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# Explaining sex differences in infants' preferences for groups

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**Abstract**

Social organization of a species influences myriad facets of individuals' behavior. Much research indicates that human social organization consists of males in large groups and females in smaller groups or interacting with individuals. This study analyzed the initial factors that produce greater preferences for groups by human male versus female infants. To this end, using a looking preference paradigm, fifty-nine 6–8-month-old infants viewed individual versus group images of actual children. On the basis of several controls, results demonstrated that male more than female infants are attracted to the complex level of stimulation provided by groups. Discussion centers on further identifying male versus female patterns of group interaction from a perceptual and cognitive standpoint.


*Keywords:* Social structure; Groups; Sex differences; Activity level

Documenting the social organization of a species permits understanding critical facets of individuals' behavior (Rodseth, Wrangham, Harrigan, & Smuts, 1991; Wrangham, 1987). Social organization refers to proximity to and cooperation with kin and genetically unrelated individuals. Females in mammalian species virtually always associate and cooperate more than males with offspring. Partly because the two sexes confront differing reproductive constraints, males and females generally interact in different forms of social organizations (Wrangham, 2000). As pertinent examples, humans' genetically closest living relatives, chimpanzees and bonobos, differ markedly in their social organizations with non-kin. Chimpanzee males organize themselves in groups, whereas females form more variable social bonds, often remaining solitary, but occasionally forming dyadic relationships or small cliques (Boesch & Boesch-Achermann, 2000; de Waal, 1994; Wrangham, Clark, & Isabirye-Basuta, 1992). In contrast, bonobo females organize themselves in groups, whereas males remain solitary, forming bonds only under rare circumstances (Kano, 1985; White & Burgman, 1990; White & Chapman, 1994). These differences in social organization influence which sex is dominant, the degree of within-sex cooperation, and the nature of intergroup competition, to name but a few critical factors that affect individuals' social interactions.

Cross-cultural research with human children and adolescents suggests that human social organization resembles that of chimpanzees, with males more likely to form groups with genetically unrelated same-sex individuals and

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females forming more variable, but smaller social organizations most often with kin (for reviews, see Benenson, Apostoleris, & Parnass, 1998; Cairns, Xie, & Leung, 1998; Fine, 1980; Freedman, 1974; Savin-Williams, 1980). More recent studies with human adults demonstrate the continuity of the sex difference. Males exhibit faster retrieval times for information concerning groups, whereas females exhibit more rapid retrieval times for information concerning individuals (Markovits, Benenson, & White, 2006). Adult males more than females also perceive groups as more important to their self-identity, whereas females focus more on individuals (Gabriel & Gardner, 1999; Seeley, Gardner, Pennington, & Gabriel, 2003). Both sexes, from early childhood through adulthood, infer that human males prefer group interaction more than females, whereas females are more likely to prefer interaction with individuals (Markovits, Benenson, & Dolenszky, 2001).

Sex differences in group interaction with peers become observable after age 5 years (Benenson, Apostoleris, & Parnass, 1997), although sex differences may appear as early as age 3 (Fabes, Martin, & Hanish, 2003). Simplified procedures using interactions with puppets demonstrate that 3–4-year-old males prefer group over individual interaction compared to females (Benenson, 1993). These results demonstrate the importance of the group versus individual distinction to sex differences in humans at a very early age. They suggest that this may be rooted in some biologically based perceptual differences.

In fact, an initial study using a looking preference paradigm, showed that 6–8-month-old males more than females preferred looking at three puppets over one puppet (Benenson, Duggan, & Markovits, 2004). While these results show that male's preference for group interactions are present at a perceptual level at a very early age, they do not allow any conclusion as to the precise parameters underlying this preference. The aim of the present study was to clarify these parameters.

Research on infant perceptual preferences suggests that the underlying sex difference is probably not related to low-order stimulation. A large body of literature has examined infant looking preferences for such perceptual variables as number, amount, size, brightness, complexity, movement, duration, rhythms, surface area, volume, contour length, density, and other simple perceptual features without reporting sex differences (for reviews, see Mix, Huttenlocher, & Levine, 2002; Wynn, 1998). It should be noted that such research has demonstrated that infants generally prefer larger numbers or sizes, most likely because the stimuli are more interesting without being too complex, especially if the numbers or sizes are not too large (for reviews, see Mix et al., 2002; Slater & Morison, 1991). This is consistent with the overall preference for the three puppets found by Benenson et al. (2004), but cannot explain the sex difference in the extent of the preference.

We can however identify three complex perceptual differences that might underlie male infants' preference for group stimulation. The first is number of social partners; males might be attracted to arrays having more individuals. A second potential explanation for sex differences in preferences for groups lies in the intrinsic nature of a group. Premack and Premack (1995) theorized that a domain-specific module for social competence evolved which permits humans to learn rapidly that similar objects clustered together that behave reciprocally towards one another belong to one group. Premack and Premack further suggested that males are attracted to groups more than females, and that this difference should be apparent in infancy. Males then may be more attracted than females to clusters of similar individuals visibly behaving reciprocally towards one another. A third possibility is that males may be preferentially attracted to the more overtly complex stimulation characterizing groups of males. Microscopic analyses demonstrate that compared to groups of females, groups of males produce significantly more frequent and briefer dyadic interactions yielding more fluid and complex overt interactions (Benenson et al., 1997). Males might then be preferentially attracted to groups exhibiting this typically male pattern of group interaction.

In order to examine which of these factors might underlie males' preferences for group stimuli, we constructed eight types of brief video clips. The first two consisted of clips of groups of six boys in a real-time interaction and clips of groups of six girls in a real-time interaction. We then filmed individual boys and individual girls in an animated discussion with an off-screen researcher. The individual boys and girls included in the latter clips also participated in the group interactions. A second set of four types of clips was constructed from the initial sequences by reducing the resolution of the video clips so that it was impossible to distinguish individual features and the specific details of individual actions. This allowed retention of the overt pattern of interactional stimulation, while eliminating identification of individuals and their reciprocal interactions.

While the purpose of the study involved examining sex differences in preferences for group stimulation, individual male and female clips were included as controls. Bower (1989) has demonstrated that infants can distinguish individual males and females by their patterns of movement. Eaton and Enns (1986) reviewed evidence that males are more