



Brief report

Men perceive their female partners, and themselves, as more attractive around ovulation



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ABSTRACT

The purpose of this study was to test whether men perceive changes in their female partner's attractiveness as a function of her fertility status. We further tested how both male and female self-perception varies in relation to female fertility status. This study benefits from the use of transvaginal ultrasonography to detect fertility during the regular cycle and the use of a within-subjects design in which romantic couples were followed both across the cycle and during hormonal contraceptive use. We find that men rated their female partner as more attractive near to ovulation (when fertile) as compared to during the luteal cycle phase or during hormonal contraceptive use. Moreover, our results point to a presently unrecognized negative consequence of hormonal contraceptive use on male self-perception, with men rating themselves lower in attractiveness when their partner was using hormonal contraceptives than when she was regularly cycling. In contrast, there was no difference across measures in female self-reported attractiveness. Results are discussed in terms of their potential impact on within-couple social dynamics.

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1. Introduction

Accumulating evidence from laboratory studies shows that women are perceived as more attractive near to ovulation (Haselton & Gildersleeve, 2011). However, the real world implications of cyclical shifts in female attractiveness are largely unexplored. Two notable exceptions include Miller, Tybur, and Jordan (2007), who showed that lap dancers earn more tip money when fertile, and Gangestad, Thornhill, and Garver (2002), who found evidence that women report their partners become more proprietary when they are fertile. These effects may occur because men perceive physical changes associated with fertility as more attractive, or alternatively, because women actually behave more attractively. Somewhat surprisingly, however, no study has yet examined the role of cyclical shifts in female attractiveness within romantic couples. Here, we investigate whether men's perceptions of their female partner changes across her menstrual cycle. In addition, we investigate whether such attractiveness changes

are subsequently associated with changes in male partner's self-perception, since being partnered with someone rated as closer to one's ideal preference is associated with higher levels of satisfaction, which may subsequently influence self-perception (Campbell, Simpson, Kashy, & Fletcher, 2001). Finally, we test how both these measures may be influenced by use of hormonal contraception (HC), because women who use HC do not exhibit the aforementioned cyclical shifts in attractiveness or preferences (reviewed in Alvergne & Lummaa, 2010). Given that use of HC is widespread (e.g., Jones et al., 2012), their impact on perceptions of attractiveness (by self or others) is a pertinent consideration for the millions of women worldwide who use them.

2. Methods

We tested 14 committed heterosexual couples, with a mean age of 25.00 years (21–31, S.D. = 2.91) and 23.29 years (20–29, S.D. = 2.61) for male and female partners, respectively. Inclusion criteria and test procedures are consistent with those of Cobey and colleagues (2012). We used a within-subjects design in which couples were first tested while the female was using some form of oral contraceptive pill, and then, following discontinuation and a month-long washout cycle, near to ovulation and during the luteal phase of the regular cycle. Previous research indicates that the length of the menstrual cycle immediately following discontinuation of HC does not differ from cycle lengths reported among controls (Duijkers, Engels, & Klipping, 2005). While it is possible that ovarian function may not be fully restored

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among our participants in the second cycle after discontinuation, ovarian function is in fact known to be initiated quite rapidly and indeed already occurs in the hormone-free pill break (Baerwald, Olatunbosun, & Pierson, 2004). Furthermore, we assessed female fertility via transvaginal ultrasonography (beginning on cycle day nine) enabling direct observation of the incidence and time course of follicular growth. This methodology therefore allowed us to both confirm that participants experienced an ovulatory cycle, indicating that they were fertile, and to accurately identify their phase of highest conception risk. Participants completed their fertile survey when we observed that they had a follicle of 13 mm or greater in size (see Hoogland & Skouby, 1993). Participants completed their luteal phase (non-fertile) survey approximately ten days after ovulation occurred.

