Research Article

Psychological Science
24(6) 1007–1016

DOI: 10.1177/0956797612466416
pss.sagepub.com

The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

Kristina M. Durante[1], Ashley Rae[1], and Vladas Griskevicius[2]
[1]College of Business, University of Texas, San Antonio, and [2]Carlson School of Management, University of Minnesota

Abstract
Each month, many women experience an ovulatory cycle that regulates fertility. Although research has found that this cycle influences women's mating preferences, we proposed that it might also change women's political and religious views. Building on theory suggesting that political and religious orientation are linked to reproductive goals, we tested how fertility influenced women's politics, religiosity, and voting in the 2012 U.S. presidential election. In two studies with large and diverse samples, ovulation had drastically different effects on single women and women in committed relationships. Ovulation led single women to become more liberal, less religious, and more likely to vote for Barack Obama. In contrast, ovulation led women in committed relationships to become more conservative, more religious, and more likely to vote for Mitt Romney. In addition, ovulation-induced changes in political orientation mediated women's voting behavior. Overall, the ovulatory cycle not only influences women's politics but also appears to do so differently for single women than for women in relationships.

Keywords
evolutionary psychology, fertility, relationships, political attitudes, religiosity, religious beliefs

Received 7/30/12; Revision accepted 10/5/12

Women are more likely to vote than men are (Negrin, 2012), which makes the female vote pivotal for anyone seeking political office. In the 2012 U.S. presidential election campaign, for example, both Republican Party candidate Mitt Romney and Democratic Party candidate Barack Obama went to great lengths to court female voters (Edwards-Levy, 2012). Each candidate appeared to be succeeding—sort of. Romney, the more conservative candidate, was strongly favored by married women, holding a 19% edge over Obama. But Obama, the more liberal candidate, was strongly favored by single women, holding a 33% edge over Romney (Knox, 2012). What might have been the source of this political divide?

We considered whether this difference might in part be related to a surprising biological factor—women's monthly ovulatory cycle. Building on the idea that reproductive goals might drive political and religious attitudes (Kurzban, Dukes, & Weeden, 2010; Li, Cohen, Weeden, & Kenrick, 2009; Weeden, Cohen, & Kenrick, 2008), we examined whether hormonal fluctuations associated with fertility influence women's politics, religiosity, and voting. In two studies using large and diverse samples of women, we tested how the ovulatory cycle influences religious and political orientation for single women and women in committed relationships. In addition, we tested whether changes in political ideology mediated women's voting preferences in the 2012 U.S. presidential race.

Political and Religious Ideology

Political attitudes vary on a fundamental liberal-conservative (or left-right) dimension (Haidt, 2012; Jost, Glaser, Kruglanski, & Sulloway, 2003). Liberalism is characterized by advocacy for social change and a rejection of social inequality, whereas conservatism is characterized by a

Corresponding Author:
Kristina M. Durante, Department of Marketing, University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249
E-mail: kristina.durante@utsa.edu

resistance to social change, a desire to preserve traditions, and an acceptance of social inequality (Graham, Haidt, & Nosek, 2009; Jost, Federico, & Napier, 2004). This liberal-conservative distinction is considered universal and has endured throughout history (Laponce, 1981).

This distinction is central in American politics, mapping onto the ideologies of the two main political parties: the more liberal and left-leaning Democratic Party and the more conservative and right-leaning Republican Party. Accordingly, voters' attitudes on the liberal-conservative dimension strongly predict whether they will vote Democrat or Republican (Sears & Funk, 1991).

Liberal and conservative political ideologies in the United States are also closely tied to religiosity (Sherkat & Ellison, 1999), particularly among Caucasians and Asian Americans (Cohen et al., 2009). Liberalism is associated with a weaker religious orientation and less participation in organized religion (e.g., Christianity), whereas conservatism is associated with a stronger religious orientation and more participation in organized religion (Lewis & Maltby, 2000).

The ideological link between politics and religion is evident in American politics, especially in presidential elections. In recent history, for example, religious voters have been much more likely to vote for the conservative Republican candidate, whereas less religious voters have been much more likely to vote for the liberal Democratic candidate (Norris & Inglehart, 2004). In the 2012 U.S. presidential election, this choice was between the more conservative Republican Mitt Romney and the more liberal Democrat Barack Obama.

Politics, Religion, and Reproduction

Political ideology is believed to serve deeper functions (e.g., Graham et al., 2009; Jost et al., 2003). Several theorists, for instance, have proposed that political and religious ideology are related to reproductive goals, arguing that an individual's current mating strategy drives that person's political and religious attitudes (Kurzban et al., 2010; Li et al., 2009; Weeden et al., 2008). Specifically, lower levels of religiosity and more liberal political attitudes may facilitate a short-term mating strategy associated with more permissive and promiscuous sexual behaviors.

Consistent with this idea, studies have shown that mating concerns are a strong predictor of religious-service attendance (Weeden et al., 2008) and social political attitudes toward the legalization of marijuana (Kurzban et al., 2010). Experimental evidence also has indicated that the local mating ecology influences women's religiosity, such that the presence of more desirable, single females leads women to become more religious (Li et al., 2009). Because a glut of single females might pose a threat to a woman's preexisting romantic relationship, women are believed to become more religious and to espouse the sanctity of commitment to protect their relationships. Taken together, these findings suggest that religiosity and political attitudes are somewhat flexible and that people adjust their orientations to serve their current reproductive goals.

