

FATHER ABSENCE, PARENT-DAUGHTER RELATIONSHIPS AND PARTNER PREFERENCES

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ABSTRACT

The purpose of this research was to determine whether or not the father absence literature can be successfully used to predict patterns of female preferences for facial masculinity in young adulthood. Predictions were made based on the effect father absence may have on the development of (a) sexual strategy, and (b) female 'condition', and were tested in two independent samples. Results for the link between father absence and masculinity preference were mixed; across both studies, however, daughters who reported low quality relationship with parents during childhood showed lower masculinity preference. These results predominantly support the condition dependence predictions that early family stress should be associated with reduced ability to compete for mates and thus preference for less masculine men. Additionally, in Study 2, family background was associated with facial preferences and age of menarche only amongst women who were not currently in happy and committed relationships, which suggests that there are systematic physiological and/or psychological differences between women for whom father absence is and is not related to long term outcomes.

KEYWORDS:

Father absence, parent-child relationships, attraction

INTRODUCTION

In the last decade there has been an increase in interest into potentially adaptive developmental influences on physical attraction, in particular facial attraction. As will be discussed further in the Discussion section, most recent research has addressed the issue of imprinting (use of parental faces as templates). Thus far psychosocial factors such as the broader rearing environment have received limited attention in the attraction literature, despite the now extensive evidence regarding family structure/family relationships and the development of the sexual and relationship behaviours of offspring in general. Therefore the aim of this paper is to consider how Father Absence theory and the Belsky-Steinberg-Draper developmental family stress model can be used to make predictions regarding facial attraction. Firstly we will summarise the family background literature and we will then put forward two alternative developmental routes of influence on, with different implications for, facial attraction in young adulthood.

Father absence theory

Draper & Harpending (1982) proposed that father absence (that is, absence of the biological father from the family home) during childhood is associated with a developmental shift in an individual's approach to relationships and parenting, such that 'father absent' daughters develop a low-investment (i.e. short term) relationship 'strategy' in which paternal care of offspring is not expected. Alternatively, father presence and a stable early environment should lead children to develop an approach to relationships which relies on stable pair-bonds and high levels of male investment (i.e. a long term strategy).

Belsky, Steinberg & Draper (1991) later put forward a developmental model in which parental divorce and father absence were one form of stress amongst many, and it is this psychosocial stress which 'affects' development via the attachment process. Specifically, they hypothesised that psychosocial stress leads to poor attachment and both a more opportunistic approach to relationships, and an accelerated life history trajectory.

A large body of literature has accumulated showing that absence of a co-resident biological father during early childhood is associated with earlier age of puberty (see Ellis, 2004, for a review) and first sexual intercourse (e.g. Ellis et al., 2003; Grainger, 2004), and increased likelihood of marital breakdown in the following generation (e.g. Wolfinger, 2003; Teachman, 2004). Poor parent-child relationships have similar associations (see e.g. Ellis, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999; Davis & Friel, 2001).

Although little or no research has investigated how father absence and its putative developmental consequences might affect partner choice, it is possible to extrapolate from the theory to make predictions regarding facial preferences. This can be done based on two different perspectives: first the differences in sexual strategy that one would expect to see between women with and without early father absence may mediate differences in facial preferences; and second the differences in 'mate value' one might expect to see between women with and without early father absence may also mediate preferences.

Sexual strategy

If a woman has a stronger preference for a short term 'sexual strategy' than a long term strategy (meaning, she would prefer short term sexual encounters over long term relationships), and is not seeking paternal investment, it can be predicted that she would primarily be (subconsciously) motivated by certain genetic benefits of a partner. For instance, research has shown that when seeking a short term partner, women are more concerned with looks (Buss &

Schmitt, 1993) and prefer more masculine faces (Little, Jones, Penton-Voak, Burt & Perrett, 2002) than when seeking a long term partner. Furthermore, at a time when a partner's genetic quality is most relevant in women's mate choice (during the late follicular phase of their menstrual cycle when pregnancy is most likely) they prefer more masculine male faces than at other times (Penton-Voak et al, 1999; Jones et al, 2005).

On the other hand, if a woman is more interested in a long term relationship and anticipates a need for bi-parental child rearing, then one might expect her to be more concerned with acquiring a partner who will provide long term paternal investment. Therefore, her preferences should be biased against very masculine, androgenised men (who are perceived as less committed and poorer parents: Perrett et al, 1998; Boothroyd, Jones, Burt & Perrett, 2007; and may experience more marital difficulties: see e.g. Mazur & Booth, 1998, for discussion) and instead favour more feminine males who are perceived as more committed to relationships and more likely to engage in child rearing (Perrett et al, 1998).

