Dads or cads? Women's strategic decisions in the mating game

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ARTICLE INFO

ABSTRACT

We report the findings of two studies ($N = 142$; $N = 28$) investigating women's preference for men in short- and long-term mating scenarios and perceptions of honesty of dating adverts written by men high or low in Machiavellianism. Overall, men low on Machiavellianism (viz., dads), were preferred as long-term mates; and men high on Machiavellianism (viz., cads) as short-term mates. Fertile women preferred cads for a short-term relationship and dads as a long-term partner. Higher ratings were given to all adverts when females were fertile, suggesting generally higher levels of desire for a partner when the possibility of conception is highest. In contrast to previous work suggesting traits like Machiavellianism may facilitate a deceptive or exploitative mating strategy in men, the present results suggest (1) women are attuned to differences in men's personality as a function of fertility and (2) affirms that women prefer cads for short-term mating and dads for long-term mating.

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1. Introduction

Men who are high on Dark Triad traits such as Machiavellianism have more short-term mating success (Jonason, Li, Webster, & Schmitt, 2009; McHoskey, 2001). Such a personality trait appears to equip men with charm, deceit, and an exploitive (e.g., mate-poaching, sexual coercion) mating strategy (Figueredo et al., 2005; Gladden, Sisco, & Figueredo, 2008; Jonason, Li, & Buss, 2010). However, research has generally failed to consider whether women are actually attracted to men who embody these traits or are simply deceived by them, instead relying on self-reports of men who are high on these traits. It is possible that men characterized by these exploitive tendencies may lie on self-report measures; and in reality women do not find them as irresistible as they claim. Furthermore, if women are indeed attracted to these men, pertinent questions are why and when they are attracted to such "deceptive, dangerous cads" as mates.

Superficially, one would think women would avoid Machiavellian men as relationships with men like these may result in physical harm and mate-defection (Gladden et al., 2008; Jonason et al., 2010). Nonetheless, women may engage in relationships with such men for adaptive reasons, particularly short-term benefits such as to get better genes for their offspring, mate switching, testing their mate value, and to gain access to more resources and protection (Gangestad, Garver-Apgar, Simpson, & Cousins, 2007; Gangestad & Thornhill, 2008; Greiling & Buss, 2000). Despite the potential risk in mating with men high on Machiavellianism, there are benefits, and these might be best realized in short-term relationships, especially those occurring during peak fertility. Indeed, when women are at peak fertility, they have been found to be more attracted to "cads" than "dads" (Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004; Puts, 2010). These cads may have attractive qualities like good genes. Good genes have traditionally referred to physical characteristics, such as developmental stability, producing symmetrical, sexy sons, increasing reproductive success over generations. However, reproductive success over generations can also occur via genes motivating increased short-term mating, a key component of Machiavellianism (Jonason et al., 2009).

Moreover Machiavellianism has also been found to positively correlate with striving for dominance, and accrual of resources, both of which can benefit the female and any potential offspring resulting from the liaison. As there is evidence for the inheritance of Machiavellianism (Vernon, Villani, Vickers, & Harris, 2008), and therefore the potential for reproductively successful offspring, we predict that when women are ovulating they will prefer men who are high on Machiavellianism as a short-term partner compared to a long-term partner.

Women are likely to be, at least implicitly, aware of the manner by which men differ on their mating strategies (Barnacz, Amati, Fenton, Johnson, & Keenan, 2009; Keenan, Gallup, Goulet, & Kulkarni, 1997) and thus they may actively choose between men who adopt different strategies at different points in their life and/or menstrual cycle. Such a contention is consistent with work suggesting that whilst men's short-term mating is opportunistic, women's appears more strategic (Jonason & Buss, 2012).

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The level of fertility a woman has at any given time is likely to affect her mate choice. When women are not ovulating and, therefore, less fertile, they should not prefer cad-type males as potential mates as there is little possibility of becoming pregnant, and therefore benefitting from the genes. During the majority of the menstrual cycle women should prefer dad-types (i.e., men low on Machiavellianism) rather than cad-types. Dads are likely to invest, to be caring, and to be generally a less risky choice (Kruger & Fisher, 2005). Furthermore, oral contraceptives reduce fertility by introducing hormones that trick a woman's body into thinking she is already pregnant (Alvergne & Lummaa, 2010; Song, 2007). Natural selection would have selected for a cautious lifestyle (including avoiding association or mating with potentially aggressive cads) when pregnant to reduce the risk of harm to the developing foetus. Ancestral women who mated with cads whilst pregnant would have been more likely to have been selected out of the population because of their diminished reproductive success through increased risk of injury, and potential miscarriage. Therefore, it follows that women who are on oral contraceptives (which mimic pregnancy) should be uninterested in mating with high risk men who are characterized by their high scores on scales of Machiavellianism.