Reproduction, Ovulation, and Women's Psychology

Women's reproductive goals are influenced by a universal biological event—the monthly ovulatory cycle. The human ovulatory cycle spans, on average, 28 days, during which a woman is fertile for approximately 7 days, a period known as the ovulatory phase of the cycle. Although women generally do not know, without specific training, when they are ovulating (Haselton & Gildersleeve, 2011), much research has shown that ovulation can nonconsciously alter women's reproductive goals (Thornhill & Gangestad, 2008). Ovulating women, for example, experience increased libido (Bullivant et al., 2004), have a greater interest in attending social gatherings (Haselton & Gangestad, 2006), and pay more attention to men (Anderson et al., 2010) and the enhancement of their appearance (Durante, Griskevicius, Hill, Perilloux, & Li, 2011; Durante, Li, & Haselton, 2008; Haselton, Mortezaie, Pillsworth, Bleske-Rechek, & Frederick, 2007).

The driving theory behind this research is that ovulation should lead women to prioritize the securement of genetic benefits from a mate who possesses indicators of genetic fitness (Thornhill & Gangestad, 2008). Accordingly, ovulating women have an increased desire specifically for short-term sexual relationships with men possessing purported markers of genetic fitness, such as symmetry, masculinity, and social dominance (Durante, Griskevicius, Simpson, Cantu, & Li, 2012; Gangestad, Thornhill, & Garver, 2002; Gangestad, Thornhill, & Garver-Apgar, 2005; Garver-Apgar, Gangestad, Thornhill, Miller, & Olp, 2006; Pillsworth & Haselton, 2006). In fact, in the 2008 U.S. presidential election, ovulation boosted women's preference for the more attractive and symmetrical candidate, Barack Obama, over the less attractive and less symmetrical candidate, John McCain (Navarrete, McDonald, Mott, Cesario, & Sapolsky, 2010).

Given that ovulation leads women to be more open to short-term sexual relationships, ovulation also might alter women's religious and political attitudes to facilitate such relationships. Because greater openness to short-term sexual relationships is associated with lower religiosity (Weeden et al., 2008) and more liberal political attitudes (Kurzban et al., 2010), ovulation may lead women to become less religious and more liberal.

Politics, Ovulation, and Marriage

Returning to the opening example of women voters in the 2012 presidential election campaign, the stated hypothesis is consistent with the idea that ovulating women should support the more liberal candidate, as is found for single women. However, this hypothesis is at odds with the preferences of married women, who tend to favor the more conservative candidate. If women's ovulatory cycles play any role in women's political attitudes or religiosity, could the hormones associated with ovulation account for some of the discrepancy between single versus married women?

To date, the overwhelming majority of ovulation-related research has been conducted with unmarried college students. Although some noteworthy studies have examined women in relationships (see Garver-Apgar et al., 2006; Pillsworth, Haselton, & Buss, 2004), even these studies have relied on women who were, on average, between the ages of 19 and 22 years old. It is therefore possible that the research findings thus far have generally represented the effects of ovulation on the psychologies of relatively young, unmarried women.

But should ovulation be expected to have similar effects on the politics of single and married women? Consider a married woman with children. It is certainly possible that ovulation could lead her to sexually desire attractive men who are not her husband (see Garver-Apgar et al., 2006). However, for a married mother, the potential repercussions of actually cheating might severely outweigh the potential genetic benefits of doing so. Indeed, some research has found that among women bonded to a romantic partner, fertility boosts physical intimacy with that partner (Eastwick & Finkel, 2012).

Regardless of whether ovulation leads married women to sexually desire certain men, this desire does not imply that married women do not want to protect their current relationship. Women in serious relationships are likely to be particularly invested in their relationships. Compared with women who are not in serious relationships, these women are likely to have been with their partner for a longer time, to depend more on their partner for support (e.g., financial and emotional support), to have important aspects of their lives tied to the relationship, and to have children with their partner. Thus, women in invested relationships have considerably more to lose from the dissolution of the relationship.

Because conservative and religious values are associated with staying in long-term relationships and honoring the commitments associated with such relationships (Weeden et al., 2008), ovulation might lead married women to become more religious and conservative to promote relationship stability, commitment, and security. Because ovulation might lead married women to become more sexually interested in men who are not their partner, and because it is especially costly for such women to cheat on their partner, increased religiosity and conservatism might function to decrease the likelihood of behaviors that might harm the relationship.

Using large samples of women who varied considerably in age and in relationship status, we tested how ovulation influenced women's religious attitudes (Study 1) and political attitudes (Study 2). In addition, we tested whether ovulation-regulated changes in political attitudes influenced women's voting preferences in the 2012 U.S. presidential election, as well as women's willingness to donate money to the different campaigns.

Study 1: Ovulation, Religiosity, and Marriage

Method

Participants. Participants were 275 women with a mean age of 27.95 years (*SD* = 6.05, range = 18–44 years) who had regular monthly menstrual cycles (25–35 days) and were not using hormonal contraception. Of these women, 45.4% were single (not dating or casually dating), and 54.6% were in a committed relationship (engaged, living with a partner, or married). All of the women were from the United States (42 states) and participated in return for a small payment via an Internet hosting site (Amazon's Mechanical Turk).

Assessing fertility. We obtained from participants (a) the start date of their last menstrual period and the previous menstrual period, (b) the expected start date of their next menstrual period, and (c) the typical length of their menstrual cycle. We then used the established reverse-cycle-day method to predict the day of ovulation for each participant (DeBruine, Jones, & Perrett, 2005; Durante et al., 2011; Haselton & Gangestad, 2006).

On the basis of this established method, we created a high-fertility group (cycle days 7–14, n = 78) and a low-fertility group (cycle days 17–25, n = 85). For our main analyses, we did not include women on cycle days 15 and 16 because of the difficulty of determining fertility status on these days via counting estimates (DeBruine et al., 2005; Haselton & Gangestad, 2006). We also did not include women at the beginning of the ovulatory cycle (cycle days 1–6) or at the end of the ovulatory cycle (cycle days 26–28) to avoid potential confounds due to premenstrual or menstrual symptoms.