At each survey stage, participants were asked to respond to the following variable: 'Compared to other [women/men] your age, how attractive do you feel you are?' on a 0–100 slider scale with endpoints 'much less attractive than average' and 'much more attractive than average'. Female participants also completed the Menstrual Distress Questionnaire (MDQ; Moos, 1968) to control for potential mood effects and changes in physical symptomatology. In addition, male participants indicated: 'Compared to other women their age, how attractive is your partner?' using a 0–100 slider scale, with endpoints being 'much [less/more] attractive than average'. Finally, male participants reported whether they had sex with their partner in the past two days (yes = 1, no = 2; $M = 1.26$, $S.E. = 0.07$) and responded to the question 'Overall, how satisfied are you in your relationship?' on a 1–5 point scale ($M = 4.40$, $S.E. = .09$) with endpoints 'not at all satisfied' (1) to 'completely satisfied' (5). Data were analyzed in SPSS 20.0 using Hierarchical Linear Mixed Modelling with a random intercept at the participant level using restricted maximum likelihood estimation.

3. Results

We first tested whether men's rating of the perceived attractiveness of their partner varied across measures, with male ratings of female attractiveness as the dependent variable and female fertility status (HC use, fertile, luteal phase) as a fixed factor. This revealed a significant overall effect of fertility status ($F = 3.87$, $p = .034$, Fig. 1): males rated their partner as more attractive when she was fertile than both when in the luteal phase (mean difference = 3.71, $S.E. = 1.57$, $p = .026$) or using HC (mean difference = 3.86, $S.E. = 1.57$, $p = .021$). This effect remained significant when controlling for male age, relationship length, relationship satisfaction and recent sex (all $F < .023$, all $p > .88$). Adding female mood (MDQ scores; 1 participant missing; $F = .015$, $p = .90$), female self-ratings of attractiveness ($F = .027$, $p = .87$) or female age ($F = .007$, $p = .93$) also did not influence the significance of fertility status.

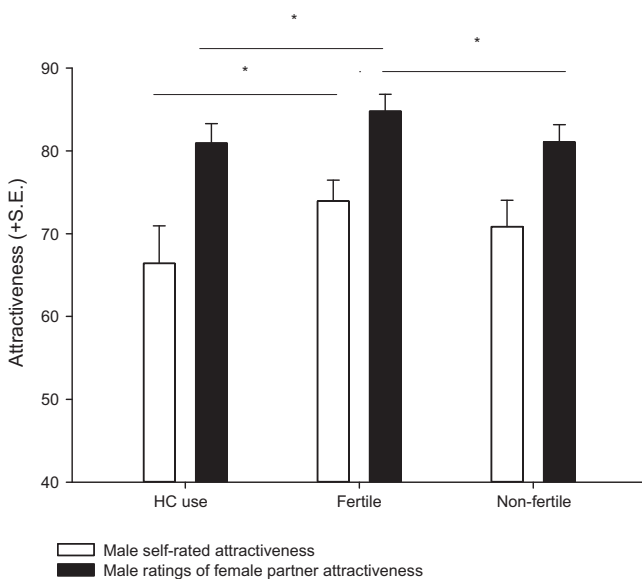


Fig. 1. Male partner perception and self-perception as a function of conception risk. Men perceive their partner to be more attractive when she is fertile than when she is either non-fertile or using HC. Male self-perception is significantly higher when the partner is fertile than when using HC. Combining fertile and non-fertile measures suggests that men perceive themselves as more attractive when their partner is regularly cycling than when she is using HC. * $p < .05$.

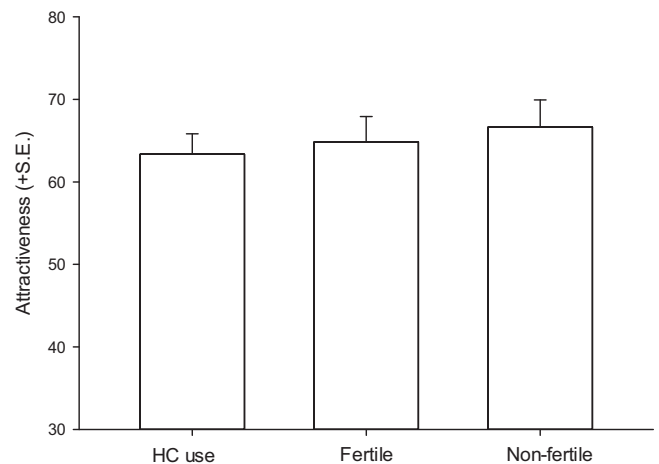


Fig. 2. Female self-ratings of attractiveness across measurement points. Scores across measures did not differ significantly from one another (all $p > .05$).

