
Women are more likely to wear red or pink at peak fertility.

Beall AT, Tracy JL.
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Abstract
Although females of many species closely related to humans signal their fertile window in a manner, often involving red or pink coloration, no such display has been found for evidence that men are sexually attracted to women wearing or surrounded by red, women show a behavioral tendency toward wearing reddish clothing when at peak fertility. In a samples (N = 124), women at high conception risk were more than 3 times more likely to wear a pink shirt than were women at low conception risk, and 77% of women who wore red were at high, rather than low, risk. Conception risk had no effect on the prevalence of pink color. Our results thus suggest that red and pink adornment in women is reliably associated with peak fertility, and that female ovulation, long assumed to be hidden, is associated with a salient signal.
The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

Kristina M. Durante\textsuperscript{1}, Ashley Rae\textsuperscript{1}, and Vladas Griskevicius\textsuperscript{2}

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Abstract
Each month, many women experience an ovulatory cycle that regulates fertility. Although research on the cycle influences women’s mating preferences, we proposed that it might also change women’s political views. Building on theory suggesting that political and religious orientation are linked to reproductive success, we hypothesized that the ovulatory cycle would influence women’s politics, religiosity, and voting in the 2012 U.S. presidential election. We conducted a series of experiments with large and diverse samples, ovulation had drastically different effects on single women and 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, and more likely to vote for Mitt Romney. In addition, ovulation-induced changes in political views differed for single women than for women in relationships. Overall, the ovulatory cycle not only influences women’s politics differently for single women than for women in relationships.
The Ancestral Logic of Politics
Upper-Body Strength Regulates Men’s Assertion of Self-Interest Over Economic Redistribution

Over human evolutionary history, upper-body strength has been a major component of fighting ability. Evolutionary models of animal conflict predict that actors with greater fighting ability will more actively attempt to acquire or defend resources than less formidable contestants will. Here, we applied these models to political decision making about redistribution of income and wealth among modern humans. In studies conducted in Argentina, Denmark, and the United States, men with greater upper-
Results

Experiment 2a. A t test was computed to ascertain the effect of the priming manipulation on walking speed. Participants in the elderly priming condition ($M = 8.28$ s) had a slower walking speed compared to participants in the neutral priming condition ($M = 7.30$ s), $t(28) = 2.86$, $p < .01$, as predicted.

Experiment 2b. In the replication, analyses revealed that participants in the elderly priming condition ($M = 8.20$ s) again had a slower walking speed compared to participants in the neutral priming condition ($M = 7.23$ s), $t(28) = 2.16$, $p < .05$. 
Daniel Kahneman (2011):

“When I describe priming studies to audiences, the reaction is often disbelief . . . The idea you should focus on, however, is that disbelief is not an option. The results are not made up, nor are they statistical flukes. You have no choice but to accept that the major conclusions of these studies are true.”
The attempted replication

Average time (secs) to walk 32ft, as a function of priming stereotype condition

Average walking time (secs)

- Elderly: 7.8
- Neutral: 8.4
Daniel Kahneman (2011):

“When I describe priming studies to audiences, the reaction is often disbelief . . . The idea you should focus on, however, is that disbelief is not an option. The results are not made up, nor are they statistical flukes. You have no choice but to accept that the major conclusions of these studies are true.”

Wagenmakers et al. (2014):

“[After] a long series of failed replications . . . disbelief does in fact remain an option.”
Alan Turing (1950):

“I assume that the reader is familiar with the idea of extra-sensory perception, and the meaning of the four items of it, viz. telepathy, clairvoyance, precognition and psycho-kinesis. These disturbing phenomena seem to deny all our usual scientific ideas. How we should like to discredit them! Unfortunately the statistical evidence, at least for telepathy, is overwhelming.”
This Week in *Psychological Science* (TWiPS)

The links below take you to the journal via the APS website. If not already logged in, you will be redirected to log-in using your last name (Gelman) and Member ID (8167).

