



Hormonal contraceptive congruency: Implications for relationship jealousy

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ABSTRACT

Research shows that women who use hormonal contraceptives (HCs) differ in their mate preferences from women who have regular cycles. It has been proposed that when a partnered woman either begins to use or ceases to use HCs, she may experience changes in her relationship since her preferences become incongruent with those prevalent at the time of her partner choice. This has not yet been directly tested. Here, in doing this, we aim to specifically test whether current and past HC use contributes to present levels of relationship jealousy. We find a significant interaction in levels of jealousy based on current HC use and HC use at the start of the relationship. When current HC use is incongruent with that at the start of the relationship, women report significantly higher levels of jealousy. Results are among the first to suggest that both current and past HC use may influence relationship dynamics.

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1. Introduction

A number of divergent factors influence female partner preferences at the initiation of a romantic relationship. Research from an evolutionary perspective, for example, has shown that women experience shifts in mating preferences across the menstrual cycle (reviewed in Gangestad & Thornhill, 2008). When fertile as compared to non-fertile, women have been shown to prefer increased levels of relative masculinity in faces (Penton-Voak et al., 1999), bodies (Little, Jones, & Burriss, 2007), voices (Feinberg et al., 2006; Puts, 2005), scents (Grammer, 1993; Havlíček, Roberts, & Flegr, 2005) and behaviors (Gangestad, Garver-Apgar, Simpson, & Cousins, 2007; Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004). Likewise, women are known to increase their preference for men with bilaterally symmetric traits when fertile (e.g., Gangestad & Thornhill, 1998; Rikowski & Grammer, 1999; Thornhill et al., 2003). Masculinity and symmetry are argued to be ‘costly traits’, which are difficult to maintain, and therefore are thought to index physical quality (e.g., Scheib, Gangestad, & Thornhill, 1999). Cyclical shifts in female mating psychology may therefore function, in part, to aid women in choosing a partner of high physical quality when conception risk is highest (Gangestad & Thornhill, 2008; Little & Jones, 2012).

In contemporary populations however, the use of HCs among young women desiring reliable and reversible contraception is widespread. At present, more than 100 million women worldwide

are currently using “the pill” for contraceptive purposes (Trussell, 2007). Recent evidence suggests that use of HCs interferes with the aforementioned cyclical shifts in female mating preferences (reviewed in Alvergne & Lummaa, 2010). This is because HCs suppress female fertility and flatten hormonal shifts which occur across the cycle (Frye, 2006). This may suggest that women who use HCs may be less attuned to indicators of male physical quality than women who have regular cycles and therefore that they may subsequently actually choose partners of lower physical quality than they otherwise would. This concept is best supported by evidence obtained from studies examining preferences for genetic dissimilarity at the Major Histocompatibility Complex (MHC). The MHC codes for proteins involved in immune self/non-self recognition, and increasing consensus for a link between overall MHC-heterozygosity and fitness has been established across a range of species including humans (e.g., Penn, Damjanovich, & Potts, 2002; Penn & Potts, 1999; Roberts et al., 2005). MHC-dissimilarity may be assessed via odor, and women who have regular cycles appear to prefer the scent of MHC-dissimilar men, and relatively more often find that these odors remind them of their actual or former real-life partners (Wedekind, Seebeck, Bettens, & Paepke, 1995). However, on initiation of HCs, women show a shift in preference towards the scent of men who are MHC-similar, suggesting that such use may interfere with adaptive mate choice (Roberts, Gosling, Carter, & Petrie, 2008).

Little, Burriss, Petrie, Jones, and Roberts (in press), have recently provided additional support that HC use interferes with natural female mating preferences. First, in a laboratory based study, they tracked women’s facial masculinity preferences prospectively as

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they initiated use of HCs. They showed that preferences for masculinity in opposite-sex, but not same-sex, faces decreased following initiation of HCs. These shifts were not observed in a control group. Further, using real-world couples, they showed that women who met their partner while using HCs were more likely to be paired with men who were rated lower in overall facial masculinity than those who met their partner when they had regular cycles. This finding is in line with other research which has shown that women who use HC show no shift, or a very weak shift, in preferences for increased masculinity across the cycle (Feinberg, DeBruine, Jones, & Little, 2008; Little, Jones, Penton-Voak, Burt, & Perrett, 2002). Somewhat less intuitively related to these findings, is the result of Jones et al. (2005) showing that women display a greater relative preference for health in the non-fertile phase of the menstrual cycle, and similarly, that HC users have higher overall preferences for health in faces than non-HC users. Taken together this suggests that masculinity and perceived health are judged distinctly from one another since preferences shift in opposite directions across the cycle and during HC use (e.g., Little et al., 2002, 2008). Finally, in contrast to women with regular cycles, women using HCs also do not exhibit mid-cycle peaks in attractiveness (e.g., Kuukasjarvi et al., 2004; Miller, Tybur, & Jordan, 2007) or changes in symmetry preferences (Gangestad & Thornhill, 1998; Thornhill & Gangestad, 1999).