Therefore, given that father absence and/or early psychosocial stress are believed to be associated with the development of a more short term strategy in females, it can be predicted that father absent females, or those who experienced poor family relationships during childhood, should also have developed to prefer more masculine men than father present females or those who had a warm relationship with their parents. This should be the case both in *general* attraction judgements and also particularly so when they are asked to judge their attraction to faces as short term partners (in theory, their preferred strategy; for similar research on relationship context and menstrual cycle effects see e.g. Penton-Voak et al, 1999; Gangestad, Simpson, Cousins, Garver-Apgar & Christensen, 2004).

Condition dependence

The condition dependence phenomenon, whereby the 'mate value' of an individual (e.g. their health, genetic quality and fertility – and ergo their desirability as a mate) is related to the likelihood of their choosing high value mates themselves (seen, for instance, in sticklebacks: Kraak & Bakker, 1998), has also been shown to operate amongst humans. For instance, although (as described above) there are overall effects of relationship context on preferences for facial features, these effects are particularly strong amongst less attractive women (with low self-rated attractiveness: Little, Burt, Penton-Voak, & Perrett, 2001; or high waist-hip ratio: Penton-Voak, Little, Jones, Burt, Tiddeman, & Perrett, 2003), who have been shown to prefer more feminine male faces than other women when contemplating a long term relationship, but prefer equally masculine male faces as other women for short term relationships. High mate value women did not show any difference in preferences between long and short term relationships. Similarly, Feinberg et al (2006) found that high mate value women (high oestrogen levels) showed less change across the menstrual cycle in vocal masculinity preferences than other women. Little et al (2001) suggest that high mate value women may have more bargaining power in the mating arena and are more likely to receive paternal investment from masculine men than are low mate value women, and thus high mate value women need not bias their long term preferences towards feminine male faces.

There is evidence that girls growing up in a father absent household or who have difficult/insecure relationships with their parents may develop to be of relatively lower mate value than other girls due to poor health. For instance, Flinn & England (1997) found in rural Dominica that, regardless of socioeconomic status, children with non-resident biological fathers had significantly more days of illness than those living with both parents (even if a co-resident father was often away from the home, e.g. for work or after rows). Similarly, in Western samples insecure attachment and parental divorce in childhood have both been linked to poorer health later in life (Kotler, Buzwell, Romeo & Bowland, 1994; Maier & Lachman, 2000).

Furthermore, Boothroyd & Perrett (2006) found using ratings of facial photographs that women whose parents had a poor relationship were perceived as less healthy than women whose parents had a good relationship, and that father absent women and women whose parents had a poor relationship were both perceived as less attractive than other women.

One could therefore predict that women who have grown up without cohabiting fathers and those reporting poor parent-child relationships may have developed to be of lower condition and therefore should prefer less masculine males. By contrast, those females with resident fathers and those reporting good relationships (i.e. ‘high condition females’) should prefer more masculine men. This difference should be particularly evident in long term contexts – such as when asked to choose a potential long term partner (as in Little et al, 2001). Similarly, when asked to give a general preference (i.e. without specifying a long/short term context), we might expect lower mate value (or father absent) women to show the greatest cyclic shifts in preference and be most different to high mate value (or father present) women at a time when they are least likely to opt for short term sexual relationships (i.e. low fertility points of the menstrual cycle; Bellis & Baker, 1990). Of the little relevant attraction literature to this hypothesis, Little, Cohen, Jones & Belsky (2007) showed that merely asking participants to think of themselves in a financially risky position when choosing faces, induced a shift in preferences which mirrored that seen in ‘low condition’ women; the authors interpreted their results as suggesting that this was due to a feeling of lower condition in harsh environments.

Thus, Table 1 shows how the two explanations of the possible link between father absence and mate choice make mutually exclusive predictions for facial masculinity preferences. While the sexual strategies perspective predicts that father absence will lead to the adoption of a short term approach to relationships and therefore a greater interest in male facial masculinity, the condition dependence perspective predicts that father absence will be associated with poorer ‘condition’ and less interest in having relationships with more masculine men. Importantly, if any links between family background and face preferences are specific to mate choice, we should expect these hypotheses only to apply to *opposite* sex faces, and not to same sex faces.

Table 1. Predictions made based on sexual strategy, condition dependence and imprinting explanations of mate choice.

