Original Article

Fertility and race perception predict voter preference for Barack Obama[☆]

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Abstract

Research shows that women more positively evaluate targets evincing cues of high male genetic quality as a function of fertility across the menstrual cycle. Recently, a link between fertility and anti-black race bias has also been documented, an effect that is argued to serve a sexual coercion avoidance function. Here we demonstrate that both effects can be operative toward the same male target depending on inter-individual differences in race perception of the target. Across two studies, we found that the intention to vote for Barack Obama in the months preceding the 2008 election increased as a function of conception risk across the menstrual cycle. In the second study, we found that the effect is greatest among women who perceived him as more white than black, whereas the opposite was true among women who perceived him as mostly black. Our findings tie together separate conceptual research threads on positive and negative evaluations of men by women across the menstrual cycle — integrating them to shed light on women's voting preferences.
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1. Introduction

In this article, we describe initial study results from a research program that explores how the psychology of perceptual biases and evolved mate preferences interact and how they may be related to current political and social attitudes, particularly among women (Cheesman & Merikle, 1984; Sigelman, Sigelman, Thomas & Ribich, 1986). In doing so, we investigate how race perception, political ideology and fertility shifts across the menstrual cycle are related to women's voting preferences for Barack Obama in the 2008 election.

Two related, yet distinct, lines of research from within evolutionary psychology are relevant to how women's voting preferences might change as a function of fertility. One line has shown that, perhaps due to fitness benefits conferred on one's offspring, normally cycling women are particularly attuned to cues of attractiveness, power and dominance in men around the phase of the menstrual cycle when conception risk is highest (e.g., Gangestad & Cousins, 2001). The second research thread suggests that women may become more wary of men categorized as dangerous agents as a function of conception risk. That is, women more negatively evaluate men perceived as sexually coercive to engage in sexual tactics at peak fertility than at other times (e.g., Garver-Apgar, Gangestad & Simpson, 2007).

Along the lines of the second thread, recent research suggests that normally cycling women react more negatively toward black American men as a function of increased risk of conception (Navarrete, Fessler, Santos Fleischman & Geyer, 2009). The latter finding is argued to be the epiphenomenal output of a psychological system evolved to orient women to avoid sexual coercion and thus maintain the integrity of a core feature of mammalian behavioral evolution: female reproductive choice. Since women are more sensitive to cues indicating men's intentions to engage in coercive sexual tactics when they are ovulating (Garver-Apgar et al., 2007), they may therefore be motivated to avoid situations or agents appraised as a potential threat to one's reproductive choice

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(Chavanne & Gallup, 1998). Extending this logic, because black American men are typically stereotyped as dangerous persons (Correll, Park, Judd & Wittenbrink, 2002; Devine, 1989; Donders, Correll & Wittenbrink, 2008), they fit the category of agents that should be more negatively appraised when the reproductive costs are particularly high (Navarrete et al., 2009), which is when they are most likely to conceive during the periovulatory phase of the menstrual cycle.

If black American male targets may be more negatively evaluated when conception risk is high because they are typically categorized as belonging to a dangerous out-group, what might be said of black male targets that are not readily categorized as such? Consider the case of Barack Obama. Despite his mixed racial composition, it can be argued that with respect to the conscious, declarative knowledge that most Americans have about him, he is well understood to be black. In fact, he even believes as much: "I self-identify as African-American—that's how I'm treated and that's how I'm viewed" (Lewan, 2008). Yet Obama's personal traits strongly violate the black male stereotype, as many well-known facts about his life fit a very different stereotype— one closer to that ascribed to white American male patricians rather than that typically associated with black Americans. For example, he has an advanced degree from an Ivy League university, has children in elite private schools and was a former senator who became President of the United States. Likewise, he is often described in terms that are counter-stereotypic to the black male archetype, such as "measured," "level headed," "articulate" and "clean" (Thai & Barrett, 2007). As such, there is strong overlap between his personal characteristics and the traits stereotypically associated with the category "white."