Next, we tested whether female fertility status influenced male partners' self-perception. We found a significant overall effect of fertility status ($F = 3.51$, $p = .045$, Fig. 1) and pairwise comparisons revealed that men rated themselves as significantly more attractive only when their partner was fertile compared to when she was using HC (mean difference = 7.50, $S.E. = 2.85$, $p = .014$). Finally, we tested for an effect of fertility status on female self-reported attractiveness. This model was not significant ($F = 1.21$, $p = .32$), indicating that women's self-perception remained constant across survey stages (Fig. 2).

In order to examine whether the results from the linear mixed models were robust, we conducted bootstrap analyses (1000 samples, Bias-Corrected Accelerated stratified within each participant). Results obtained were consistent with those reported above from the linear mixed models, and although certain values were somewhat modified, our conclusions are the same. Specifically, the male self-rated attractiveness model showed that men judge themselves to be significantly more attractive near to their partner's ovulation than during her HC pill use (mean difference = 7.5, $S.E. = 2.73$, $p = .042$). Likewise, men rated their female partner significantly different across survey measures, with ratings being higher near to ovulation than during the non-fertile cycle phase (mean difference = 3.71, $S.E. = 1.42$, $p = .026$) or during HC pill use (mean difference = 3.86, $S.E. = 1.54$, $p = .039$). Finally, the results for female self-ratings of attractiveness were again shown not to differ significantly across measures, which supports our findings from the linear mixed model that female self-perceptions did not significantly vary (all $p > .125$).

4. Discussion

Our data provide the first evidence that men in committed relationships detect changes in their partner's attractiveness as a function of her cycle phase. Furthermore, our results suggest that female cycle phase has consequences for male self-perception. The findings complement the existing body of literature showing that women are rated as more attractive when fertile as compared to when in the luteal phase, and extend findings in this area by documenting a significant decrease in perceptions of female attractiveness during use of HC. Although our sample size is modest, our findings are consistent with theoretical predictions and our within-subjects experimental design, which incorporates both key cycle phases and use of HC, is statistically powerful.

One possible mechanism for shifts in men's perception may be differences in the female partner's behaviour. Indeed, Haselton and

Gangestad (2006) have previously found that women regard themselves as more attractive when fertile which could therefore result in behavioural changes. However, in contrast to his finding, Hill and Durante (2009) found that women's self-esteem was reduced near to (expected) ovulation. In our sample, female self-perception did not differ across measures. Taken together, this diversity of results suggests that changes in female self-perception across the cycle appear inconsistent and may therefore be unlikely to underpin reliable behavioural changes that men might use to form their attractiveness perceptions.

We argue that shifts in female physical attractiveness across the cycle (e.g., Havlicek, Dvorakova, Bartos, & Flegr, 2006; Kuukasjarvi et al., 2004; Oberzaucher et al., 2012; Pipitone & Gallup, 2008; Roberts et al., 2004) are responsible for shifts in male ratings of their female partner even in spite of the fact that women may not be conscious of these changes. That women are not conscious of shifts in their attractiveness does not necessitate that their male partners may not perceive these changes. However, we acknowledge that it remains possible that something unmeasured, and possibly unknown, that is related to the hormonal status of the female partner, might cause the obtained shifts in male attractiveness judgements. One valid possibility is that male perceptions of their female partner's attractiveness alter as a result of changes in sexual satisfaction. While significant changes in overall relationship satisfaction did not occur, it may be that sexual satisfaction changed across measures (Roberts et al., 2012). Indeed, previous research has shown that women report to be more sexually excited near to ovulation (e.g., Gangestad et al., 2002). Therefore, if men perceived their female partner as more attractive mid-cycle, and she was more sexually responsive at this time, men themselves may feel or perceive themselves to be more attractive. While sheer frequency of sex did not affect the results we obtained, it remains to be determined if the quality or perceptions of sexual relationship contributed to our male self-perception results.