Test of preferences	Predicted masculinity preference			
	Sexual strategy		Condition dependence	
	<i>Father absent:</i>	<i>Father present:</i>	<i>Father absent:</i>	<i>Father present:</i>
General preference	masculine men	feminine men	feminine men	masculine men
Long and short term contexts	masculine men (particularly in short term)	feminine men	feminine men (particularly in long term)	masculine men in both contexts
Correlations with quality of family relationships	Negative correlation with masculinity (particularly in short term)		Positive correlation with masculinity (particularly in long term)	

STUDY 1

Method

Participants

445 heterosexual women aged 16 to 29 (mean age=23.1±3.7 years) were recruited for a 'Background and Facial Attraction' study through the laboratory website. 89.2% of participants were from Western countries (Europe, North America, Australia) and 83.1% were Caucasian. 30.0% of participants had separated parents. 52.1% of participants were undergraduate and postgraduate students, and 5.4% had other jobs within universities and research. 41.3% had jobs unrelated to research.

Questionnaire variables

Participants filled in an electronic questionnaire providing their age, sexual orientation, nationality, job and ethnic background, and the following information.

Menstrual cycle. Participants were asked when their last menstrual cycle had started. Those who had started between 6 and 14 days previously (follicular phase) were coded as high conception risk. Those who started less than 6 days (menstrual phase) or between 14 and 30 days (luteal phase) previously were coded as low conception risk. Women taking hormonal contraceptives and those reporting unusually long (last period more than 30 days ago) or irregular cycles, pregnancy or amenorrhoea were excluded, leaving 245 women (mean age=22.9±3.6) for analyses involving menstrual cycle.

Sexual development. Participants were asked at what age they started their periods, and first had sexual intercourse. They were also asked how many sexual partners they had ever had.

Self-rated attractiveness. Rated on a 1-7 Likert scale.

Parental separation. Participants were asked whether or not their parents were separated and when any separation occurred. Parental separation was then coded as prior to menarche, after menarche, or not at all.

Relationship with parents. Participants rated the warmth with which they remembered each parent separately (*With how much warmth do you remember your parents during these periods in your life?*) on 9-point Likert scales for both before the age of 6 (roughly pre-school years) and between the age of 6 and when the individual reached puberty (roughly primary/elementary school years). The two ratings were averaged together for each parent separately, producing two variables: *Warmth to Father* and *Warmth to Mother*. These two variables had previously been validated using Hazan & Shaver's (1987) Adult Attachment Questionnaire (high Warmth is associated with low insecurity scores: Boothroyd, 2004).

The questionnaire also included two measures of SES (bedrooms per capita and parental income quartile), but these related to neither father absence nor facial preferences, so were not included in the analyses.

Facial masculinity preference task

Participants rated preference on 6 male and 6 female pairs of faces varying in masculinity. These pairs were the opposite ends of the masculinity continua used in previous tests (Perrett et al, 1998; Penton-Voak, et al 1999; Penton-Voak, 2001; all manipulated faces had been validated for perceived masculinity, see previous papers for details). Each pair consisted of a face which

had been given a 50% masculinisation shape transform, and the same face given a 50% feminisation shape transform. Face pairs were presented side by side in a java applet (for example, see Boothroyd et al, 2005) and participants were told to first decide which of each pair they preferred and then to indicate the strength of that preference on the points below the faces. For opposite sex (male) faces they were asked to decide which one they found more attractive. For same sex (female) faces they were asked which one they preferred to look at (in order to assess their own preferences rather than, for instance, their estimates of men's preferences). Results were recorded on an 8-point 0-7 preference scale where 0 = strong preference for the feminine face and 7 = strong preference for the masculine face (such that 3.5 represented no preference). Masculinity preference was taken as the mean of the ratings for all 6 face pairs of each sex separately.

Pairs were randomised on order of presentation and left-right positioning. All participants were presented with all male face pairs first and all female face pairs second.

RESULTS

We will first (both here and for Study 2) report preliminary analyses examining the links between family background and developmental/sexual variables. We will then consider how the family background variables predict facial preferences.

Preliminary analyses

Age of menarche was not related to father absence ($F_{2,425}=0.024$) or warmth to parents (both $r_s<0.09$).

Timing of first coitus had a significant association with father absence ($F_{2,352}=5.93$, $p<0.01$; $\eta_p^2=0.03$) such that nonvirgins whose parents separated before menarche reported having had sex at a younger age than nonvirgins whose parents did not separate at all (early separation: mean 16.48 years, no separation, mean 17.62 years, Tukey's HSD: $p<0.01$; those whose parents separated later had first coitus at mean age 17.20 years and did not differ from either other group). First coitus was also marginally correlated with Warmth to Father ($r_s=0.122$, $n=209$, $p=0.080$).

