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Age, puberty and attractiveness judgments in adolescents

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ABSTRACT

Previous work has suggested that judgments of the attractiveness of some facial and vocal features change during adolescence. Here, over 70 Czech adolescents aged 12–14 made forced-choice attractiveness judgments on adolescent faces manipulated in symmetry, averageness and femininity, and on adolescent opposite-sex voices manipulated in fundamental frequency (perceived as pitch), and completed questionnaires on pubertal development. Consistent with typical adult judgments, adolescents selected the symmetric, average and feminine male and female faces as more attractive significantly more often than the asymmetric, non-average and masculine faces respectively. Moreover, preferences for symmetric faces were positively associated with adolescents' age and stage of pubertal development. Unexpectedly, voice pitch did not significantly influence adolescents' attractiveness judgments. Collectively, these findings present new evidence using refined methodology that adolescent development is related to variation in attractiveness judgments.

1. Introduction

Much research has demonstrated the importance of physical attractiveness in human behaviour (review in e.g. Langlois et al., 2000). Attractiveness affects a diverse range of social interactions, ranging from relationship initiation to attributions of personality traits to beliefs about competence (see e.g. Eagly, Ashmore, Makhijani, & Longo, 1991; Roberts & Little, 2008). Children are by no means exempt from the influences of attractiveness: children are aware of relative attractiveness from a young age, tend to agree with adults about relative attractiveness, and make use of perceptions of physical attractiveness in their behaviour (e.g. Cavior & Lombardi, 1973; Cross & Cross, 1971; Dion, 1973; Dion & Berscheid, 1974; Kleck, Richardson, & Ronald, 1974).

Attractiveness judgments are thought to reflect mate preferences at least in part, helping individuals to identify potential partners of relatively higher biological quality and suitability (see e.g. Roberts & Little, 2008). Accordingly, attractiveness judgments might be expected to differ across the life span because mate choice is more relevant during some stages of life (e.g. following puberty) than it is during others (e.g. prior to puberty, Little et al., 2010). Stimuli can be objectively manipulated to differ in the physical parameters that are thought to provide information on the quality of a potential partner, and these manipulations have systematic influences on adults' attractiveness judgments (see e.g. Rhodes, 2006; Roberts & Little, 2008). Manipulations can be used to alter indicators of hormonal profile (e.g. sexually dimorphic shape cues, waist-to-hip ratio and voice pitch) or developmental stability (e.g. prototypicality and symmetry) (see Roberts & Little, 2008). Adults tend to give higher ratings of attractiveness to women whose waist is around one third smaller than their hips, and a study of participants who varied in age from six years old to adulthood found that this standard adult preference developed approximately linearly during childhood and adolescence (Connolly, Slaughter, & Mealey, 2004). Additionally, facial masculinity is preferred more by women in their reproductive years, and less by women before the completion of puberty or after the menopause (Little et al., 2010; see also Vukovic et al., 2009). Another study found that preferences for facial averageness, male facial symmetry, feminised male faces (when judged by girls but not boys), and lower-pitched opposite-sex voices each increased with age during puberty (Saxton, DeBruine, Jones, Little, & Roberts, 2009). Finally, a study comparing female children, adolescents and adults found that only the ratings from the latter two groups gave rise to significant correlations between the rated attractiveness of a man's

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face compared to his voice, and that only the latter two groups demonstrated a preference for lower-pitched men's voices (Saxton, Caryl, & Roberts, 2006).

Research on the development of adolescents' attractiveness judgments has also investigated the relationships between individual differences in face and voice preferences and the stages of normal pubertal development. This follows findings that individual differences in adult attractiveness judgments can be linked to individual differences in hormonal profile (e.g. Jones et al., 2008; Puts, 2006; Welling et al., 2007) and that adolescent biological development corresponds to levels of sexual behaviour in adolescence (Halpern, Udry, Campbell, & Suchindran, 1993; McClintock & Herdt, 1996; Udry, 1988; Udry, Billy, Morris, Gross, & Raj, 1985). Controlling for possible effects of age, pubertal development in adolescents is correlated with boys' preferences for male facial masculinity and girls' preferences for male vocal masculinity (Saxton et al., 2009). In contrast, age, rather than physical development (own waist-to-hip ratio, height, weight, body mass index), is more important for variation in adolescents' preferences for women's waist-to-hip ratios (Connolly et al., 2004).

These earlier studies on attractiveness judgments and puberty used self-report measures of various facets of physical development (Saxton et al., 2009), or measurements of waist-to-hip ratio, height, weight and body mass index (Connolly et al., 2004), to capture biological development during adolescence. However, standardised measures of puberty exist, such as the Pubertal Development Scale (Petersen, Crockett, Richards, & Boxer, 1988), which uses self-report of somatic markers of puberty to give an overall picture of pubertal development (Bond et al., 2006; Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987). The current study set out to investigate whether standardised measures of pubertal development during adolescence predicted individual differences in face and voice attractiveness judgments. In addition, previous studies either asked adolescents to rate adult stimuli (Little et al., 2010; Saxton et al., 2006) or contrasted older adolescents' judgments of older adolescent stimuli with younger adolescents' judgments of younger adolescent stimuli (Saxton et al., 2009), but have not yet contrasted judgments by adolescents of different ages on the same set of adolescent stimuli, which was taken up in the present study. A final subsidiary aim of the research was to explore preferences in a population that does not form the subject of much current research, namely Czech adolescents (c.f. Henrich, Heine, & Norenzayan, 2010, who demonstrate how many of our expectations of psychological universals may be incorrect, and recommend cross-cultural testing).

2. Methods

2.1. Stimuli

All stimuli were taken from Saxton et al. (2009), where a fuller description of the methods of stimuli creation can be found. In brief, face stimuli were created on the basis of 60 photographs of Caucasian adolescents aged 11–15 (equally divided between male and female; and equally divided between an age group of 11–13 and an age group of 13–15) using the specialist computer graphics software Psychomorph (Tiddeman, Burt, & Perrett, 2001). Twelve pairs of faces were created that differed only in symmetry: one face was manipulated to increase the bilateral symmetry of the facial features, and one to decrease it. Twelve pairs of faces were created that differed only in averageness: one face was made more average (that is, more similar to the average of the faces making up the group which it came from: i.e. 15 males aged 11–13, 15 females aged 11–13, 15 males aged 13–15, or 15 females aged 13–15), and paired with the matching unmanipulated face. Finally, twelve pairs of faces were created that differed only in sexual dimorphism: one face was made to look more masculine (i.e. more like the average face shape of 15 boys aged 13–15 and less like the average face shape of 15 girls aged 13–15) and one was made to look more feminine (the reverse manipulation). Examples of the stimuli manipulations are given in Fig. 1. Vocal stimuli consisted of 12 pairs of opposite-sex voices (half aged 11–13 and half aged 13–15) from native English speaking individuals reciting four vowel sounds, standardised in length. Voices within each pair were identical except that one was raised and one lowered by 20 Hz in fundamental frequency (perceived as vocal pitch) using Praat 4.4.24 (Boersma, 2001).

Fig. 1. Examples of image manipulation, applied to an adult base face (children's faces are not shown for reasons of consent). Top row: face has been masculinised (left) and feminised (right); middle row: face is original (left) and made more average (right); bottom row: face has been made more asymmetric (left) and more symmetric (right). Image originally published in Saxton et al. (2009).