Asymmetries in infants' attention toward and categorization of male faces: The potential role of experience

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ABSTRACT

Infants typically have a preponderance of experience with females, resulting in visual preferences for female faces, particularly high attractive females, and in better categorization of female relative to male faces. We examined whether these abilities generalized to infants' visual preferences for and categorization of perceptually similar male faces (i.e., low masculine males). We found that 12-month-olds visually preferred high attractive relative to low attractive male faces within low masculine pairs only (Experiment 1) but did not visually prefer low masculine relative to high masculine male faces (Experiment 2). Lack of visual preferences was not due to infants' inability to discriminate between the male faces (Experiments 3 and 4). The 12-month-olds categorized low masculine, but not high masculine, male faces (Experiment 5). Infants could individuate male faces within each of the categories (Experiment 6). The 12-month-olds' attention toward and categorization of male faces may reflect a generalization of their female facial expertise.

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Introduction

Infants' experience with others influences how they visually attend to people and subsequently structure their social categories (e.g., Anzures, Quinn, Pascalis, Slater, & Lee, 2010; Quinn, Yahr, Kuhn, Slater, & Pascalis, 2002). Early visual preferences and categorization abilities provide insight into how infants mentally represent faces (Quinn, 2002). Moreover, early perceptual abilities might serve as precursors to the development of social biases and stereotypes (Ramsey, Langlois, Hoss, Rubenstein, & Griffin, 2004). Before linking attributes to a particular social group, infants must first categorize similar looking, but distinguishably different, people as belonging to the same group. Studying infants' visual preferences for and categorization of different face types provides information about early social perceptions, which may provide the foundation for later emerging cognitive representations of social groups.

Despite the implications of infants' early perceptual abilities, minimal research has examined whether infants display visual preferences for certain types of male faces and whether and how they categorize male faces. Although males comprise 49% of the population in the United States (U.S. Census Bureau., 2012), they typically comprise only 30% of infants' experience with faces during the first year, at least among infants with female primary caregivers (Rennels & Davis, 2008; Sugden, Mohamed-Ali, & Moulson, 2014). A significant portion of the population, thus, is underrepresented in infants' world, yet this is the time when perceptual expertise begins to develop (Scott, Pascalis, & Nelson, 2007). The disproportionate amount of experience infants have with females compared with males could affect the cues infants attend to in male faces, so this research examined visual preferences for and categorization of male faces among infants with female primary caregivers.

Infants with female primary caregivers show visual preferences for female relative to male faces (Quinn et al., 2002, 2008). Moreover, infants show visual preferences for high attractive relative to low attractive female faces (Langlois et al., 1987), whereas the evidence regarding visual preferences for high attractive males is mixed; some studies show a preference, whereas others do not (Kramer, Zebrowitz, San Giovanni, & Sherak, 1995; Langlois, Ritter, Roggman, & Vaughn, 1991; Samuels & Ewy, 1985; see Ramsey, Langlois, & Marti, 2005, for a review). These findings suggest that infants' cognitive representation for faces is attractive and female-like (Quinn et al., 2002; Ramsey et al., 2005; Rubenstein, Kalakanis, & Langlois, 1999).

Several studies provide support that infants' facial representation is weighted toward attractive and female. When 16 or more faces from the same demographic are averaged together, adults judge the resulting averaged face as highly attractive (Langlois & Roggman, 1990). In addition, 6-month-olds visually prefer averaged female faces when paired with low attractive female faces and can cognitively represent female facial averages (Rubenstein et al., 1999). After familiarization to four or eight female faces, 3- or 6-month-olds, respectively, looked longer at a familiar or novel female face when paired with an averaged face comprising the female faces to which they were previously exposed (de Haan, Johnson, Maurer, & Perrett, 2001; Rubenstein et al., 1999). Infants, therefore, perceived the averaged female face as familiar, even more familiar than the familiarization faces, and formed a cognitive representation of the faces. For male faces, however, 6- and 8-month-olds did not show significant differences in their looking toward a familiar or novel male face when paired with an averaged face comprising eight male faces to which they were previously exposed. These data suggest that infants did not form a cognitive representation of male faces (Ramsey et al., 2005). Furthermore, after seeing a series of eight female or eight male faces, 3- to 4-month-olds looked more at a novel female than familiar female face, whereas they showed no differences in looking toward novel and familiar male faces, respectively. Infants, therefore, more accurately represented individual female than individual male face exemplars (Quinn et al., 2002, Experiment 6). Thus, infants are significantly better at cognitively representing female than male faces whether in the form of averaged representations or exemplars and visually prefer averaged (attractive) female faces, implying that infants' facial representation is attractive and weighted toward female.

Certain facial cues contribute to some male faces appearing more perceptually similar to an attractive female-like representation than others. Adult males' facial structure differs, on average, from that of females in that males possess wider and longer jaws, more protruding brows, and less full lips