Number of sexual partners was similarly greater for those whose parents had separated before menarche than women in other groups, after controlling for participant's age ($F_{2,389}=4.15$, $p<0.05$, $\eta_p^2=0.03$; early separation: mean 9.67, late separation: mean 5.87, no separation: mean 6.24).

Self-rated attractiveness did not relate to father absence ($F_{2,429}=1.49$), but was significantly positively related to Warmth to parents (father: $r_{s415}=0.108$, $p<0.05$; mother: $r_{s413}=0.194$, $p<0.001$).

Facial preferences

Parental separation and facial preferences

There were no significant differences in preferences for male facial masculinity between women whose parents were never separated and those whose parents had separated, whether that separation took place before or after menarche ($F_{2,438}=1.14$). However, when the participants were split by conception risk (excluding those using hormonal contraceptives), there was a significant interaction between conception risk and parental separation on male facial masculinity preference (2-way ANOVA: conception risk x group; $F_{2,220}=4.74$, $p<0.05$, $\eta_p^2=0.04$; see Figure 1 for results of posthoc Tukey's HSD). Women whose parents separated prior to menarche had a greater preference for masculinity than women whose parents did not separate

during the high risk phase. Only women with early parental separation showed stronger preference for masculinity in the high risk phase.

Controlling for number of sexual partners, age of menarche and self-rated attractiveness (to determine whether they play any mediating role) did not change the significance (or not) of the results above. (Age of first coitus, which excludes virgins, was considered unsuitable as a control variable in this young sample.)

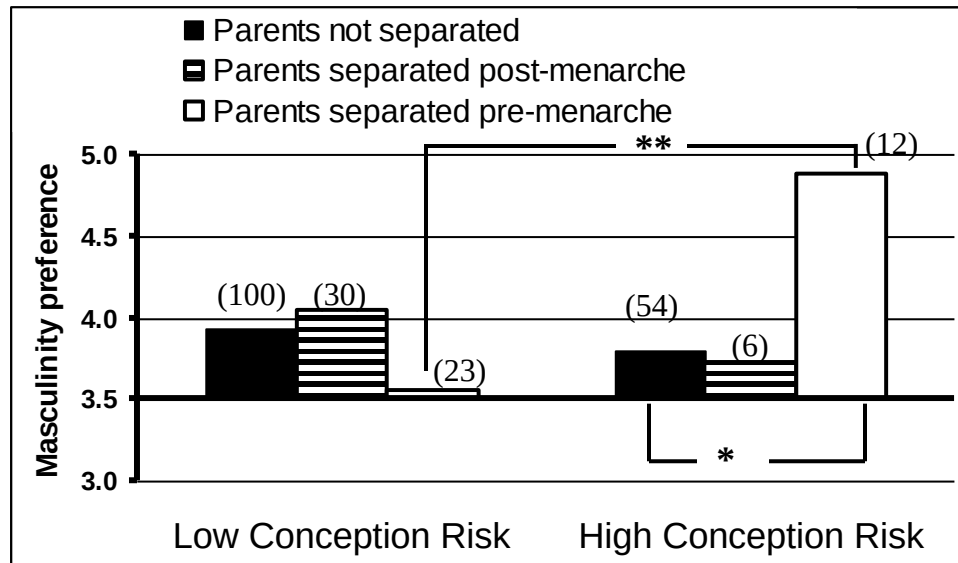


Figure 1. Mean facial masculinity preference for women judging male faces (<3.5 = prefer feminine face & >3.5 = prefer masculine face) split by conception risk. Sample sizes given in brackets. * $p < 0.05$, ** $p < 0.005$

Warmth to Parents and facial preferences

There was a significant association between male facial masculinity preference and both Warmth to Father ($r_{s426} = 0.146$, $p < 0.01$) and Warmth to Mother ($r_{s426} = 0.106$, $p < 0.05$) such that the higher a woman's 'Warmth' scores, the more she preferred masculine male faces. These associations also held when only daughters of unseparated parents were considered (Warmth to Father: $r_{s285} = 0.227$, $p < 0.01$; Warmth to Mother: $r_{s285} = 0.141$, $p < 0.01$).

Although partialling out age of menarche and number of sexual partners did not affect the significance of these results, controlling for self-rated attractiveness did lead to the correlations between Warmth to parents and masculinity preference becoming non-significant (all $r < 0.1$, all $p > 0.1$).

Same-sex face preferences and participant age

There were no significant results for same-sex preferences, with the exception of a difference between groups in the forced choice applet test with those women whose parents separated after menarche showing the strongest preference for the feminine female faces ($F_{2,438} = 2.66$, $p < 0.05$, $\eta_p^2 = 0.01$; all other results: $p > 0.1$). There was no correlation between participant's age and their facial preferences (all $r_s < 0.1$, $p > 0.1$).