Because Barack Obama so powerfully violates the dangerous black male stereotype, many Americans may not, at some deep level, really perceive him as black, and, therefore, some women may not perceive him a threat to reproductive choice when conception risk is high. In fact, to the extent to which he is not characterized as a threat, women should be attuned to his personal attributes befitting of an ideal mate of any race—namely, those traits that are indicators of male genetic quality, such as his attractiveness, charisma, prestige and power. This information should be used in women's appraisals of the kind of man whose interests should be catered to and supported, particularly when conception risk is high. Therefore, contrary to the pattern found among fertile women toward unfamiliar black male exemplars by Navarrete et al. (2009), we expect that most normally cycling women would show conception risk patterns in positive evaluation that mimic those typically displayed to men of high mate quality, not to stereotypic black male targets. As such, we expected that, in a survey on political preferences conducted in the months leading up to the November 2008 Presidential Election, normally cycling women would, on average, report that they would be more willing to vote for Barack Obama for President as a function of increased fertility across the menstrual cycle.

1.1. The role of race perception

Because there are expected to be inter-individual differences in the extent to which Barack Obama is mentally represented as being more or less "black," we expect that this should affect the relationship between conception risk and voting preference in ways consistent with this perspective. Along these lines, we expected that the extent to which women perceive Obama as black or white should predict the strength of the relationship between conception risk and voting preference, such that, as perceptions of his skin tone towards "whiteness" and away from "blackness" increase, the relationship between conception risk and political support for him should become stronger. On the flip side, we expected that as perceptions of his blackness increases, conception risk should not lead to increased voter support, but may in fact be *negatively* related to expressed intentions to vote for him.

1.2. Adding political orientation to the mix

Knowing one's political orientation is an important predictor of voting patterns (Sniderman, 2000). Since voters on the left side of the liberal–conservative political spectrum are likely to vote for the more liberal candidate, support for Barack Obama will already be high. However, since conservatives are less likely to support liberal candidates to begin with, any increase in support for Obama as a function of conception risk is likely to be stronger for conservative women, since they have a greater potential to switch their usual voting preferences when the liberal target is attractive, charismatic and powerful. Thus we investigated the possibility that the predicted results above would be moderated by political orientation, such that the predicted effects would be strongest among conservative women voters.

Here we report on the analyses of data from two separate studies, one among university undergraduates and another across a broad demographic sample of American voters. In doing so, we predicted that (1) voting preference for Barack Obama for US President would increase as a function of conception risk among normally cycling women; (2) voting preference as a function of conception risk would be modulated by the extent to which women perceived Obama as more or less black; and that (3) these effects would uniquely predict voting preference not only when political orientation is held constant, but that the effects would be strongest among conservative women. Study 1 tested Prediction 1 among a university sample of white women, while Study 2 examined all predictions across a large, demographically diverse sample.

2. Study 1

2.1. Method

2.1.1. Research subjects

Participants were Michigan State University students, who agreed to participate in a psychology pool prescreen

survey between 1 September to 4 November 2008. Data was culled from female participants who (a) were white US citizens, (b) did not suffer from chronic health problems, (c) had menstrual cycles of normal length, (d) were not pregnant, (e) were willing to state their voting preference and (g) and were not currently using hormonal contraceptives. Analyses described below include observations from 62 white women aged 18–22 (mean=18.91, S.D.=1.04).

2.1.2. Procedure

Participants completed an online survey described as a prescreen for various laboratory experiments. The survey consisted of various psychological measures of social attitudes, personality and demographic background. Embedded within the questionnaire was an item that read, "Which candidate do you think you will support in the November 2008 Presidential Election?" The options were (1) John McCain, Republican; (2) Barack Obama, Democrat; (3) a different candidate; and (4) I will not support any candidate/not sure.

2.1.3. Conception risk

Two questionnaire items assessed position in the menstrual cycle by asking the respondent to provide the dates of the onset of her last two menstrual periods. Dates were affirmed for participants via a follow-up Internet questionnaire that was completed on the day of their next period. From these dates, the length of the menstrual cycle and the current day into the cycle were inferred (Gangestad & Thornhill, 1998). Participants' degree of fertility (or conception risk value) corresponding to the day of the cycle was estimated using actuarial pregnancy risk data (Wilcox, Dunson, Weinberg, Trussell & Baird, 2001). Each participant was assigned a value from 0 to .094, with higher values denoting greater conception risk (mean=.04, S.D.=.03).

2.2. Results

In response to the voting preference question, 39% chose Barack Obama, 49% chose John McCain and 12% chose neither candidate or were unsure. To assess the effect of conception risk on voting preference, we conducted a point-biserial correlation analysis where conception risk was the independent predictor and preference for Obama was the dichotomous outcome variable (1=Vote for Obama, 0=All other options).