Relationship status. Participants indicated their current relationship status by selecting one of the following five descriptions: "not currently dating or romantically involved with anyone" (24.7%), "dating" (20.0%), "engaged or living

with my partner" (23.2%), "married" (31.3%), or "other" (0.7%). If a participant selected "other," she was prompted to provide a descriptor for her current relationships status (e.g., "separated") so that we could accurately assign her to a relationship category. Because we sought to test differences between women who were in a committed relationship and women who were not, participants who indicated that they were engaged, living with a partner, or married were classified as being in a committed relationship (n = 82); all others (e.g., not dating or dating) were classified as single (n = 81).

Demographic information. Women in relationships were older (mean age = 29.97 years) than were single women (mean age = 25.51 years), $p < .001$, and were more likely to have children (45.0%) than were single women (9.7%), $p < .001$. In the full sample, 70.2% of participants were Caucasian, 12% were African American, 5.5% were Asian American, 4% were Native Hawaiian/Pacific Islander, 3.6% were Hispanic/Latina, 1.5% were American Indian/Native American, 6.5% were of mixed race or ethnicity, and 0.4% were of another race or ethnicity. Participants indicated their current annual household income by selecting one of the following descriptions: $15,000 or less, $15,001–$25,000, $25,001–$35,000, $35,001–$50,000, $50,001–$75,000, $75,001–$100,000, $100,001–$150,000, or $150,000 or more. The two groups did not differ in ethnicity (p = .29) or in income level (p = .57), and ethnicity did not interact with fertility.

Religiosity. To measure religiosity, we used measures adapted from previous research (Li et al., 2009). Participants answered three items using 9-point scales: "How much do you believe in God?" (1 = *not at all*; 9 = *very much*); "I see myself as a religiously oriented person" (1 = *strongly disagree*; 9 = *strongly agree*); and "I believe that God or a higher power is responsible for my existence" (1 = *strongly disagree*; 9 = *strongly agree*). These three items were averaged to create a religiosity composite (α = .92), with higher numbers indicating a higher degree of religiosity. Although more commonly used religiosity scales exist (e.g., Allport & Ross, 1967), we did not use them because they reflect normative religiosity among American Protestants to the exclusion of other groups (Cohen, Hall, Koenig, & Meador, 2005).

Results and discussion

As expected, single women were slightly less religious (M = 4.9) than were women in relationships (M = 5.4). However, this finding was qualified by a significant Fertility × Relationship Status interaction, $F(1, 159) = 6.46$, p = .012 (see Fig. 1).

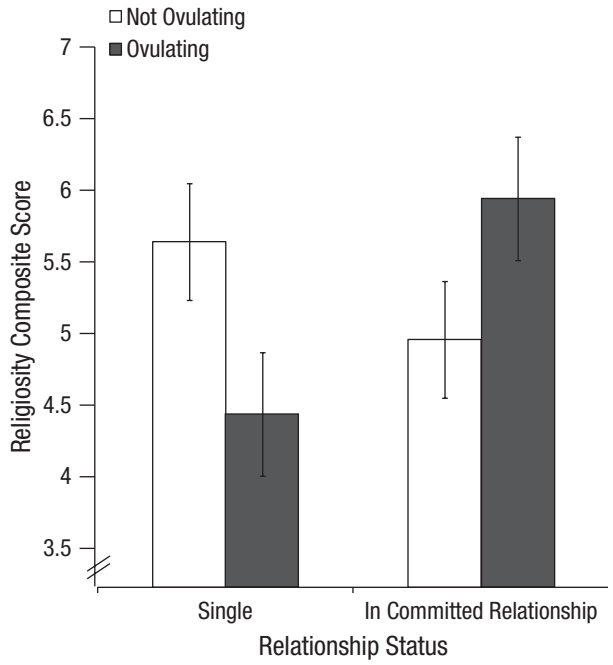

Fig. 1. Results from Study 1: women's religiosity as a function of fertility and relationship status. Higher scores indicate greater religiosity. Error bars represent standard errors of the mean.

Single women reported significantly less religiosity if they were in the high-fertility group (M = 4.32) than if they were in the low-fertility group (M = 5.62), $F(1, 159) = 3.88$, p = .050, d = 0.45. Conversely, women in relationships reported more religiosity if they were in the high-fertility group (M = 5.95) than if they were in the low-fertility group (M = 4.88), $F(1, 159) = 2.64$, p = .10, d = 0.35. Descriptive information for each relationship category can be found in Dissecting the Findings for Each of the Four Relationship Categories in the Supplemental Material available online.

Study 2: Ovulation, Political Attitudes, and Voting

In Study 2, we sought to conceptually replicate and extend the findings of Study 1. In addition to examining religiosity, we examined political attitudes, which allowed us to test the specificity of the ovulatory effect. Although political attitudes differ on the fundamental liberal-conservative dimension, these attitudes are commonly split into two subtypes: attitudes toward social issues and attitudes toward economic issues (Conover & Feldman, 1981; Knoke, 1979). Social issues include abortion, the legalization of marijuana, equal rights, and stem cell research, whereas economic issues include taxation policy, corporate regulation, economic standards of living, and privatization of Social Security. This distinction is relevant here

because reproductive goals have been shown to be related to social political attitudes but not to economic political attitudes (Kurzban et al., 2010). Thus, we predicted that ovulation should shift women's social political attitudes but not necessarily their fiscal attitudes.

In Study 2, we also examined how ovulation influenced women's voting preferences in the 2012 presidential election. We tested whether women's voting preferences shifted across the ovulatory cycle in ways consistent with changes in their political attitudes, which might mediate the effect of ovulation on voting choices.