DISCUSSION

The results of this study contribute to the large bank of literature showing that father absence and poor quality father-daughter relationships are associated with earlier first coitus and greater

number of sexual partners. The current study failed to show family background relating to age of menarche, which contrasts with the weight of previous studies (as discussed by Ellis, 2004) and is probably due to sample size (studies reporting effects tend to be large – ranging from 321 [Hoier, 2003] to 10 135 [Quinlan, 2003]).

This study supports a link between family background and face preferences in adulthood. Early father absence was associated with significantly stronger masculinity preference in women likely to be ovulating and nonsignificantly weaker masculinity preference in women likely to be in the luteal phase of their cycle. Self-reported poor parent-daughter (particularly father-daughter) relationships were associated with lower male facial masculinity preference. The results do not entirely fit with the short term strategy that can be argued to be associated with father absence and stressful childhoods. The sexual strategies explanation predicted that father absence would be associated with a short term strategy leading to greater masculinity preference *even when relationship context is not specified*, which was not the case in the present study. Father absence did increase masculinity preference amongst high conception risk females. One might suggest that the preference for masculinity might *only* manifest itself when a short term relationship was *explicitly* considered (see e.g. Penton-Voak et al, 1999; though cf Rhodes et al, 2001), but this does not explain why an interaction was seen in general preferences once conception risk was taken into account (which does not represent an explicit short or long term choice). The correlations between Warmth to Father/Mother and masculinity preference, however, directly contradict the strategy predictions and are more concordant with the condition predictions. This is particularly the case inasmuch as controlling for self-rated attractiveness removed the association between ratings of parent-child relationships and masculinity preferences, while controlling for a sexual strategy-related variable such as number of sexual partners had no such moderating effect.

The fact that there was no link between the family background variables and female facial masculinity preferences in either test strongly suggests that the results seen here with the male faces are restricted entirely to mate choice decisions, rather than a general difference in facial preferences.

STUDY 2

The aims of this study were (a) to further explore the results of Study 1 in a new sample, and (b) to investigate whether participant's partnership status qualified previous results. Little et al (2002) found that being in a relationship (henceforth referred to as a partnership, for clarity) was associated with an increase in women's masculinity preferences. They suggested that this was because women in partnerships already have a long term, investing partner and thus can only view potential male partners in a short term (i.e. extra pair) context. Partnered women's preferences may thus be biased towards indicators of good genes such as masculinity. Conversely, women not in partnerships may be biased towards considering men as potential long term partners and thus be drawn to more feminine faces.

According to previous research, women from father absent or high stress backgrounds are less likely to be in stable long term partnerships as adults (see Introduction). If women in partnerships have a higher masculinity preference, then one would expect father present women (more likely to be in partnerships) to also have a higher masculinity preference than father absent women. Thus being in/out of a partnership could be a mediating factor in the correlation between Warmth to parents and masculinity preferences seen in Study 1 (although it would not explain the results for father absence and masculinity preferences).

If partnership status does indeed mediate the association between parent-daughter relationships and facial attraction, one would expect the 'effects' of father absence to disappear

once partnership status is entered into a model. If partnership status is not a mediating factor, there should be a link between family background and facial preferences amongst both those in long term partnerships and those who are single.

METHOD

Participants

563 heterosexual women aged 16 to 29 (mean age=22.92 years, s.d.=3.64) took part in this study. 90.9% of participants were from Western countries and 85.8% were Caucasian. 15.9% of participants had separated parents. Replicates were excluded on the basis of IP address. 62.6% of participants were undergraduate and postgraduate students, with a further 10.5% working in teaching and research.

Questionnaire variables

Participants filled in an electronic questionnaire as before, with two exceptions. First, in light of the results in Study 1, parental separation was coded as father absent before menarche, or father present before menarche (combining the after menarche and no separation groups together). Second, participants also answered the following questions on their partnership status. Following Little et al (2002), participants reported whether or not they were currently in a partnership, and if they were, they rated on separate 1-5 Likert scales the happiness and commitment in the partnership (both ratings being positively correlated with parental Warmth scores: all $r_s > 0.15$, $p \leq 0.001$, and negatively associated with father absence: both $t > 2$, $p < 0.05$, Cohen's $d \geq 0.35$). In their analyses, Little et al (2002) discarded all those who rated their partnerships as unhappy or uncommitted (since these women may well be open to new *long term* partnerships and look at men as mate replacements as well as extra pair partners). In order to preserve sample size, in this study participants were divided into those who were in a happy and committed partnership (rated 3 to 5 on both the happiness and commitment scales; 47.2% of participants), and those who were in an unhappy/uncommitted partnership (rated 1-2 on either scale) or single (52.8%). Partnership status was not related to father absence ($\chi^2 = 0.32$, 1df), but those in a good partnership did rate their parents more positively (father: Mann Whitney $z = 2.47$, $p < 0.05$; mother: $z = 2.44$, $p < 0.05$).

