ASSOCIATION FOR CONSUMER RESEARCH

Labovitz School of Business & Economics, University of Minnesota Duluth, 11 E. Superior Street, Suite 210, Duluth, MN 55802

Ovulation, Female Competition, and Product Choice: Hormonal Influences on Consumer Behavior

Kristina Durante, University of Minnesota, USA

Vladas Griskevicius, University of Minnesota, USA

Norman Li, Singapore Management University, Singapore

How does hormonal fluctuation influence product choices? Drawing on an evolutionary framework, we examined how hormonal changes associated with the monthly ovulatory cycle influenced women's choices. Near ovulation, women showed a nonconscious shift toward choosing products that enhance physical appearance. Additional studies revealed conditions that enhanced and suppressed this effect.

[to cite]:

Kristina Durante, Vladas Griskevicius, Norman Li, and Sarah Hill, Carin Perilloux (2011), "Ovulation, Female Competition, and Product Choice: Hormonal Influences on Consumer Behavior", in NA - Advances in Consumer Research Volume 38, eds. Darren W. Dahl, Gita V. Johar, and Stijn M.J. van Osselaer, Duluth, MN : Association for Consumer Research.

[url]:

<http://www.acrwebsite.org/volumes/16236/volumes/v38/NA-38>

[copyright notice]:

This work is copyrighted by The Association for Consumer Research. For permission to copy or use this work in whole or in part, please contact the Copyright Clearance Center at <http://www.copyright.com/>.

SPECIAL SESSION
Evolution, Consumer Behavior, and Decision-Making
Vladas Griskevicius, University of Minnesota, USA
Joshua Ackerman, Massachusetts Institute of Technology, USA

EXTENDED ABSTRACTS

“The Evolutionary Roots of Decision Biases: Erasing and Exacerbating Loss Aversion”

Yexin Jessica Li, Arizona State University, USA

Doug Kenrick, Arizona State University, USA

Vladas Griskevicius, University of Minnesota, USA

Steven Neuberg, Arizona State University, USA

From an evolutionary perspective, recurring biases such as loss aversion may reflect adaptive human heuristics. For example, because our ancestors lived in environments where it was difficult to obtain sufficient calories for survival, resource losses that could result in starvation matter more than gains. Consistent with this reasoning, loss aversion is a well-documented and robust finding in humans and other species.

Although a tendency toward loss aversion may initially appear to be a human universal, an evolutionary perspective suggests that organisms generally do not evolve domain-general biases. Instead, organisms manifest different biases in different evolutionary recurring domains (e.g., survival, reproduction, etc.) (Kenrick et al. 2009). We suggest that whereas loss-aversion is adaptive in the evolutionary critical domain of survival, loss aversion is unlikely to be adaptive in the domain of mating. Thus, whereas loss aversion should be exacerbated when survival-related motives are active, loss aversion may be erased when mating motives are activated.

Further consideration of human mating suggests that men are especially unlikely to be loss averse when motivated to pursue a mate. From an evolutionary perspective, men should tend to value an opportunity to mate more than women. Consistent with this reasoning, recent research shows that men's cognitions and behaviors are more attuned than women's to potential mating opportunities, leading men to downplay potential fiscal losses when mating opportunities are salient (Griskevicius et al. 2007). Thus, we predict that men should perceive gains and losses differently when thinking about mating. In particular, mating motives should spur men to underestimate the costs of losses and overestimate the benefits of gains.

In Study 1, we experimentally activated mating or control motives by having men and women read pre-tested stories (Griskevicius et al. 2007). Then, participants indicated how much money they would spend to gain or to avoid a drop in status. As predicted, men became significantly less loss averse in the mating condition compared to control, whereby men no longer showed loss aversion. For women, mating motives did not influence loss aversion.

In study 2, we examined how mating motives influenced loss aversion using a different methodology. After activating mating or control motives, participants indicated how happy or unhappy they would be if they lost or gained particular amount of money (Harinck, Van Dijk, Beest, and Mersmann 2007). For example, participants in the 'gain' condition were asked how happy or unhappy they would be if they found \$50, \$100, \$200 and \$400. As in the first study, mating motives erased loss aversion for men, meaning that men no longer showed this bias in the mating condition. Mating motives again did not influence loss aversion for women.