Method

Participants. Participants were 502 women with a mean age of 27.3 years (*SD* = 6.14, range = 18–42 years) who had regular monthly menstrual cycles (25–35 days) and were not using hormonal contraception. Of these women, 54.6% were single (not dating or casually dating), and 45.4% were in a committed relationship (engaged, living with a partner, or married). All of the women were from the United States (all 50 states) and participated in return for payment via Amazon's Mechanical Turk.

Assessing fertility. Fertility was ascertained via the reverse-cycle-day method used in Study 1. We again created a high-fertility group (cycle days 7–14, $n = 131$) and a low-fertility group (cycle days 17–25, $n = 172$).

Relationship status. Participants indicated their current relationship status by selecting one of the following five descriptions: "not currently dating or romantically involved with anyone" (26.3%), "dating" (26.9%), "engaged or living with my partner" (14.7%), "married" (30.7%), or "other" (1.4%). Participants who indicated that they were engaged, living with a partner, or married were classified as being in a committed relationship ($n = 228$), and all others were classified as being single ($n = 274$). As in Study 1, if a participant selected "other," she was prompted to provide a descriptor for her current relationships status so that we could accurately assign her to a relationship category.

Demographic information. On average, women in relationships were older (mean age = 29.66 years) than were single women (mean age = 25.22 years), $p < .001$, and were more likely to have children (53.3%) than were single women ($M = 15.8\%$), $p < .001$. Participants indicated their current annual household income by selecting one of the following descriptions: $15,000 or less, $15,001–$25,000, $25,001–$35,000, $35,001–$50,000, $50,001–$75,000, $75,001–$100,000, $100,001–$150,000, or $150,000 or more. Women in relationships had a higher annual income level (M = $35,001–$50,000 per year) than did single women (M = $15,001–$25,000 per year), $p < .001$. In the full sample, 75.4% of participants were Caucasian, 8.6% were African American, 4.6% were Asian American, 4% were Native Hawaiian/Pacific Islander, 4.6% were Hispanic/Latina, 1% were American Indian/Native American, 4.8% were of mixed race or ethnicity, and 0.6% were of another race or ethnicity. The two groups did not differ in ethnicity ($p = .69$), and ethnicity did not interact with fertility.

Religiosity and political attitudes. The religiosity measure was a composite of the same three items used in Study 1 ($\alpha = .95$). To assess social and fiscal political attitudes, we used items drawn from previous research (Helzer & Pizarro, 2011; Kurzban et al., 2010), five assessing social political attitudes and five assessing fiscal political attitudes. Social-political-attitude items ($\alpha = .83$) were (a) "Abortion is a woman's right"; (b) "Marriage is between a man and a woman"; (c) "Stem cell research is moral and can be useful for science"; (d) "Marijuana should be legal"; and (e) "Laws should restrict abortion in all or most cases." Fiscal-political-attitude items ($\alpha = .69$) were (a) "The rich should pay a higher tax rate than the middle class"; (b) "Business corporations make too much profit"; (c) "Government should ensure that all citizens meet a certain minimum standard of living"; (d) "In nearly every instance, the free market allocates resources most efficiently"; and (e) "Privatize Social Security." Responses to all items were made using 7-point scales from 1 (*strongly disagree*) to 7 (*strongly agree*). Items were coded such that higher values indicated conservatism and lower values indicated liberalism.

Voting preferences. Women were told to "imagine walking into the voting booth today." They then indicated whom they would vote for in the upcoming presidential election by selecting Mitt Romney (Republican) or Barack Obama (Democrat). Women saw only the candidates' names; no photos of the candidates were presented.

Campaign donations. Women were told that the researchers would "donate $1 to the presidential campaign of their choosing." They were then asked to indicate which campaign—Mitt Romney's or Barack Obama's—they would like the $1 to go toward.

Results and discussion

Religiosity. Women in relationships were again slightly more religious ($M = 5.80$) than were single women ($M = 5.31$), $p = .17$. However, this finding was again qualified by a significant Fertility × Relationship Status interaction, $F(1, 299) = 8.21$, $p = .004$. Single women reported less religiosity if they were in the high-fertility group ($M = 4.86$) than if they were in the low-fertility group

