear face) or funny (pointing, laughing, and smile face). The order of parental cues (funny, fear) and stimulus (eyes, hair) was pre-determined using randomization. After the last event, the experimenter held out the mask 12 inches from the infant to assess their approach/avoidance toward the stimulus, while the parent and experimenter remained neutral.

Analysis: Paired samples t-tests were used to assess within and between subjects' differences in infant behavior and affect.

Figure 1.



Results

Across conditions. As expected, infants gazed significantly longer at the stimulus when parents were neutral than when parents were smiling/laughing and looked away longer when parents were neutral versus smiling/laughing, as illustrated in Table 1. As hypothesized, infants used significantly more social looking when parents were smiling/laughing than fearful or neutral. No differences were found in infants' smiling at the event across conditions, but as expected infants smiled significantly longer at smiling/laughing than fearful parents. There was insufficient variability in distress to observe effects. (See Table 1 and Figure 1.)

Table 1.

	Neutral	Parent Affect Positive	Fearful	t (df)
Gaze at Stimulus	30.85(10.53) ¹	24.48(12.19) ¹	26.5(13.58)	¹ 2.78(26)**
Look Away	9.33(8.66) ¹	3.96(5.61) ¹	6.5(8.83)	¹ 4.18(26)***
Social Looking	1.78(2.83) ^{2,3}	10.41(9.27) ^{1,2}	6.82(7.47) ^{1,3}	¹ -2.94(27)** ² -4.60(26)*** ³ -3.14(27)**
Smile at Parent	.07(.38)	2.67(7.81) ¹	1.45(7.04) ¹	¹ -2.45(27)*

Note. * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$

Within conditions. When parents were neutral, infants gazed at the stimulus significantly longer than engaging in any other behavior, and looked away significantly longer than social looking or smiling at the event or parent. When parents were smiling/laughing, infants gazed at the stimulus significantly longer than any other behavior, and engaged in significantly longer social looking than smiling at the event or parent, or looking away. When parents were fearful, infants still preferred to gaze at the stimulus more than any other behavior and employed significantly more social looking and looking away than smiling at the event or parent. (See Table 2 and Figure 1.)

Table 2.

	Gaze	Look Away	Social Looking	Smile at Parent	Smile at Event
Neutral	31.07(10.04)	9.01(8.61) ^a	1.93(2.89) ^{a,b}	.71(.38) ^{a,b}	2.21(5.77) ^{a,b}
Positive	23.68(12.69)	3.82(5.55) ^{a,c}	11.32(10.30) ^a	2.82(7.71) ^{a,c}	.75(2.69) ^{a,c}
Fearful	26.76(13.40)	6.28(8.76) ^a	6.83(7.34) ^a	1.45(7.04) ^{a,b,c}	.66(1.91) ^{a,b,c}

a= significantly different from gazing
b= significantly different from look away
c= significantly different from social looking

Discussion

This study examined how young infants, prior to the onset of social referencing, respond to an ambiguous stimulus in the context of parental affective. As expected, 6-month-olds did not engage in social referencing and parental affect was not contagious. However, infants were captivated by parental affect and used more social looking when their parents were smiling/laughing or fearful. Although parental affect did not influence infants' affect, it did influence their behavior. Within the fear and neutral conditions, infants responded by looking away from the stimulus more than in the smiling/laughing condition, where they preferred to gaze at it. The key difference between fear and neutral conditions was that infants used more social looking during the former. These results suggest that, although young infants are not yet using social referencing, they are captivated by parental affect, which influences their orientation toward novelty.

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