Consistent with our prediction, the analysis revealed a significant relationship between conception risk and voting preference [$r(62)=.28$, $p=.03$], such that the higher the risk of conception, the greater the probability of intending to vote for Barack Obama.

3. Study 2

3.1. Method

3.1.1. Participants

Respondents for an Internet survey were recruited via online advertisements posted to classified pages, political discussion websites, psychology-related websites, and was conducted between 1 August and 15 December 2008. Observations were culled for adult, non-pregnant, premenopausal women who were not currently using oral contraceptives and who reported menstrual cycles of normal length. Of these, observations were removed for women who did not plan to vote in the 2008 General Election, participated after the November 4 election, could not identify Barack Obama in a photo and who did not agree to the item "I answered all items honestly."

Data were analyzed for 186 white and 38 non-white women aged 18 to 50 (mean=22.61, S.D.=6.73). Cycle length was standardized to a 28-day cycle because of the wide array of health, age and other demographic differences in the sample (Puts, 2006), and the forward-counting method (Gangestad & Thornhill, 1998) was used to assess cycle timing, as no follow-up questionnaire was administered. Conception risk values were calculated using the method described in Study 1 (Wilcox et al., 2001).

3.1.2. Procedure

Participants completed an online survey that consisted of various social attitude, image evaluation and demographic items. Embedded within the questionnaire was an item that read, "Which candidate do you think you will support in the November 2008 Presidential Election?" The options were (a) Barack Obama, Democrat; (b) John McCain, Republican; (c) a different candidate; (d) not sure/undecided; (e) will not vote; or (f) decline to state. The survey included an item assessing political orientation (1=*Liberal* to 7=*Conservative*) and ended with a series of demographic questions. Upon completion, participants were directed to a webpage that described the goals of the study.

3.1.3. Skin color perception bias

Also embedded within the survey was a measure that assessed the extent to which participants perceived Barack Obama as more or less black or white. An electronic color swatch presenting 10 different skin-tone options was presented to study respondents with an item probing "[w]hich color do you think best represents Barack Obama's correct skin-tone?" Participants indicated their choice by checking a box under the estimated color tone (see Fig. 1 for scale).

To create the stimuli for this task, we calculated a color estimate of Barack Obama's skin tone from a sample of photos found on the Internet. Nine additional colors were created from the average skin-tone color by increasing or
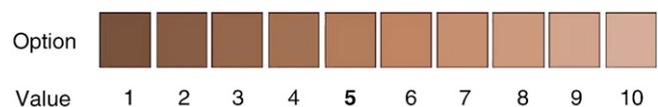
Fig. 1. Scale used to assess perceptual bias of Barack Obama's skin color. Value 5 is correct.

decreasing the luminosity of the color and were presented to survey respondents in a swatch chart ranging from *dark* (1) to *light* (10) with the correct option (5) about midway in the spectrum (Fig. 1).

Barack Obama's correct skin tone was calculated by averaging the pixel color across the first 50 unique images of him found on Google and Yahoo! Images, using the search term "Barack Obama." As both of these search engines generate their list orders according to the popularity of the result, these are likely to be the most-seen images among Internet users at the time the swatches were generated. Within each picture, all non–skin tone was erased. A computer program calculated the average pixel color for each image, ignoring any pixel with a red, green or blue component of intensity higher than 225 or lower than 35. Removing these pixels corrected for the biasing effects of shadows, facial hair or light reflection. These images formed the average pixel color of 98694C (RGB) or 21° hue, 31% saturation and 42% luminosity. Nine additional colors were created from the average skin-tone color by increasing or decreasing the luminosity of the color in 4% increments.

3.2. Results and discussion

In response to the voting preference question, 62% chose Barack Obama, 25.5% chose John McCain and 12.5% chose neither candidate or were unsure. As in Study 1, voting preference was separated into a binary outcome variable (1=Obama, n=139; 0=another candidate, n=85). Replicating the effect reported in Study 1, a point-biserial correlation analysis revealed that conception risk was positively related to preference for Barack Obama over other candidates [r (224)=.14, p=.04].

To investigate the moderating role of race categorization, we created a logistic regression model where preference for Obama was the outcome variable, and perceptual bias (mean=6.32, S.D.=1.92), conception risk (mean=.03, S.D.=.03), conservatism (mean=3.52, S.D.=1.51) and their cross products were the independent variables. Robust standard errors were calculated from logit coefficients, and variables were zero centered before being simultaneously entered (Aiken & West, 1991). Full model results are reported in Table 1 (β denotes standardized estimates from a linear model).