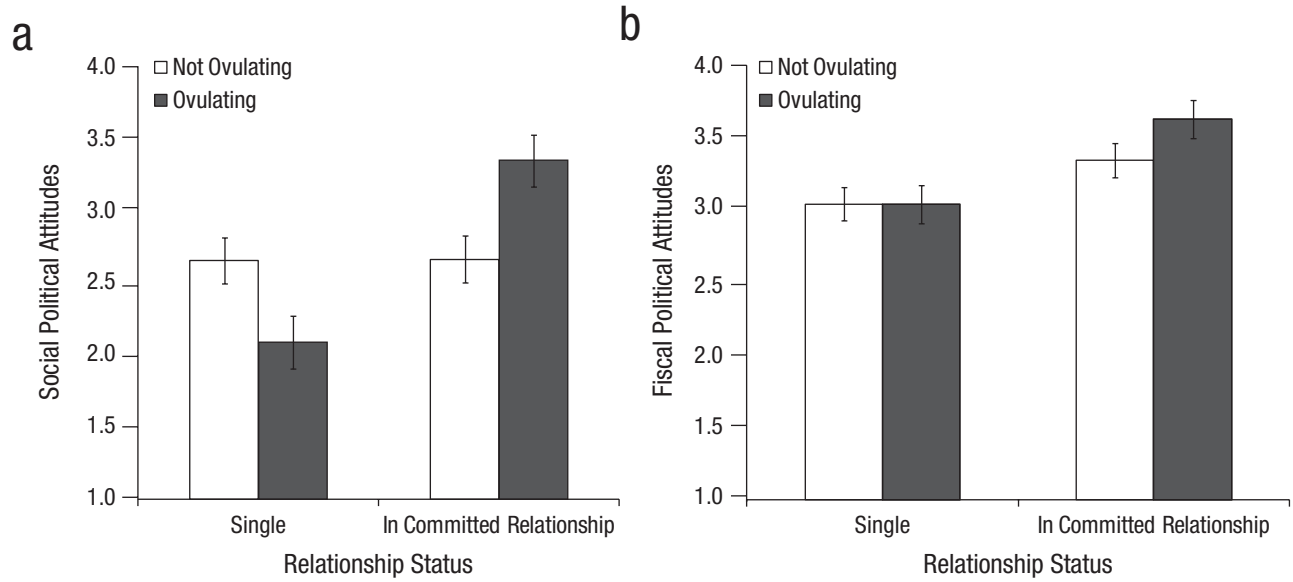

Fig. 2. Results from Study 2: women's (a) social political attitudes and (b) fiscal political attitudes as a function of fertility and relationship status. Social and political attitudes were scored such that lower values indicate more liberal attitudes and higher values indicate more conservative attitudes. Error bars represent standard errors of the mean.

(M = 5.75), $F(1, 167) = 3.66$, $p = .058$, $d = 0.30$. Conversely, women in relationships reported more religiosity if they were in the high-fertility group (M = 6.37) than if they were in the low-fertility group (M = 5.21), $F(1, 132) = 4.45$, $p = .037$, $d = 0.37$.

Political attitudes. A repeated measures analysis of variance with type of political attitudes (social vs. fiscal) as a within-subjects factor and fertility (high vs. low) and relationship status (single vs. in a committed relationship) as between-subjects factors revealed a significant three-way interaction, $F(1, 299) = 8.15$, $p = .005$ (see Fig. 2).

Regarding fiscal political attitudes, women in relationships were more conservative (M = 3.43) than were single women (M = 3.00), $F(1, 299) = 13.81$, $p = .001$. However, fertility status did not interact with relationship status or produce any other significant effects, ps > .28. Regarding social political attitudes, women in relationships were also more conservative (M = 3.00) than were single women (M = 2.37), $F(1, 299) = 12.71$, $p < .001$. However, this main effect was qualified by a Fertility × Relationship Status interaction, $F(1, 299) = 12.26$, $p = .001$. Single women were less socially conservative if they were in the high-fertility group (M = 2.09) than if they were in the low-fertility group (M = 2.65), $F(1, 167) = 6.99$, $p = .009$, $d = 0.42$. In contrast, women in relationships were more socially conservative if they were in the high-fertility group (M = 3.34) than if they were in the low-fertility group (M = 2.66), $F(1, 132) = 5.33$, $p = .023$, $d = 0.40$.

We next looked at the entire sample of women across the full cycle (N = 502) by examining social political attitudes of single women and of women in a relationship as a function of each woman's conception probability (see Study 2: Details of Conception Probability Calculation and Plotted Linear Function in the Supplemental Material). As shown in Figure 3, there was a significant Relationship

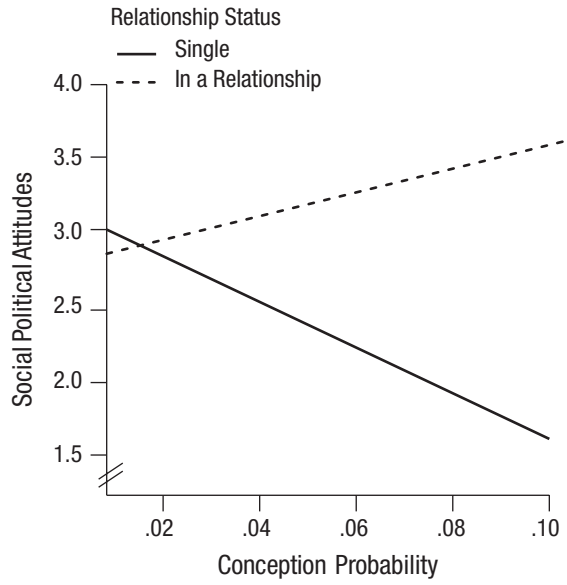

Fig. 3. Results from Study 2: women's social political attitudes as a function of conception probability and relationship status across the full 28-day ovulatory cycle.

Status × Conception Probability interaction, $F(1, 498) = 14.64$, $p < .001$. At 1 standard deviation below the mean on conception probability, there was no difference in social political attitudes between single women and women in relationships, $p = .50$. However, at 1 standard deviation above the mean on conception probability, there was a significant difference in social political attitudes between single women ($M = 2.22$) and women in committed relationships ($M = 3.16$), $t(498) = 4.68$, $p < .001$, $d = 0.42$.

Voting preferences. Single women were more likely to vote for Barack Obama (79.3%) than were women in relationships (69.4%), $\chi^2(1, N = 502) = 3.88$, $p = .049$. However, a logistic regression revealed that this main effect was qualified by a Fertility × Relationship Status interaction, $b = -1.62$, Wald(1) = 8.35, $p = .004$. Single women were more likely to vote for Obama if they were in the high-fertility group (86.5%) than if they were in the low-fertility group (73.7%), $\chi^2(1, N = 169) = 4.15$, $p = .042$, $d = 0.32$. Women in relationships, however, were more likely to vote for Romney at if they were in the high-fertility group ($M = 40.4\%$) than if they were in the low-fertility group (23.4%), $\chi^2(1, N = 134) = 4.44$, $p = .035$, $d = 0.37$ (see Fig. 4a).