Facial preference tasks

As in Study 1, participants rated their preference between pairs of male faces varying in masculinity. Stimuli were the 6 pairs of masculinity stimuli used in Study 1, and a further 6 pairs created in the same way (see Boothroyd et al, 2005, stimuli set b, for details of image creation and validation).

Whereas in Study 1, participants were divided into high and low fertility groups (as a proxy for whether they were more likely to be seeking a short or long term relationship), in Study 2, participants rated the faces based on both attractiveness as a long term partner, and attractiveness as a short term partner. This maximised sample size, while still including the short/long variable. Order of testing short and long term preferences was counterbalanced. Within each choice context, pairs were randomised on order of presentation and left-right positioning. Participants did not rate same sex faces in Study 2.

RESULTS

Preliminary analyses

When parental separation and partnership status were entered into a 2-way ANOVA, there was a significant interaction between the two predictors for *age of menarche* ($F_{1,445} = 9.42$,

$p < 0.01$, $\eta_p^2 = 0.02$) and *self-rated attractiveness* ($F_{1,443} = 4.24$, $p < 0.05$, $\eta_p^2 = 0.01$). Parental separation was associated with lower age of menarche and self-rated attractiveness only amongst women who were single or in bad partnerships (see Figure 2 below for Tukey's HSD results). Neither measure, however, related to Warmth to Parents (all $r_s < 0.05$)

Age of first coitus was positively correlated with Warmth to Mother ($r_s = 0.094$, $n = 454$, $p < 0.05$; but not with father: $r_s = 0.045$) and showed a trend towards an interaction between parental separation and partnership status ($F_{1,443} = 3.84$, $p = 0.051$), although post-hoc tests revealed no significant differences between the four subgroups ($F_{3,445} = 2.02$).

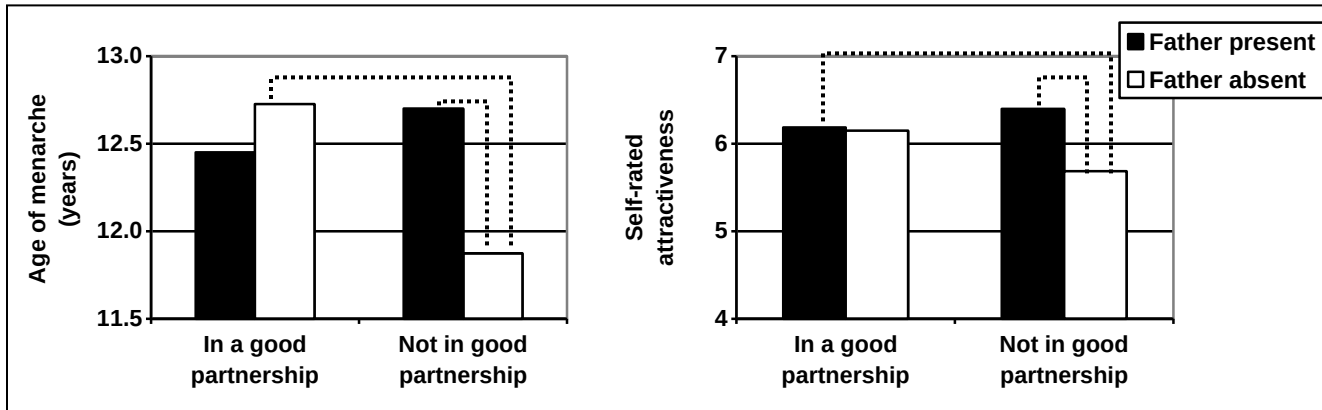


Figure 2 Interaction in Study 2 between partnership status and father absence (parental separation) on age of menarche (left) and self-rated attractiveness (out of 7; right). Dotted lines = Tukey's HSD $p < 0.05$

Facial preferences

Parental separation and facial preferences

Masculinity preference was averaged for all 12 stimuli pairs, to create a single short term masculinity preference score, and a single long term score. A mixed ANOVA (term x partnership status x father absence) found a main effect of father absence ($F_{1,337} = 4.29$, $p < 0.05$, $\eta_p^2 = 0.01$) and a marginal interaction between father absence and partnership status ($F_{1,337} = 4.76$, $p = 0.053$, $\eta_p^2 = 0.01$). Post-hoc tests showed that while father absence pre-puberty was associated with lower masculinity preference amongst single women and those not in good partnerships (short term: $t_{157} = 2.86$, $p < 0.01$, $d = 0.46$; long term: $t_{156} = 2.41$, $p < 0.05$, $d = 0.39$), it had no such association amongst women in good partnerships (both $t < 0.8$). There were no further main effects or interactions (all $F < 1$). The results remained the same when self-rated attractiveness and age of menarche were entered into the model as covariates.