In this study, we attempted to understand if women's mate preferences are calibrated to indicators of a cad-type of personality and does this calibration function differently across mating duration and ovulatory phase. Rather than using experimenter manipulated descriptions, uniquely, we had a sample of men high on Machiavellianism who wrote descriptions of themselves, which women (both naturally cycling and pill using) rated for desirability as a short or long-term mate.

2. Study 1

2.1. Method

2.1.1. Participants

Participants were 142 women ($M = 22.75$, $SD = 5.47$), 59 of whom reported using hormonal contraceptives, and 83 who were non-contraceptive users. Participants were recruited via advertisements to undergraduate students at a university in Northwest of England. Students received course credit for their participation.

2.2. Materials

Dating adverts were constructed by 30 undergraduate men, who participated for course credit. The men filled in an on-line survey consisting of the Mach IV scale (Christie & Geis, 1970) and a request to compile a dating advert in order to attract a female out on a date. The males were informed that the adverts will be shown to women, who will be rating them for date attractiveness. The adverts written by the four highest ($M = 99.80$, $SD = 7.45$) and the four lowest ($M = 58.70$, $SD = 3.37$) scorers on the Mach IV scale were chosen to be rated by the women.

2.3. Procedure

In an on-line study, female participants filled in details about their menstrual cycle (days since the first day of their last cycle) and contraceptive use (whether they did or did not use hormonal contraceptives, such as the pill or injections). Next, the participants were given instructions asking them to read the dating adverts carefully, and were informed that the adverts had been written by men with different personality characteristics. Each participant was asked to rate each of the eight adverts as a potential long-term and a potential short-term partner on a 10-point

Likert scale (1 = not attractive at all; 10 = very attractive). Following Little, Cohen, Jones, and Belsky (2007), the definition of a long-term partner was given as 'somebody you might want to move in with, someone you might consider leaving your current partner for, someone you might want to marry'. The definition of a short-term partner was given as 'a single date accepted on the spur of the moment, an affair whilst in a long-term relationship, or a one-night stand'.

Likelihood of conception was calculated according to the actuarial data provided by Wilcox, Dunson, Weinberg, Trussell, and Baird (2001). This method assesses the probability of conception on each day of the cycle, using the first day of menstruation as day one of the cycle. According to this method, on the day menstruation starts, conception risk is 0%, rising steadily to 2.9% on day 8, 7.5% on day 11, reaching its peak on day 13, when conception probability is 8.6%. After that, there is a rapid decline in fertility (6.1% on day 16; 4% on day 18; and 2.5% on day 20). There were 22 women who were judged to be on the fertile phase of their cycle (conception probability 7.2–8.6%). Women who reported using hormonal contraceptives were given a conception probability of 0%.

2.4. Results and discussion

Descriptive statistics for ratings for dads and cads in long and short-term mating contexts, grouped by fertility status, can be found in Table 1. These indicate that the highest ratings for cads were given in short-term mating contexts during the period of highest probability of conception ($M = 5.71$, $SD = 1.56$), whilst the highest ratings for dads were given for long-term mating, also during the period of highest probability of conception ($M = 6.15$, $SD = 1.23$).

A mixed factorial $3 \times 2 \times 2$ ANOVA was performed, where fertility status (i.e., fertile, non-fertile, and contraceptive users) was entered as a between-subjects independent variable, and male Machiavellianism (i.e., cads, dads) and mating context (i.e., long, short) were entered as within-participants independent variables. The dependent variable was the rated attractiveness score for the adverts (out of 10).

A significant main effect was found for Machiavellianism, ($F(1, 138) = 6.02$, $p < .05$, $\eta_p^2 = .04$) where ratings were higher for dads ($M = 5.10$, $SD = 1.70$) than cads ($M = 4.75$, $SD = 1.63$). A significant main effect was also found for fertility, ($F(1, 138) = 4.55$, $p < .05$, $\eta_p^2 = .06$). Pairwise comparisons[1] revealed a significant difference between fertile and pill using women ($p < .01$), where ratings were higher when females were highly fertile ($M = 5.54$, $SD = 1.26$ and $M = 4.63$, $SD = 1.32$, respectively). The main effect of mating context was not significant.