Donation preferences. Single women were more willing to donate to the campaign of Barack Obama (79.9%) than were women in relationships (67.9%), $\chi^2(1, N = 502) = 5.65$, $p = .017$. However, this main effect was qualified by a Fertility × Relationship Status interaction, $b = -1.71$, Wald(1) = 9.30, $p = .002$. Single women were more willing to donate to Obama if they were in the high-fertility group (86.5%) than if they were in the low-fertility group (74.7%), $\chi^2(1, N = 169) = 3.57$, $p = .059$, $d = 0.29$. Women in relationships, however, were more willing to donate to Romney's campaign if they were in the high-fertility group (43.9%) than if they were in the low-fertility group (23.4%), $\chi^2(1, N = 134) = 6.31$, $p = .012$, $d = 0.44$ (see Fig. 4b).

Mediation analysis. Analyses showed that the fertility-induced shifts in women's religiosity and social political attitudes mediated the relationship between fertility and both voting behavior and donation preference (Fig. 5). For more details, see Study 2: Details of Mediated Moderation Analyses in the Supplemental Material.

General Discussion

In two studies with relatively large and diverse samples of women, we found that ovulation had different effects on women's religious and political orientation, depending on whether women were single or in committed relationships. Ovulation led single women to become more socially liberal, less religious, and more likely to vote for Barack Obama. Conversely, ovulation led women in relationships to become more socially conservative, more

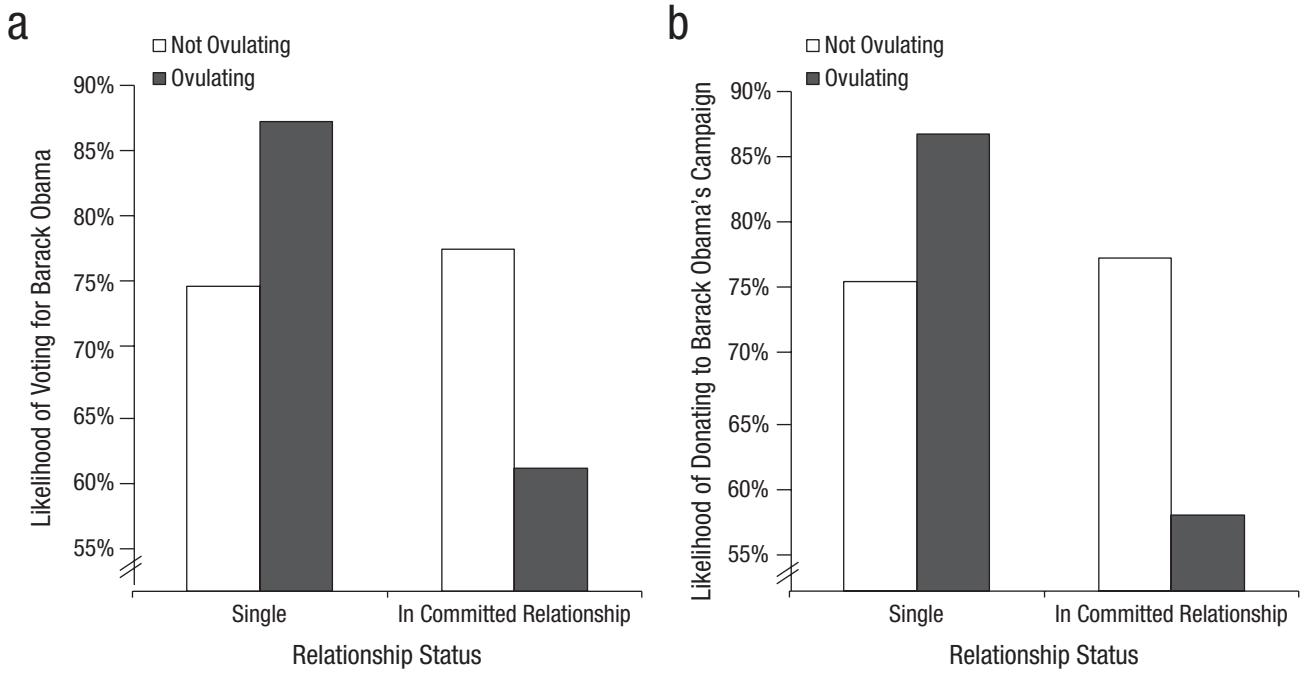

Fig. 4. Results from Study 2: women's (a) likelihood of voting for Barack Obama and (b) likelihood of donating $1 to Barack Obama's campaign as a function of fertility and relationship status.