**Turning Body and Self Inside Out: Visualized Heartbeats Alter Bodily Self-Consciousness and Tactile Perception**

*Jane Elizabeth Aspell, Lukas Heydrich, Guillaume Marillier, Tom Lavanchy, Bruno Herbelin, and Olaf Blanke*

Studies of body perception have mostly focused on manipulations of exteroceptive cues (e.g., vision and touch); however, interoceptive cues (i.e., representations of internal bodily states) may be just as important for self-perception. Participants viewed a virtual body or a rectangle, each of which had a flashing outline that was synchronous or asynchronous with the participant’s own heartbeat. Self-identification was stronger for people viewing the virtual body with the synchronous flashing outline than for those viewing the body with the asynchronous flashing outline or for those viewing the rectangles. This suggests that both interoceptive and exteroceptive cues play important roles in bodily self-perception.

**Aging 5 Years in 5 Minutes: The Effect of Taking a Memory Test on Older Adults’ Subjective Age**

*Matthew L. Hughes, Lisa Geraci, and Ross L. De Forrest*

Subjective age – how old people feel – is related to psychological and physical well-being. In this study, the researchers examined whether common memory-testing procedures influence adults’ subjective age. Older and younger adults rated their subjective age before and after taking a memory test. Older adults reported feeling older after taking the memory test, but younger adults did not. A follow-up study found that...
This week in Psychological Science

▶ “Aging 5 Years in 5 Minutes: The Effect of Taking a Memory Test on Older Adults’ Subjective Age”
▶ “The Double-Edged Sword of Grandiose Narcissism: Implications for Successful and Unsuccessful Leadership Among U.S. Presidents”
▶ “On the Nature and Nurture of Intelligence and Specific Cognitive Abilities: The More Heritable, the More Culture Dependent”
▶ “Beauty at the Ballot Box: Disease Threats Predict Preferences for Physically Attractive Leaders”
▶ “Shaping Attention With Reward: Effects of Reward on Space- and Object-Based Selection”
▶ “It Pays to Be Herr Kaiser: Germans With Noble-Sounding Surnames More Often Work as Managers Than as Employees”
This week in Psychological Science

- $N = 17$
- $N = 57$
- $N = 42$
- $N = 7,582$
- $N = 123 + 156 + 66$
- $N = 47$
- $N = 222,924$
Labor Market Returns to Early Childhood Stimulation: a 20-year Followup to an Experimental Intervention in Jamaica

Paul Gertler, James Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan M. Chang, Sally Grantham-McGregor

We find large effects on the earnings of participants from a randomized intervention that gave psychosocial stimulation to stunted Jamaican toddlers living in poverty. The intervention consisted of one-hour weekly visits from community Jamaican health workers over a 2-year period that taught parenting skills and encouraged mothers to interact and play with their children in ways that would develop their children's cognitive and personality skills. We re-interviewed the study participants 20 years after the intervention. Stimulation increased the average earnings of participants by 42 percent. Treatment group earnings caught up to the earnings of a matched non-stunted comparison group. These findings show that psychosocial stimulation early in childhood in disadvantaged settings can have substantial effects on labor market outcomes and reduce later life inequality.
The “That which does not destroy my statistical significance makes it stronger” fallacy

Charles Murray: “To me, the experience of early childhood intervention programs follows the familiar, discouraging pattern... small-scale experimental efforts \( N = 123 \) and \( N = 111 \) staffed by highly motivated people show effects. When they are subject to well-designed large-scale replications, those promising signs attenuate and often evaporate altogether.”

James Heckman: “The effects reported for the programs I discuss survive batteries of rigorous testing procedures. They are conducted by independent analysts who did not perform or design the original experiments. The fact that samples are small works against finding any effects for the programs, much less the statistically significant and substantial effects that have been found.”
What’s going on?

- The paradigm of routine discovery
- The garden of forking paths
- The “law of small numbers” fallacy
- The “That which does not destroy my statistical significance makes it stronger” fallacy
- Correlation does not even imply correlation
Why is psychology particularly difficult?

- Indirect and noisy measurement
- Human variation
- Noncompliance and missing data
- Experimental subjects trying to figure out what you’re doing
What to do?