A significant interaction was found between the level of Machiavellianism and mating context ($F(1, 138) = 27.46$, $p < .01$, $\eta_p^2 = .17$). Dads were given the highest ratings for longer-term mating contexts, whereas cads' most favourable ratings were for short-term mating contexts. Pairwise comparisons showed significant differences between scores given to cads in short and long-term mating contexts ($t(141) = -2.60$, $p < .05$, $d = 0.20$), indicating that women preferred the cads' adverts more when contemplating short term affairs than when thinking about long-term partners. Furthermore, dads were rated as more desirable in serious relationships rather than in short-term affairs ($t(141) = 4.14$, $p < .01$, $d = 0.30$). The scores given for cads in long term relationships were significantly lower than dads in long-term relationships ($t(141) = -4.68$, $p < .01$, $d = 0.40$). Interestingly, cads and dads were rated equally desirable in short term mating context ($t = 0.21$)

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[1] With sequential Bonferroni correction for this and all subsequent comparisons.

Table 1
Means and standard deviations (in brackets) for fertility status and attractiveness ratings for Cads and Dads in long and short-term mating contexts.

	Cads		Dads		Total
	LTM	STM	LTM	STM	
High fertility (n = 22)	4.90(1.52)	5.72(1.56)	6.15(1.23)	5.41(1.27)	5.54(0.90)
Non fertile (n = 61)	4.77(1.36)	4.88(1.84)	5.40(1.69)	4.97(1.84)	5.01(1.26)
Pill user (n = 58)	4.31(1.60)	4.66(1.71)	4.93(1.69)	4.59(1.74)	4.63(1.32)
Total	4.60(1.48)	4.92(1.78)	5.34(1.67)	4.88(1.73)	

Note: LTM = long-term mating context, STM = short-term mating context.

when fertility was not accounted for. No other interactions were significant.

Next, we compared ratings for dads and cads in both short and long-term mating contexts for different levels of fertility (i.e., ovulating, non-fertile and contraceptive user). Pairwise comparisons were carried out to test the prediction that ovulating women would rate cads more highly in a short-term mating context than non-fertile or contraceptive using women. Analysis using related *t*-test found that ovulating women did rate cads ($M = 5.72$, $SD = 1.56$) significantly more highly than contraceptive using women ($M = 4.66$, SD = 1.71), ($t(21) = 3.53$, $p < .005$, $d = 0.65$) and non-fertile women ($M = 4.88$, SD = 1.84), ($t(21) = 3.82$, $p < 0.005$, $d = 0.49$). But there was no significant difference for cads in a short-term mating context for non-fertile and contraceptive using women, ($t(58) = 0.683$, $p > 0.05$, $d = 0.12$). For dads in a long-term mating context there were significant differences between ovulating ($M = 6.15$, SD = 1.23) and non-fertile women ($M = 5.40$, SD = 1.69), and ovulating and pill using women ($M = 4.93$, SD = 1.69), and for non-fertile and pill using women, ($t(21) = 40.07$, $p < .001$, $d = 0.51$); ($t(21) = 36.19$, $p < .001$, $d = 0.83$) and ($t(58) = 7.04$, $p < 0.001$, $d = 0.28$), respectively. To summarize, ovulating women rated cads as more desirable as short-term partners than contraceptive using women did, thus our prediction that pill using women will show a reduced preference for manipulativeness was supported. Furthermore, ovulating women showed a higher preference for dads in a long-term mating context when compared to non-fertile women or contraceptive users.

Comparing preferences for dads and cads in short and long-term mating contexts was examined next. For women in the fertile phase of their cycle our prediction that dads ($M = 6.15$, SD = 1.23) would be preferred over cads ($M = 4.90$, SD = 1.52) in a long-term mating context was supported, ($t(21) = 3.05$, $p < .005$, $d = 0.91$). Our prediction that for maximally fertile women cads would be preferred for short-term mating was not however supported. Dads in a long-term mating ($M = 6.15$, SD = 1.23) context were preferred more than dads in short-term mating context ($M = 5.41$, SD = 1.27), ($t(21) = 2.60$, $p < .05$, $d = 0.59$). For non-fertile women our prediction that dads ($M = 5.40$, SD = 1.69) would be preferred by non-fertile women for long-term relationships compared to cads ($M = 4.80$, SD = 1.36) was supported, ($t(60) = 2.48$, $p < .05$, $d = 0.39$). Our prediction that contraceptive using women should avoid cads was also supported, as ratings for dads ($M = 4.93$, SD = 1.69) were significantly higher than those for cads ($M = 4.31$, SD = 1.60), ($t(58) = 2.92$, $p < .005$, $d = 0.41$) in a long-term mating context. However, unexpectedly this was not the case for short-term mating contexts In this instance there was no significant difference between dads ($M = 4.59$, SD = 1.74) and cads ($M = 4.66$, SD = 1.71), ($t(58) = 0.30$, $p > 0.05$, $d = 0.04$).