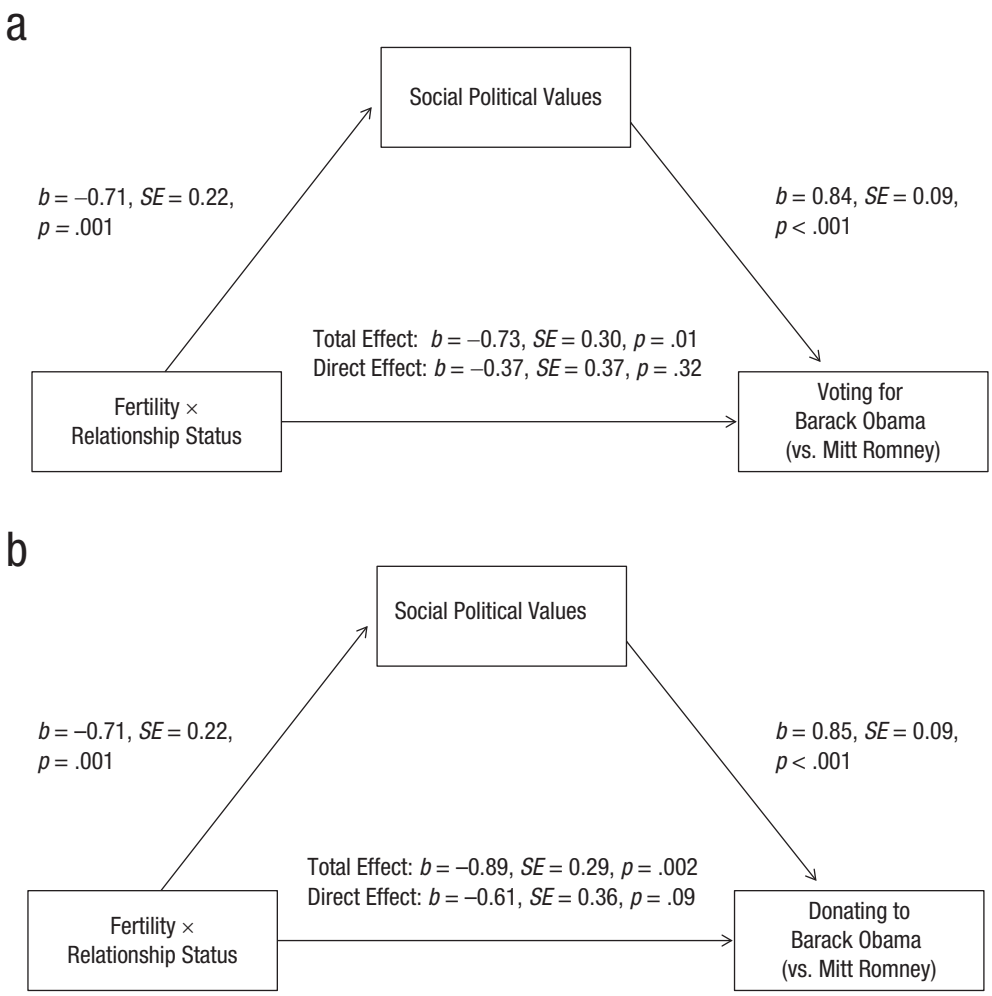

Fig. 5. Mediated moderation models for the effect of a Fertility × Relationship Status interaction on women's (a) voting behavior (i.e., likelihood of voting for Barack Obama) and (b) donation preferences (i.e., likelihood of donating to Barack Obama's campaign) via shifts in women's social political attitudes (Study 2). All path coefficients represent unstandardized regression weights. The direct-effect coefficient represents the effect of the Fertility × Relationship Status interaction on voting behavior and donation preferences after controlling for the mediating influence of ovulation-related shifts in social political attitudes.

religious, and more likely to vote for Mitt Romney. Women's voting preferences were mediated by their ovulation-induced changes in political orientation. These findings suggest that the ovulatory cycle might play an important role in women's politics. They also reveal a potential reason for the female divide leading up to the 2012 presidential election, in which single women strongly preferred the more liberal candidate and married women preferred the more conservative candidate.

There are likely multiple reasons why married women tend to vote Republican and single women tend to vote Democrat. For example, married women tend to be older and wealthier, and older and wealthier individuals generally have attitudes that are more conservative (McCullough, Enders, Brion, & Jain, 2005). However, the differences in age and income between single and married women in our studies were relatively small. Furthermore, findings from both of our studies indicated that single and married women did not differ in religiosity or political attitudes when they were not ovulating. Instead, differences arose only when the women were ovulating, which suggests that fertility might have a significant influence on women's politics beyond that of age or income.

An important contribution of this research is that ovulation had opposite effects for women who were single or dating compared with those who were married or engaged. We believe that the key difference between these two groups is that married or engaged women are more invested in their relationship and therefore would have considerably more to lose if their relationship were endangered. Increased religiosity and conservatism at ovulation

may serve to deter married women from cheating on their spouse. Future research is needed to examine this hypothesis as well as other possibilities, such as whether fertility leads married women to become more supportive of their in-group ideology (e.g., Navarrete, Fessler, Santos Fleischman, & Geyer, 2009).

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

References

Allport, G. W., & Ross, M. J. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, *5*, 432–443.

Anderson, U. S., Perea, E. F., Vaughn, B. D., Ackerman, J. M., Shapiro, J. R., Neuberg, S. L., & Kenrick, D. T. (2010). I only have eyes for you: Ovulation redirects attention (but not memory) to attractive men. *Journal of Experimental Social Psychology*, *46*, 804–808.

Bullivant, S. B., Sellergren, S. A., Stern, K., Spencer, N. A., Jacob, S., Mennella, J. A., & McClintock, M. K. (2004). Women's sexual experience during the menstrual cycle: Identification of the sexual phase by noninvasive measurement of luteinizing hormone. *Journal of Sex Research*, *41*, 82–93.

Cohen, A. B., Hall, D. E., Koenig, H. G., & Meador, K. G. (2005). Social versus individual motivation: Implications for normative definitions of religious orientation. *Personality and Social Psychology Review*, *9*, 48–61.

Cohen, A. B., Malka, A., Hill, E. D., Thoemmes, F., Hill, P. C., & Sundie, J. M. (2009). Race as a moderator of the relationship between religiosity and political alignment. *Personality and Social Psychology Bulletin*, *35*, 271–282.

Conover, P. J., & Feldman, S. (1981). The origins and meaning of liberal/conservative self-identifications. *American Journal of Political Science*, *25*, 617–645.

DeBruine, L. M., Jones, B. C., & Perrett, D. I. (2005). Women's attractiveness judgments of self-resembling faces change across the menstrual cycle. *Hormones and Behavior*, *47*, 379–383.

Durante, K. M., Griskevicius, V., Hill, S. E., Perilloux, C., & Li, N. P. (2011). Ovulation, female competition, and product choice: Hormonal influences on consumer behavior. *Journal of Consumer Research*, *37*, 921–934.

Durante, K. M., Griskevicius, V., Simpson, J. A., Cantu, S. M., & Li, N. P. (2012). Ovulation leads women to perceive sexy cads as good dads. *Journal of Personality and Social Psychology*, *103*, 292–305.