We earlier noted that loss aversion is likely to be an adaptation for solving survival challenges. Thus, we should observe the highest levels of loss aversion when individuals are motivated to protect themselves from danger. In Study 3, we activated either

a self-protection motive or a control motive. Then, as in study 2, participants indicated how happy or unhappy they would be if they lost or gained particular amounts of money. Consistent with predictions, self-protection motives exacerbated loss aversion, leading both men and women to care significantly more about losses and care less about gains. This means that the bias toward loss aversion was strongest specifically when survival-related motives were salient.

Overall, these studies suggest that loss aversion is not a general universal human bias. Instead, this bias is highly sensitive to evolutionary critical contexts of survival and mating. Across studies, two evolutionary motives resulted in vastly different patterns in the relative valuation of gains versus losses. Specifically, because loss aversion likely evolved as an adaptation to survival challenges, we find that this decision bias is exacerbated when survival-related motives are salient (Study 3). However, loss aversion appears to be erased for men when the mating motives are salient (Study 1 and Study 2). More broadly, these findings suggest that evolutionary motives can alter decisional biases in ways that make functional sense in light of more general theories of evolution and cognition.

References

- Griskevicius, V., Tybur, J. M., Sundie, J. M., Cialdini, R. B., Miller, G. F. & Kenrick, D. T. (2007). Blatant benevolence and conspicuous consumption: When romantic motives elicit strategic costly signals. *Journal of Personality & Social Psychology*, 93, 85-102.
- Harinck, F., Van Dijk, E., Beest, I. & Mersmann, P. (2007). When gains loom larger than losses: Loss aversion for small amounts of money. *Psychological Science*, 18, 1099-1105.
- Kenrick, D.T., Griskevicius, V., Sundie, J.M., Li, Y.J. & Neuberg, S.L. (2009). Deep rationality: The evolutionary economics of decision-making. *Social Cognition*, 27, 764-785.

“Ovulation, Female Competition, and Product Choice: Hormonal Influences on Consumer Behavior”

Kristina Durante, University of Minnesota, USA

Vladas Griskevicius, University of Minnesota, USA

Normal Li, Singapore Management University, USA

Sarah Hill, Texas Christian University, USA

Carin Perilloux, University of Texas Austin, USA

Much research has examined women's consumer behavior. For example, early research found that women have a high level of interest in shopping for fashion-related items. Women desire to stay up-to-date on fashion trends and purchase new items even when they are not dissatisfied with the products they already own. Women also tend to use clothing to enhance their mood and social self-esteem, and they are significantly more likely to go shopping to pass time, browse around, or just as an escape. However, research thus far has not examined whether women's consumption might be influenced by hormonal factors.

Emerging research in evolutionary biology shows that various aspects of women's psychology shift during the brief window within each monthly cycle when conception is possible. For instance, near ovulation, women prefer men who show classic biological indicators of male genetic fitness (e.g., facial symmetry, social dominance), are more motivated to cheat on their current romantic partners, have more favorable attitudes toward attending social gatherings,

and desire to look sexier (e.g., Durante, Li and Haselton 2008; Gangestad and Thornhill 2008).

Drawing on this emerging theory and research, the current research tested the prediction that women's product choices shift toward products that enhance physical appearance at high fertility. We also examined whether ovulating women buy such products to appear sexier in an attempt to impress men or if ovulating women buy such products primarily in an attempt to outdo other attractive women.

Study 1 tested whether women at high fertility are more likely to choose sexier and more revealing clothing and accessories. In this study, women shopped for products using a simulated, online shopping website. Results showed that women's product choices shifted toward sexier and more revealing fashion items near ovulation. For example, ovulating women selected tops, skirts, and pants that were pre-rated to be more revealing and sexier. This shift occurred even though the women were not aware that they were currently ovulating.

The second study examined conditions that should exacerbate or suppress this ovulation effect. In Study 2, ovulating and non-ovulating women completed the same shopping task as in Study 1. However, prior to the shopping task, women were primed to think about one type of person: (1) attractive local women, (2) unattractive local women, (3) attractive local men, or (4) unattractive local men. Results showed that although women chose sexier and more revealing outfits when primed with attractive men, it did not make a difference whether the women were or were not ovulating. This finding suggests that the effects of ovulation on product choice are not predicated on mating motives directly. Instead, when women were primed with attractive female rivals, ovulation produced the largest effects on choice, leading ovulating women to choose much more sexy outfits and accessories. Findings support the notion that the ovulatory product-choice effect is predicated on same-sex competition with attractive rivals.