Consistent with expectations, the analysis revealed a significant main effect for conception risk (Table 1), which was qualified by a significant two-way interaction with perceptual bias (Conception Risk×Perceptual Bias), such that perception of Obama's skin tone amplified the positive relationship between conception risk and voting preference. A significant three-way interaction among these variables emerged (Conception Risk×Perceptual Bias×Conservatism), such that conservatism was found to moderate the relationship between conception risk and perceptual bias.

To elucidate the nature of the predicted two-way interaction between conception risk and perceptual bias,

Table 1
Regression table

	b	S.E.	z	β
Perceptual bias	.16	0.12	1.41	.06
Conception risk	17.88	7.62	2.35	.10
Conservatism	−1.48**	0.21	−7.01	−.63
Perceptual Bias×Conception Risk	12.62**	3.89	3.24	0.18
Perceptual Bias×Conservatism	−0.10	0.10	−1.04	−0.02
Conception Risk×Conservatism	−3.89	6.01	−0.65	−0.03
Perceptual Bias×Conception Risk× Conservatism	4.32*	1.79	2.42	0.09
Intercept	0.85	0.22	3.89	–

Results of a full logistic regression model where voting preference for Barack Obama is predicted by perceptual bias, conception risk, conservatism and their cross products.
* p=.02.
** p<.001.

we conducted a simple effects analysis (Aiken & West, 1991), where the relationship between conception risk was assessed at high and low levels of perceptual bias (±1 S.D. below and above the mean). The analysis revealed that conception risk was related to increased voting preference for Barack Obama when perception of his skin color was biased toward the white side of the continuum (b=1.28, χ^2=10.54, p=.001, β=.28), but not when perception was biased toward the black side (χ^2<1). When simple effects were assessed at ±2 S.D., the effect for white perceptual bias was strongly affirmed (b=2.03, χ^2=11.29, p=.0008, β=.44), but black perceptual bias led to *decreased* support for Obama as a function of conception risk (b=.94, χ^2=5.46, p=.02, β=−.23). That is, holding political ideology constant, the intention to vote for Barack Obama in the 2008 Presidential Election rose as a function of conception risk,
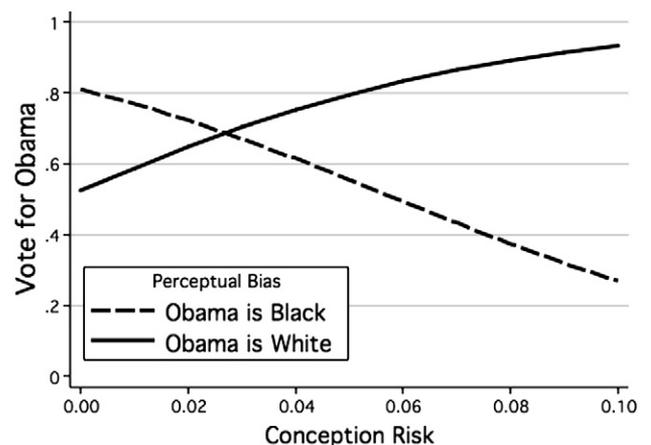

Fig. 2. Logistic regression estimates for the likelihood of voting for Barack Obama ("Vote for Obama") as a function of conception risk and perceptual bias. For visualization purposes, observations are bifurcated along the lines of respondents' perception of Obama's skin color as belonging on the light side ("Obama is White," ≥5) versus the dark side ("Obama is Black," ≤4).
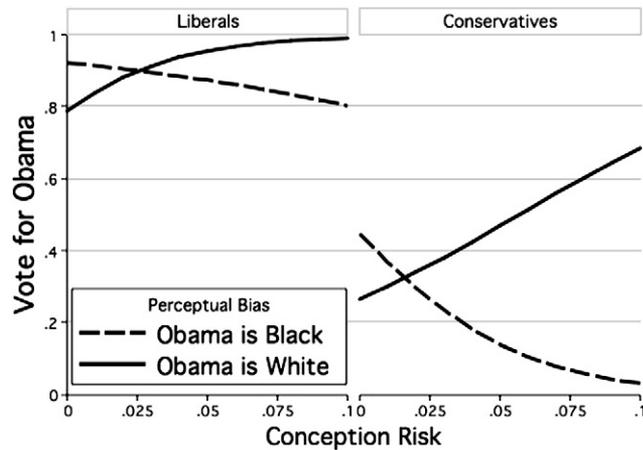
Fig. 3. Estimated likelihood of voting for Obama as a function of conception risk, perceptual bias and political orientation. For visualization purposes, observations are bifurcated by categories as described in Fig. 1 and separated by conservatism at the median (Liberals <4, Conservatives ≥4).

but only when women perceived Obama as more white than black, and that this was not true among women who perceived him as more black than white. On the contrary, the latter appeared to be *less* likely to vote for Obama when conception risk was high, although the effect was detectable only at the extreme margins of perception. Fig. 2 provides a visual representation of these findings.