Finally, interestingly, while men's assessment of their partner's attractiveness was equivalent in the two non-fertile measures (use of HC, luteal phase), their own self-perception was lowest when their partner used HC. HC appears to suspend cyclical changes in other-rated attractiveness, but does not induce an attractiveness difference between users and non-users (Kuukasjarvi et al., 2004). This then raises the intriguing possibility that men's heightened self-perception in their partner's ovulatory phase extends into the luteal phase, in a manner not experienced by partners of women using HC. Thus, in addition to our novel evidence for cycle-related shifts in men's perception of their partner's attractiveness, and in their own self-perception, our results hint at a negative consequence of use of HC on within-couple social dynamics which is presently not well recognized. Welling and colleagues (2012) have previously shown that women express greater levels of mate retention behaviour when using HC than when regularly cycling. This may indicate that men present cues indicating they are less satisfied with their female partner during HC use, leading to reactive jealousy and in turn increased mate guarding (Cobey et al., 2012; Cobey, Pollet, Roberts, & Buunk, 2011; Welling, Puts, Roberts, Little, & Burriss, 2012).

Methodological strengths of this study include the use of a within-subjects design, use of transvaginal ultrasonography to access fertility and use of male-self report data rather than female reports of male behaviour. In spite of these strengths, one limitation is that we cannot explicitly rule out is the possibility that changes in ratings are due to order effects. Nevertheless, the results do not indicate a consistent directional change across the repeated measures, suggesting that they are not influenced by a general trend towards higher or lower ratings. The use of a within-subjects design is critical to testing the potential impact of use of HC on perceptions of attractiveness; however, it can be very difficult to attain. In this

instance, the use of the desired within-subjects design came at the cost of not being able to fully counterbalance measures. However, practically speaking the cessation of HC and the transition back to the natural cycle is a relevant and real world changeover that occurs in this specific directional fashion. In this way, counterbalancing the order of surveys would increase internal validity but may be seen as decreasing external validity. Furthermore, in two previous publications examining the psychosocial impact of HC, a similar non-randomized prospective design was used, in which women were tracked when fertile and then after they had initiated HC (Little, Burriss, Petrie, Jones & Roberts, 2013; Roberts, Gosling, Carter, & Petrie, 2008). Results from these studies indicated that a shift in preferences occurred only among a sub-set of women who initiated HC and not among a control group of women who did not initiate HC, suggesting that reported changes are not simply explained by order effects. Our study extends these findings by additionally tracking women into the luteal phase of the cycle.

Moreover, it is worthwhile to note that female participants in our study were ceasing use of HC in order to partake in a pharmaceutical trial relating to the inhibition of ovulation. Ceasing use for this scientific purpose as opposed to a more psychosocial reason (e.g., beginning a family) may mean our results are less likely to be subject to an order effect. A second potential limitation is that we cannot be sure that male perceptions of their female partner's attractiveness, or their own attractiveness, do not extend more generally to any attractiveness rating. That is, the effect of female fertility status may not be specific to attractiveness perceptions solely within the relationship. However, it seems difficult to argue why this might be the case. In fact, given that our measure asked participants to assess their partner's attractiveness in comparison to that of other women of her age, we might as well expect the opposite, that is that men did not find their own partner more attractive, but rather other women less attractive. Whatever the underlying process, our data clearly suggest that fertility does influence relationship-relevant changes in perceptions of attractiveness. In summary, our results prompt three important considerations: (1) fertile phase shifts in attractiveness are detectable by male partners; (2) females may not be conscious of fertile phase shifts in their own attractiveness; (3) in romantic pairs the use of HC may negatively impact male self-perceptions of attractiveness.

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