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## Fertility Can Have Different Effects on Single and Nonsingle Women: Reply to Harris and Mickes (2014)

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Recently, we presented two studies showing that the ovulatory (or high-fertility) phase of the menstrual cycle can have different effects for women who are single than for women who are in committed relationships (Durante, Rae, & Griskevicius, 2013). We found that single women in the high-fertility phase were less religious, more liberal, and more supportive of Obama than single women in the low-fertility phase. By contrast, women in committed relationships showed the opposite pattern, becoming more religious, more conservative, and more supportive of Romney. Harris and Mickes (2014) report a direct replication of our study, for which they found mixed support. They found no evidence for the interaction of fertility and relationship status on religious and political attitudes. However, they did find support for the interaction with respect to voting preferences.

### Consideration of the Harris and Mickes Data

The conclusions we draw from Harris and Mickes's data are different from theirs. Harris and Mickes performed data collection pre- and postelection. Consistent with our findings, their results showed a marginally significant fertility-by-relationship-status interaction for both the pre- and postelection voting measure ( $p_s = .08$ ). When the samples were combined, a significant fertility-by-relationship-status interaction emerged ( $p = .013$ ), with the same pattern found in our study. In tandem with our results, this finding is highly unlikely if the null hypothesis is true, which means the interaction effect is likely to be real.

Harris and Mickes argue that "post hoc combination of two different outcome measures into one analysis seems debatable" (p. xxx). It is unclear why. After all, the outcome measured in both studies was voting preference, broadly construed. Combining the samples offers the most sensitive assessment of the probability of obtaining

the *total* result if the null hypothesis were true. The conclusion to be drawn is clear: That probability is very small. Harris and Mickes's defense of the null hypothesis despite finding near-significant interactions in two samples and a significant interaction when the data were combined is puzzling.

By contrast, Harris and Mickes did not replicate the interaction pattern we found for religious and political attitudes. Why did we find these interaction effects, whereas Harris and Mickes did not? One possibility is that there is an unknown moderator operating. Another possibility is sampling variability. Even if an effect is real, it does not always emerge in every study. We collected new data from Amazon's Mechanical Turk using the same method we employed previously and that Harris and Mickes used.<sup>1</sup> Using a dichotomous measure of fertility status, we again found evidence of the fertility-by-relationship-status interaction for both religiosity ( $p = .041$ ) and social political attitudes ( $p = .10$ ; see Fig. 1). However, no evidence was found using a continuous measure of fertility status. See the Supplemental Material available online for the full methodology and further discussion of the results.

Even if the effects of fertility on religious and political attitudes are weaker (and, again, they may or may not be), why is the effect of fertility on voting robust, as revealed by Harris and Mickes's own data? One possibility is that the effect of fertility on voting preference is mediated not by political attitudes but by some other feature of the political candidates. Harris and Mickes report a fertility-by-study interaction on voting: Compared with nonfertile women, fertile women preferred Romney

Psychological Science

1–3

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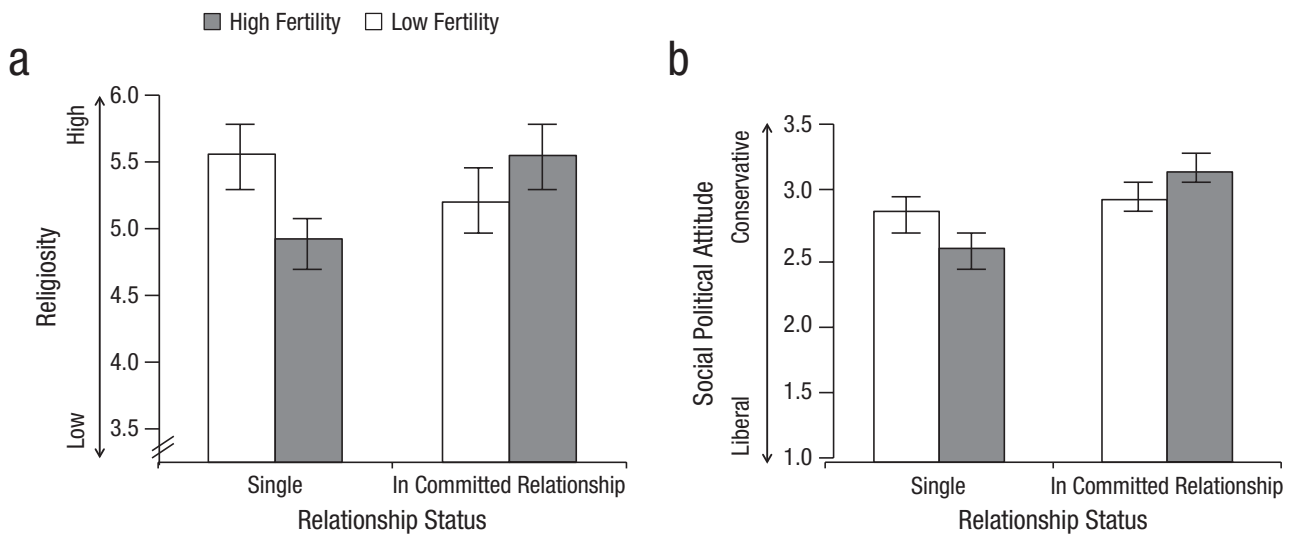
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**Fig. 1.** Mean religious attitude (a) and social political attitude (b) as a function of relationship status and fertility level ( $N = 543$ ). Error bars indicate standard errors of the mean.