Relationship with parents and facial preferences

Across all participants, Warmth to Father was found to relate positively to short term masculinity preference ($r_s = 0.114$, $n = 397$, $p < 0.05$) but related only marginally to long term preference ($r_s = 0.093$, $n = 348$, $p = 0.067$). Warmth to Mother did not relate to masculinity preference at all (both $r_s < 0.06$). When participants were divided by partnership status, Warmth to Father correlated with masculinity preference for both long and short term amongst single women and those in uncommitted partnerships (long term: $r_s = 0.182$, $n = 171$, $p < 0.05$; short term: $r_s = 0.182$, $n = 172$, $p < 0.05$), but not amongst women in good partnerships (both $r_s < 0.08$). There were no correlations with Warmth to Mother in either group (all $r_s < 0.09$). This pattern of results held when only daughters of unseparated parents were analysed and also when self-rated attractiveness and age of menarche were controlled for with partial correlations.

DISCUSSION

The results of this study show that father absence and recall of poor father-daughter relationships are associated with less preference for facial masculinity in both short and long term relationship contexts, amongst women who were single or in unhappy/uncommitted partnerships. There was no link between family background and attraction in women who reported that they were in happy and committed partnerships. The results partly replicate Study 1 in that there was evidence that the reported warmth of father-daughter relationships was positively associated with masculinity preference. Contrary to expectation, however, there was no interaction between relationship context and father absence such as had been suggested by Study 1.

The second aim of Study 2, to investigate the effects of controlling for partnership status on the father absence relationship with masculinity preference, also proved fruitful. Rather than mediating the ‘effects’ of father absence, however, being in a good partnership appears to be a *moderating* factor. Although single women and those in unhappy/uncommitted partnerships showed the expected pattern, with low Warmth to Father scores and father absence predicting lower masculinity preference, women who were in happy partnerships showed no links between father absence or warmth to parents and their masculinity preferences.

There are two possible explanations for why a happy partnership would ‘remove’ a link between family background and partner preference. Firstly, it could be that achieving a happy and stable partnership helps daughters to ‘overcome’ any problems of having separated parents, and adjusts the daughters’ preferences accordingly. However, there is a second possibility which is more likely. It was also shown in this study that father absence predicted earlier menarche only amongst women who were single or in unhappy/uncommitted partnerships. Women in happy and committed partnerships did not show any association between father absence and menarche. Since age of menarche is an objective measure, and took place long before the current partnership, the underlying relationship appears to be that father absence *and* early menarche predict more difficulty in attaining a happy partnership in adulthood. It could therefore be that there are two groups of father absent women. One group consists of those for whom the absence/poor relationships are stressful, who follow a developmental trajectory characterised by earlier pubertal development and less likelihood of stable adult partnerships, and who have lower masculinity preference. The second group consists of those who are protected in some way during childhood from any adverse effects or associations of father absence, who do not go on to develop along a ‘father absent’ trajectory, but in fact resemble more closely father present women. Thus rather than being a direct moderator of father absence, being in a happy and committed partnership could reflect that there had been some previous moderation of the father absence ‘effect’. Indeed, this is consistent with Belsky et al’s assertion in their original model, that the developmental process is likely to be cumulative, rather than linearly determinative. Our results may also offer evidence of differential susceptibility to rearing environment (for further discussion, see Belsky, 1997).

GENERAL DISCUSSION

The aim of this paper was to investigate how father absence or poor parent-daughter relationships in childhood could relate to the development of women’s partner choices. Two different routes through which family background could have such an effect were put forward: a shift in sexual strategy and a difference in condition and competitiveness. The sexual strategy route predicted that father absence and poor parent-daughter relationships would be associated with *stronger* masculinity preferences, particularly in *short term* contexts. The condition route

predicted that father absence and poor parent-daughter relationships would be associated with *weaker* masculinity preferences, particularly in *long term* contexts.

The findings regarding the link between father absence and male facial masculinity preference were somewhat mixed (see Table 2). Father absent females in Study 1 showed an increase in masculinity preference compared to father present females only during the fertile phase of their menstrual cycle, and a nonsignificant decrease in masculinity preference during the unfertile phase of their cycle. Father absent females in Study 2, on the other hand, showed lower masculinity preferences compared to other females in both short and long term contexts (although only amongst women not in good partnerships). Thus, these results do not clearly distinguish between either of the two sets of predictions.