To summarize, the results indicate that the higher the probability of conception, the higher the ratings for short-term cads and long-term dads as potential mates. What then are women identify-

ing as clues to a male's behaviour allowing them to make strategic decisions in the mating arena? In order to explore this further, Study 2 investigated whether women were able to discriminate between adverts on the basis of potential financial investment and long-term commitment. Although ideally the same set of women would have been assessed, the point of this second study was to give a general indication of whether women could read between the lines in these types of adverts.

3. Study 2

3.1. Method

3.1.1. Participants and procedure
Participants were 28 women ($M = 28.00$, $SD = 9.34$), who participated in an on-line survey, advertised via the researcher's social networks as a study on "honesty in dating adverts". Participants were requested to read the dating adverts of males high (cads) and low (dads) in Machiavellianism, and they were asked to assess the likelihood of the man lying to them about finances and commitment.

3.2. Materials

Likelihood of lying was assessed by seven items from Tooke and Camire (1991) inter-sexual deception tactics study. Three of the items were assessing deception about commitment intentions (e.g., He would lead you to believe he is more interested in raising children than he actually is), and four were measuring deception about finances (e.g., He would spend more money than he should/can afford in order to impress you). Participants were asked their agreement to these items (1 = *strongly agree*; 4 = *strongly disagree*), and the items were averaged in order to obtain four aggregate scores for high Mach commitment lies ($\alpha = .79$), high Mach financial lies ($\alpha = .87$), low Mach commitment lies ($\alpha = .75$) and low Mach financial lies ($\alpha = .87$).

3.3. Results and discussion

Descriptive statistics were calculated and can be seen in Table 2. They indicated differences between cads and dads in ratings of the likelihood of deception in relation to finances and commitment. Cads (M = 2.42, SD = 0.47) were rated as more likely overall to deceive than dads (M = 2.17, SD = 0.53. A repeated measures 2×2 ANOVA (male-type: cads and dads, and lie-type: finances and commitment) was conducted to determine if participants rated adverts written by men who were high on Machiavellianism (cads) as being more deceitful for either financial and/or commitment duplicity than their low Machiavellianism counterparts (dads). There was a significant main effect of the male-type ($F(1,27) = 7.50$, $p < .05$, $\eta_p^2 = .22$), indicating that adverts written by cads were rated as more deceitful about potential levels of financial support and commitment (M = 2.42, SD = 1.21) than those adverts written by dads (M = 2.17, SD = 1.02) supporting our prediction. There was no significant main effect of lie-type. The interaction between lie-type and male-type was also non-significant, indicating that cads were perceived to be equally deceitful

Table 2
Means and standard deviations (in brackets) for ratings of the likelihood of deception about commitment and finances in cad and dad dating advertisements.

	Commitment	Finances	Total
Cads	2.32(0.47)	2.55(0.47)	2.42(0.47)
Dads	2.12(0.53)	2.22(0.53)	2.17(0.53)
Total	2.21(0.50)	2.37(0.50)	

with regards to what they claimed about both their financial situation and potential commitment.

Lying about commitment and finances makes good evolutionary sense for some men (Hall, Park, Song, & Cody, 2010; Hitch, Hortacsu, & Ariely, 2010); both are likely to facilitate mating because women want both traits in their mates. Therefore, men who don't actually have any resources, or who do not want to commit to a long-term relationship may find it harder to acquire mates without being deceptive. The finding that women are sensitive to these lies about potential finances and potential likelihood of commitment suggests women are perceptive to this mating strategy (Keenan et al., 1997).