more before the election than after the election. That is, fertile women's support for a candidate (Romney vs. Obama) was different for the two waves of data collection. Why? Perhaps it was because Romney was perceived as the stronger, more confident candidate in the first debate, and Obama was seen as the stronger, more confident candidate in subsequent debates. Because women find men's self-confidence and dominance more attractive when fertile (see Gildersleeve, Haselton, & Fales, in press, for an exhaustive meta-analysis), changes in the persona of the candidates may account for the interaction. Or perhaps the fertility-by-relationship-status interaction emerged because relationship status is a proxy for political party (married women are more likely to be Republican, and single women are more likely to be Democrat), and fertility increases liking for the male leader of one's own group (as mentioned in our original article).

Harris and Mickes's data raise interesting questions. Additional research is needed to further assess the robustness of these effects and the potential moderating variables affecting them, as well as to interpret the robust fertility-by-relationship-status interaction on voting.

### Conclusions Drawn by Harris and Mickes

Harris and Mickes offer a grossly misleading portrayal of the context for our research. The view that women are somehow more fickle in their decision making than men is false and was never the impetus for this research. A vast body of research has examined how hormones

influence men's behavior (see Mazur & Booth, 1998, for a review), including their political views (Stanton, Beehner, Saini, Kuhn, & LaBar, 2009; Trawalter, Chung, DeSantis, Simon, & Adam, 2011). It should not be surprising that women's behavior, like men's, is influenced by hormones. Harris and Mickes's title—"Women Can Keep the Vote"—reflects their own interpretation of the meaning of our results (and now theirs, too), not ours. We never argued or implied that hormonal effects on behavior, whether male or female, have implications for voting rights!

Our central prediction was based on research showing that mating concerns predict religious and political attitudes (Kurzban, Dukes, & Weeden, 2010; Li, Cohen, Weeden, & Kenrick, 2009; Weeden, Cohen, & Kenrick, 2008) and by the ovulatory-shift hypothesis, which predicts that women have increased sexual attraction to men possessing purported markers of genetic fitness when they are fertile in their cycles (Thornhill & Gangestad, 2008). The breadth and strength of ovulatory-cycle effects is robust. A recent meta-analysis of 134 ovulatory effects from 38 published and 12 unpublished studies revealed robust cycle shifts not due to researcher degrees of freedom (Gildersleeve et al., in press). On the basis of this literature, we predicted that religious and political attitudes—known correlates of openness to short-term relationships—vary with fertility. Fertility had the predicted effect for single women, but to our surprise had the opposite effect for women in committed relationships. This novel diverging pattern was replicated in a second study; and Harris and Mickes found evidence for the same divergent pattern with respect to voting. As with any novel pattern, additional research is needed.

### Author Contributions

K. M. Durante, A. R. Arsenau, and V. Griskevicius developed the study concept and design. K. M. Durante and A. R. Arsenau prepared and analyzed the data. K. M. Durante drafted the manuscript, and all authors contributed to revisions and approved the final version of the manuscript for submission.

### Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

### Supplemental Material

Additional supporting information may be found at <http://pss.sagepub.com/content/by/supplemental-data>

### Note

1. The fertility calculation used in our previous study was based on our understanding of the reverse-cycle-day method. We assumed a stable 14-day luteal phase and counted back from the predicted start date of the next period to determine fertility status. We used a woman's cycle length to place all women the same proportion of the way through a standard 28-day cycle toward ovulation as they were toward ovulation within their own cycle. We labeled cycle days 1 through 28 in the original article for ease of presentation, rather than labeling cycle days in the reverse.

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