- Look at everything
- Interactions
- Multilevel modeling
- Within-person studies
- Design analysis
- Bayesian inference
Living in the multiverse

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

Kristina M. Durante¹, Ashley Rae¹, and Vladas Griskevicius²
¹College of Business, University of Texas, San Antonio, and ²Carlson School of Management, University of Minnesota

Abstract
Each month, many women experience an ovulatory cycle that regulates fertility. Although recent research has shown that the ovulatory 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 success, we hypothesized that fertility would influence women’s politics, religiosity, and voting in the 2012 U.S. presidential election. Using 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 Obama. In contrast, ovulation led women in committed relationships to become more conservative, more religious, and more likely to vote for Romney.
1. Exclusion criteria based on cycle length (3 options)
2. Exclusion criteria based on “How sure are you?” response (2)
3. Cycle day assessment (3)
4. Fertility assessment (4)
5. Relationship status assessment (3)

168 possibilities (after excluding some contradictory combinations)
Living in the multiverse
Histogram of $\rho$-values for fertility x relationship
WARNING ! ! ! !

Do not read this book straight through from beginning to end! These pages contain many different adventures you can go on in the Cave of Time. From time to time as you read along, you will be asked to make a choice. Your choice may lead to success or disaster!

The adventures you take are a result of your choice. You are responsible because you choose! After you make your choice, follow the instructions to see what happens to you next.

Remember—you cannot go back! Think carefully before you make a move! One mistake can be your last..... or it may lead you to fame. But be careful, it may lead you to disaster......
From an email I received:

Complaining that subjects in an experiment were not randomly sampled is what freshmen do before they take their first psychology class. I really *hope* you why that is an absurd criticism – especially of authors who never claimed that their study generalized to all humans.
Why it’s hard to study comparisons and interactions

- Standard error for a proportion: $0.5/\sqrt{n}$
- Standard error for a comparison: $\sqrt{0.5^2/n + 0.5^2/n} = 1/\sqrt{n}$
- Twice the standard error . . . and the effect is probably smaller!
Within-person studies
I’ve never made a type 1 error in my life
I’ve never made a type 2 error in my life
I make Type S (sign) errors
I make Type M (magnitude) errors
What can we learn from statistical significance?

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Abstract
Each month, many women experience an ovulatory cycle that regulates fertility. Although researchers have shown that the menstrual cycle influences women’s mating preferences, we proposed that it might also change women’s political and religious orientations. Building on theories suggesting that political and religious orientation are linked to reproductive strategies, we also hypothesized that ovulation may influence how fertility influenced women’s politics, religiosity, and voting in the 2012 U.S. presidential election. In a study 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 supportive of Obama. In contrast, ovulation led women in committed relationships to become more conservative, more religious, and less supportive of Obama.
This is what "power = 0.06" looks like.
Get used to it.

Estimated effect size
−30 −20 −10 0 10 20 30

Type S error probability: If the estimate is statistically significant, it has a 24% chance of having the wrong sign.

Exaggeration ratio: If the estimate is statistically significant, it must be at least 9 times higher than the true effect size.

True effect size (assumed)
Journal’s Paper on ESP Expected to Prompt Outrage

By BENEDICT CAREY
Published: January 5, 2011

One of psychology’s most respected journals has agreed to publish a paper presenting what its author describes as strong evidence for extrasensory perception, the ability to sense future events.

The decision may delight believers in so-called paranormal events, but it is already mortifying scientists. Advance copies of the paper, to be published this year in The Journal of Personality and Social Psychology, have circulated widely among psychological researchers in recent weeks and have generated a mixture of amusement and scorn.

The paper describes nine unusual lab experiments performed over the past decade by its author, Daryl J. Bem, an emeritus professor at Cornell, testing the ability of college students to accurately sense random events,
TEACH THE CONTROVERSY
The Statistical Crisis in Science

Andrew Gelman, John Carlin, Eric Loken, Francis Tuerlinckx, Sara Steegen, Wolf Vanpaemel

Department of Statistics and Department of Political Science
Columbia University, New York

Department of Psychology, Columbia University, 17 Nov 2014