In the current study, we sought to expand on previous research which has examined HC pill effects on mate preferences through investigating if there are consequences of HC use for romantic jealousy. Jealousy is a basic affect which is aroused in situations where there is a loss, or a perception of loss, of a valuable relationship (Buunk, 1991). Jealousy can be seen as adaptive in that it may help to allow an individual to control and monopolize reproductive access and investment from their partner. We examined two possible ways in which contraceptive use might influence jealousy. First, in a replication of previous work (Cobey et al., 2012, 2011; Geary, DeSoto, Hoard, Skaggs Sheldon, & Lynne Cooper, 2001) we tested the possibility that current contraceptive use increases levels of jealousy. Secondly, we tested the possibility that jealousy is mostly influenced by the congruency between current HC use status and that at the start of the relationship. This is a novel angle to approach the effects of HCs. More specifically, we propose that, because women who use hormonal contraception do not exhibit cyclical shifts in the preference for indicators of physical quality, a partnered woman who transitions either onto or off of hormonal contraception, may no longer be satisfied with her partner to the same extent. That is, the traits a woman chose in her partner at the start of the relationship may no longer satisfy her preferences when she changes her HC use status. For example, a woman who chooses a partner off of the pill may choose an individual who has outward indicators of physical quality such as a masculine facial structure; however, upon her transition to HC use she may find that her general preference shifts towards more feminine faces, and as a result, is no longer satisfied to the same degree by her partner. Herein, we will refer to this idea as the concept of contraceptive (in)congruency (see Roberts et al., *in press*). We predict that such disruption in preferences may leave women with feelings of uncertainty about their relationship which may prompt feelings of jealousy. Indeed, previous research has shown that jealousy is provoked in situations of relationship uncertainty, and that jealousy is positively related to feelings of anxiety about one's attachment to their partner (e.g., Afifi & Reichert, 1996; Dainton & Aylor, 2001; Knobloch, 2005).

There is some recent evidence that contraceptive congruency, the correspondence between current HC use status and that at the initiation of a romantic relationship, may influence relationship dynamics. Roberts et al., (2012) showed that HC use versus non-use at the time of meeting one's partner plays an important role in future relationship satisfaction, both emotionally and

sexually. They showed that women who met their partners when using the pill reported greater emotional satisfaction within their relationship, but lower levels of sexual satisfaction than women who had met their partner off the pill. This represents an unrecognized consequence of contraceptive pill use that, until recently, had not been considered. Moreover, this study was the first to show that these subtle shifts have consequences for the quality of actual romantic relationships meaning that HC use could have long-term downstream consequences for relationships. Based on this finding, if contraceptive use changes or becomes incongruent to the start of the relationship, it may be that the dynamics of the relationship, and therefore potentially the expression of jealousy, are altered.

To summarize, we predicted that (1) current HC users will report higher levels of jealousy than women not currently using the contraceptive pill, and that (2) incongruency between current HC use and contraceptive use at the time of meeting one's partner will produce higher levels of overall jealousy than congruency between these times.

2. Methods

2.1. Measures

This experiment was approved by the University of Groningen Psychology Ethics Review Board. Participants completed an online questionnaire in their native language which contained basic demographic items and a 15-item scale to assess jealousy (Buunk, 1997). Responses to the jealousy scale items were recorded on a 1–9 point scale, with higher scores indicating higher levels of jealousy (Cronbach's $\alpha = 0.87$). Examples of items from this scale include: "I don't want my partner to have too much contact with persons of the opposite sex"; and "How would you feel when your partner would dance intimately with someone of the opposite sex?". Scores on the jealousy items were summed to obtain an overall measure on the scale. Participants also indicated how long they had been in their current relationship, if they were currently using HCs and whether at the time they started their relationship with their partner they were using HCs or not (or if they "could not remember"). Responses to these last questions served as our key independent variables. Participants were also asked to report on general satisfaction within their relationship. This was captured by a single item question which asked "Overall, how satisfied are you in your relationship?", answers being recorded on a 0–100 point scale with higher scores indicating greater levels of satisfaction.

2.2. Participants

Participants were 129 female undergraduate students from a large European University who received course credit for their participation. All participants indicated that they were presently in a romantic relationship at the time of survey. They were told that we were conducting a study on relationship satisfaction. We excluded eight individuals from the analyses because they indicated that they were not exclusively heterosexual. This exclusion was made due, in part, to the fact that some jealousy scale items specifically asked for participants to imagine one's partner interacting with an opposite sex individual. No participant indicated that they did not remember whether they were using HCs at the time they started their relationship. A final sample of 121 participants was used for analysis, of which current HC use status was congruent with that when they started their relationship for 87 women. Among these 'congruent users' 71 were using HCs and 16 had

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