Table 2. Summary of results

	Test of preferences	Father absent:	Father present:	
Study 1	General preference	no difference		
	Long and short term contexts: Conception risk	strong masculinity preference if high risk	slight masculinity preference in high and low risk groups	
	Correlations with quality of family relationships	Positive correlation		
Study 2	Long and short term contexts	Prefer more feminine men in both contexts	Prefer more masculine men in both contexts	} For women not in good relationships only
	Correlations with quality of family relationships	Positive correlation		

In both studies, however, the correlational analyses showed that retrospective warmth of the participants' relationships with their parents was positively associated with masculinity preference. This was predicted only by the condition explanation. Furthermore, both studies showed evidence that family background is associated with lower self-rated attractiveness (Warmth scores in Study 1, father absence in Study 2). It should be noted that since self-rated attractiveness only appeared to mediate the link between family background and masculinity preference in one instance (Warmth scores in Study 1), we cannot conclude that we have clearly demonstrated that condition is the mediating factor in these data, merely that the overall pattern of results is most consistent with the predictions we made on the basis of condition.

Overall, therefore, the current studies lend most support to the notion that girls from father absent backgrounds are, or perceive themselves as being, low mate quality (compared to father present females) and thus adjust their partner aspirations accordingly. Similarly, Hoier (2003) showed that women who reached menarche early rated a range of men's photographs as more attractive than women who reached menarche later (i.e. they were 'less fussy'). The current results also fit with the finding that father absence or reported poor quality parental relationships were associated with lower facial attractiveness (Boothroyd & Perrett, 2006), and with Flinn & England's (1997) work showing that father absent children have poorer health than father present children.

The finding that reported Warmth to Father related to facial preferences amongst those whose parents were *not* separated supports Belsky et al (1991) in that it suggests that poor attachment and *any* psychosocial stress, rather than just father absence *per se*, may adversely affect development. It is also of interest that parental separation was linked to a difference in preferences only when it occurred pre-menarche, as Belsky et al's developmental model would suggest. The current studies, however, show patterns of face preferences that are not entirely concordant with the sexual strategy that one might predict, based on Draper & Harpending's

Father Absence Theory, that father absent women would adopt. This is perhaps less surprising when one considers that the sexual development/behaviour variables showed absolutely no instances of mediating the results of these studies (although of course, our only proxy for condition, self-rated attractiveness, only showed one instance), which suggests that the link between family background and facial preferences is independent of any effect family background may have on timing of puberty and sexual behaviour.

It is important to note that, as with much father absence research, these studies relied very heavily on briefly assessed retrospective reports of family relationships. There is mixed opinion within the literature over the accuracy of retrospective reports (e.g. Henry, Moffit, Caspi, Langley & Silva, 1994; Cournoyer & Rohner, 1996). The fact that objective measures of parenting (namely timing of parental separation) showed links with preferences, suggests that the links between Warmth to Father and preferences may represent genuine developmental associations, but it is essential that longitudinal research is carried out on this topic. Regardless of this caveat, however, this paper has established in two separate studies that subjective, retrospective recall of parent-child relationships is associated with current facial preferences.

There is a further developmental factor which may contribute to the results seen here. Research has suggested that exposure to parental faces during the early stages of perceptual development may bias preferences in favour of parental characteristics in potential partners (Jedlicka, 1980: race; Perrett et al, 2002: parental age; Little, Penton-Voak, Burt, & Perrett, 2003: eye and hair colour) and that the quality of the relationship between parents and offspring can predict the similarity between spouse and same-sex parent (Bereczkei, Gyuris, Koves & Bernath, 2002; Bereczkei, Gyuris, & Weisfeld, 2004; Wizsewska, Pawlowski & Boothroyd, 2007). Without pictures of the participants' parents, it is impossible to assess whether imprinting of parental features played a role in the relationship between reported family background and masculinity preference.

This research has found associations between father absence and reported family relationships during childhood and daughters' partner choice in young adulthood. Future research can address the ontogenetic pathway and the extent of preference change.

ACKNOWLEDGEMENTS

The authors wish to thank Elisabeth Cornwell, Tony Little, Bernard Tiddeman, Mike Burt and Ben Jones for advice and assistance, and several anonymous reviewers for insightful comments. L Boothroyd was supported during data collection by an MRC studentship, and during preparation of a previous version of this manuscript by an ESRC Postdoctoral Fellowship (PTA-026-27-0475).

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