Durante, K. M., Li, N. P., & Haselton, M. G. (2008). Changes in women's choice of dress across the ovulatory cycle: Naturalistic and laboratory task-based evidence. *Personality and Social Psychology Bulletin*, *34*, 1451–1460.

Eastwick, P. W., & Finkel, E. J. (2012). The evolutionary armistice: Attachment bonds moderate the function of ovulatory cycle adaptations. *Personality and Social Psychology Bulletin*, *38*, 174–184.

Edwards-Levy, A. (2012, May 3). Barack Obama, Mitt Romney embrace social media to court women voters. *The Huffington Post*. Retrieved from http://www.huffingtonpost.com/2012/05/03/obama-romneysocial-media-women_n_1475221.html

Gangestad, S. W., Thornhill, R., & Garver, C. E. (2002). Changes in women's sexual interests and their partner's mate-retention tactics across the menstrual cycle: Evidence for shifting conflicts of interest. *Proceedings of the Royal Society B: Biological Sciences*, *269*, 975–982.

Gangestad, S. W., Thornhill, R., & Garver-Apgar, C. E. (2005). Adaptations to ovulation. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 344–371). Hoboken, NJ: Wiley.

Garver-Apgar, C. E., Gangestad, S. W., Thornhill, R., Miller, R. D., & Olp, J. J. (2006). Major histocompatibility complex alleles, sexual responsivity, and unfaithfulness in romantic couples. *Psychological Science*, *17*, 830–835.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*, 1029–1046.

Haidt, J. (2012). *The righteous mind: Why good people are divided by politics and religion*. Toronto, Ontario, Canada: Pantheon Books.

Haselton, M. G., & Gangestad, S. W. (2006). Conditional expression of women's desires and men's mate guarding across the ovulatory cycle. *Hormones and Behavior*, *49*, 509–518.

Haselton, M. G., & Gildersleeve, K. (2011). Can men detect ovulation? *Current Directions in Psychological Science*, *20*, 87–92.

Haselton, M. G., Mortezaie, M., Pillsworth, E. G., Bleske-Rechek, A., & Frederick, D. A. (2007). Ovulatory shifts in human female ornamentation. *Hormones and Behavior*, *51*, 40–45.

Helzer, E. G., & Pizarro, D. A. (2011). Dirty liberals! Reminders of physical cleanliness influence moral and political attitudes. *Psychological Science*, *22*, 517–522.

Jost, J. T., Federico, C. M., & Napier, J. L. (2004). Political ideology: Its structure, functions, and elective affinities. *Annual Review of Psychology*, *60*, 307–337.

Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, *129*, 339–375.

Knoke, D. (1979). Stratification and the dimensions of American political orientations. *American Journal of Political Science*, *23*, 772–791.

Knox, O. (2012, July 11). *Single women put Obama on top in new poll*. Retrieved from http://news.yahoo.com/blogs/ticket/single-women-favor-obama-151713797.html

Kurzban, R., Dukes, A., & Weeden, J. (2010). Sex, drugs, and moral goals: Reproductive strategies and views about recreational drugs. *Proceedings of the Royal Society B: Biological Sciences*, *277*, 3501–3508.

Laponce, J. A. (1981). *Left and right: The topography of political perceptions*. Toronto, Ontario, Canada: University of Toronto Press.

Lewis, C. A., & Maltby, J. (2000). Conservatism and attitude towards Christianity. *Personality and Individual Differences*, *29*, 793–798.

Li, Y. J., Cohen, A. B., Weeden, J., & Kenrick, D. T. (2009). Mating competitors increase religious beliefs. *Journal of Experimental Social Psychology*, *46*, 428–431.

McCullough, M. E., Enders, C. K., Brion, S. L., & Jain, A. R. (2005). The varieties of religious development in adulthood: A longitudinal investigation of religion and rational choice. *Journal of Personality and Social Psychology*, *89*, 78–89.

Navarrete, C. D., Fessler, D. M. T., Santos Fleischman, D., & Geyer, J. (2009). Race bias tracks conception risk across the menstrual cycle. *Psychological Science*, *20*, 661–665.

Navarrete, C. D., McDonald, M. M., Mott, M. L., Cesario, J., & Sapolsky, R. (2010). Fertility and race perception predict voter preference for Barack Obama. *Evolution and Human Behavior*, *31*, 394–399.

Negrin, M. (2012, April 3). *Put a ring on it: Obama wins women, but not the married kind*. Retrieved from http://abcnews.go.com/Politics/OTUS/put-ring-obama-wins-women-married-ypes/story?id=16057761#.T-pCWLVSTAY

Norris, P., & Inglehart, R. (2004). *Sacred and secular: Religion and politics worldwide*. Cambridge, England: Cambridge University Press.

Pillsworth, E. G., & Haselton, M. G. (2006). Male sexual attractiveness predicts differential ovulatory shifts in female extra-pair attraction and male mate retention. *Evolution and Human Behavior*, *27*, 247–258.

Pillsworth, E. G., Haselton, M. G., & Buss, D. M. (2004). Ovulatory shifts in female sexual desire. *Journal of Sex Research*, *41*, 55–65.

Sears, D. Q., & Funk, C. L. (1991). The role of self-interest in social and political attitudes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 2–91). New York, NY: Academic Press.

Sherkat, D. E., & Ellison, C. G. (1999). Recent developments and current controversies in the sociology of religion. *Annual Review of Sociology*, *25*, 363–394.

Thornhill, R., & Gangestad, S. W. (2008). *The evolutionary biology of human female sexuality*. New York, NY: Oxford University Press.

Weeden, J., Cohen, A. B., & Kenrick, D. T. (2008). Religious participation and reproductive strategies. *Evolution and Human Behavior*, *29*, 327–334.