To investigate how these effects held across the political liberal–conservative continuum, we inspected the slopes for the predicted interaction (Conception Risk×Perceptual Bias) at high and low levels of conservatism (±1 S.D.). Simple effects assessed when conservatism was high showed that the predicted two-way interaction was caused primarily by women at the right side of the liberal–conservative dimension ($b=1.13$, $\chi^2=17.04$, $p<.0001$, $\beta=.25$), compared to those on the left ($b=.36$, $\chi^2=1.58$, $p=.21$, $\beta=.10$). Graphical inspection of these slopes (Fig. 3) suggests that the moderating role of political ideology was in part due to ceiling effects among liberal women, who would have voted for Barack Obama regardless of their reproductive state. Nonetheless, the results demonstrate a striking role for conception risk variance in modulating the well-known effect of political ideology in predicting voting preferences.

4. General discussion

Across two separate samples we found that, in the months leading to the 2008 Presidential Election, fertility changes across the menstrual cycle were related to voting preferences among normally cycling women, such that as conception risk rose, support for Barack Obama for President of the United States rose as well. In the second sample, we found that the relationship between conception risk and support for Obama was dependent on perceptions of his skin tone, such that the lighter his skin was perceived to be, the more strongly

conception risk was positively associated with support for Obama. However, conception risk was negatively related to support for Obama when his skin tone was perceived to be very dark.

Our findings are consistent with the notion that voter support for Obama increases as a function of conception risk when he is perceived as white, but decreases when he is perceived as black. That a decrease in support for Obama may occur among women who perceive him as black is consistent with previous findings suggesting that unfamiliar men associated with danger pose adaptive problems for women at peak fertility (Garver-Apgar et al., 2007) and black men in particular (Navarrete et al., 2009). Importantly, although these effects hold fast when controlling for the effects of political orientation, they are amplified among conservative women. Taken together, these results show how differences in perception can interact with conception risk changes across the menstrual cycle, with outcomes that modulate the otherwise powerful effects of political ideology in predicting voter preferences.

It is known that preexisting knowledge structures about social categories can influence basic perceptual processes in a "top-down" fashion (Bruner & Postman, 1947; Bruner & Klein, 1960; Cavanaugh, 1991; Correll et al., 2002; Duncan, 1976), such that people can sometimes perceive things quite differently depending on their motivations to do so. Our findings highlight the potential for research programs informed by an evolutionary perspective to shed new light on political preferences and suggest that there may be an evolved political psychology that is specific to women — one that is linked to women's mate choice preferences that are under the influence of their reproductive physiology (e.g., Feinberg et al., 2006; Fessler & Navarrete, 2003; Gangestad, Garver-Apgar, Simpson & Cousins, 2007; Garver-Apgar et al., 2007; Garver-Apgar, Gangestad & Thornhill, 2008; Garver-Apgar, Gangestad, Thornhill, Miller & Olp, 2006; Jones et al., 2005, 2008; Pillsworth & Haselton, 2006).

Research on implicit social cognition has shown that the influence of accessible cognitive content on judgment and behavior occurs automatically and without conscious awareness (e.g., Amodio & Devine, 2006; Bodenhausen, Macrae & Sherman, 1999). These are features of human perceptual systems that may be part of a broad psychological system for motivated, adaptive self-deception (Krebs & Denton, 1997). Given that humans generally do not have introspective access to their own motivated psychological processes (Nisbett & Wilson, 1977), such influences are not easily corrected. As such, our findings raise the question of whether Barack Obama's success as a politician may in part be due to the possibility that, at a nonconscious yet operative level of cognitive processing, most American voters may not consider him to be black. The effect that we found across both studies — that increased risk of conception leads to greater political support for Obama — is consistent with this interpretation.

Acknowledgments

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