4. General discussion

The two studies reported here indicate that females can identify dads and cads from written dating adverts alone, a key development from previous studies looking at Dark Triad characteristics and mating success, which have relied on male self-reported mating success. Moreover, females seem to show a preference for cads in a short-term rather than a long-term mating context (Study 1), despite being able to identify (from their adverts) cads as being less likely to invest in them or their potential offspring (Study 2). This suggests that it is not necessarily that females are being deceived by cads into short-term relationships, rather females are choosing these types of relationships, possibly because of increased fitness consequences (Gangestad et al., 2007; Vernon et al., 2008). Although this goes against the traditional view that men exploit women into short-term mating, our study provides clear evidence that some women are less easily exploited, at least in this scenario i.e., when given the chance to examine written advertisements in detail with no time restrictions. Women in Study 1 also identified dads as better long-term partners, as the highest attractiveness ratings were given for dads in long-term relationships. Our study demonstrates women's ability to assess adverts written by males both high and low in Machiavellianism in an evolutionary relevant manner. Moreover, ovulatory status had an effect on these decisions, as fertile participants gave higher ratings than contraceptive users when contemplating dads for long-term and cads for short-term relationships. These preferences mirror nicely some of the existing theories and empirical findings (e.g., Gangestad & Thornhill, 2008).

We provided support for the idea that women's short-term mating functions as a strategy intended to lead into future long-term relationships (Buss, 2007; Greiling & Buss, 2000), as there was no significant difference between the rated desirability of cads' and dads' personal advertisements for short-term mating when the probability of conception was high. If females were only looking for short-term excitement and good genes, then ratings for dads would have been expected to be lower than was actually observed. Another possibility is that during ovulation, women have an enhanced perception of their capacity to attract a cad as a serious long-term partner. Recent research by Durante, Griskevicius, Simpson, Cantú, and Li (2012) found that during ovulation, females experience a shift in perception, which leads them to believe that cads would make good fathers to their children, whilst concurrently believing that they would not be good fathers to other people's children. Females in our study may have rated a cad highly for short-term mating not for their potential excitement value, but because they genuinely believed (at some level) that they would make good fathers for their children.

Unexpectedly, fertile females (rather than non-fertile or pill-users) gave the highest ratings for dads in a long-term mating context. Despite the prediction that less fertile females might have been expected to rate dads more highly in long-term mating contexts than ovulating females, clearly in this sample either neuroendocrine factors (such as increased dopaminergic sensitivity,

Bullivant et al., 2004) were dominating, or females were deliberately choosing a male who fitted their current sexual strategy (Jonason & Buss, 2012). Support for the role of neuroendocrine factors is suggested as when the probability of conception was highest females gave higher ratings than lower conception probability or pill using women for all males in all mating contexts, suggesting a general increase in desire for male company when oestrogen and fertility levels were high (Bullivant et al., 2004).

The findings of the two studies presented here indicate that females are able to assess males' personality characteristics from written dating advertisements when no visible (such as the face) or audible (such as the voice) cues were available, and moreover to use this information to gauge the attractiveness of particular males for either a short or long-term mating context. It was informally noted that one clear difference between the cads' and dads' adverts was that the dads' adverts were much longer, perhaps providing a cue to their willingness to invest time in a relationship which females were picking up on.

There are several limitations of the studies that should be mentioned. It could be argued that the use of evolutionarily novel stimuli in this study does not allow meaningful speculation as to the ultimate origins underlying the participants' ratings of potential mates. However, what this study does demonstrate is that women have a flexible adaptation which allows them to judge males, in whatever way they present themselves for consideration as a potential mate. A further limitation of this study is the measure of fertility used. Ideally, direct hormonal measurement would be preferred. This could be remedied in future studies.

When using adverts written by actual males it is difficult to control for the exact content of adverts. Now that we have a greater understanding of the kinds of information included in adverts by those high and low in Machiavellianism, future studies could manipulate Machiavellian characteristics directly in experimenter devised adverts. Moreover, as eight could be considered a small number of adverts, this could be increased in future studies.

It would also be interesting to look at the relationship of narcissism and psychopathy to women's mate choices in addition to Machiavellianism. It would be predicted that due to the observed high correlations between the three characteristics of the Dark Triad, similar, although not identical findings would be obtained (Jonason, Luevano, & Adams, 2012; Paulhus & Williams, 2002).

To summarize, this study has provided evidence for normally cycling females' ability to flexibly select between cads and dads depending on whether their intention is for fun excitement and or fecund offspring, or a long-term relationship with a man likely to provide resources and commitment. As predicted, when females are more fertile there is a trend for cads to be preferred for short-term mating compared to long-term mating. When long-term mating contexts are considered, there is a preference for dad-types over cad-types. Therefore, this research has provided support for the flexibility of strategy use by females (Buss, 2007; Jonason & Buss, 2012), and females' ability to detect a male's likelihood of resource provision and commitment from written information alone.

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