An additional study addressed the alternative possibility that simply priming attractive women, regardless of whether the women are viewed as potential rivals, would produce the ovulatory effect. Participants viewed photos of the same attractive women used in Study 2. However, whereas in Study 2 participants were told that the attractive women were local to the area (i.e., potential rivals), participants in the current study were told the women were not local. Results showed that ovulation had no effect on the percentage of sexy items that were chosen. Thus, women's ovulation-regulated desire for sexy items appears to be tied to the attractiveness of local, but not distant, same-sex others.

This theoretically driven and rigorous study of how hormones influence product choice marks the potential beginning of a new frontier in consumer research. The study of how biological factors such as hormones influence consumption has not only vast implications for linking consumer behavior with other disciplines (e.g., biology, animal behavior, anthropology, evolutionary psychology), it also presents a fruitful avenue for future research.

References

- Durante, Kristina M., Norman P. Li, and Martie G. Haselton (2008), "Changes in Women's Choice of Dress across the Ovulatory Cycle: Naturalistic and Laboratory Task-Based Evidence," *Personality and Social Psychology Bulletin*, 34 (November), 1451-1460.
- Gangestad, Steven W., & Randy Thornhill (2008), "Human Oestrus," *Proceedings of the Royal Society B*, 275, 991-1000.

"Peacocks, Porsches and Thorstein Veblen: Conspicuous Consumption as a Mating Signaling System"

Jill Sundie, University of Houston, USA

Kathleen Vohs, University of Minnesota, USA

Vladas Griskevicius, University of Minnesota, USA

Each year consumers spend hundreds of millions of dollars for conspicuous consumption products, often paying significant mark-ups to purchase premium brands (Han, Nunes and Drèze 2010). Previous work examining conspicuous consumption from an evolutionary perspective found that conspicuous product displays are linked to mating motives for men (Griskevicius et al. 2007). Men were motivated to conspicuously consume to impress women, while women were inclined to use other means (such as public displays of helping) to impress men. This research demonstrated one motive for purchasing luxury products (among men), but also raised additional theoretical questions about the links between men, mating, and conspicuous spending.

Conspicuous consumption is a risky spending pattern—for all but the wealthiest people, it involves trading off future financial security for frivolous indulgences today. As such, conspicuous spending may indicate financial irresponsibility and narcissism, characteristics generally not sought by women in a committed partner. Conspicuous spending is, however, one means for men to display risk-seeking and social dominance. Under what circumstances would women favor social dominance and risk-seeking in a mate (as conspicuous spending indicates) over financial security and cues to a man's willingness to share and invest his resources wisely within a committed partnership? An evolutionary perspective suggests that short-term (uncommitted) mating contexts may be one such set of circumstances.

Study 1 examined how mating motives influenced conspicuous consumption. Participants either read about attractive members of the opposite sex seeking dates (mating stimuli) or about possible housing options (control). Conspicuous consumption was measured via how a windfall gain was spent on various goods and services pre-rated for conspicuousness. Findings showed that men chronically seeking short-term partnerships were significantly more motivated to conspicuously consume in the mating versus the control condition, but more commitment-oriented men were not. Women, regardless of their interest in short-term vs. long-term partnerships, did not engage in more conspicuous consumption in the mating condition.

Study 2 examined how different active mating opportunities (long-term committed vs. short-term uncommitted) would influence men's desire to engage in conspicuous spending. After receiving either a short-term, long-term, or neutral prime, participants indicated how much they would spend on eight conspicuous products. Men with an interest in short-term partnerships spent more on conspicuous products (relative to the control condition) when uncommitted mating opportunities were salient, but not when committed partnership opportunities were salient. Neither commitment-oriented men, nor women, indicated they would spend more conspicuously in either mating condition.

Study 3 investigated whether conspicuous consumption would make a man more desirable to women as (a) a committed partner, and (b) as a short-term partner. Participants evaluated an opposite-sex target whose biography indicated he/she had just purchased either an expensive conspicuous car or a modest inconspicuous car. Men were rated significantly more desirable as a date if he had purchased a conspicuous car, but *not* more desirable for marriage. Female desirability did not vary with the type of car purchased for either relationship type. Further, the male target was perceived as significantly more likely to be seeking short-term, uncommitted partnerships if he purchased the conspicuous car.

Overall, we investigated conspicuous consumption signals by examining (1) which individuals send them, (2) which contexts trigger them, and (3) how observers interpret them. Two experiments demonstrated that conspicuous consumption is driven by men who are following a lower-investment (versus higher-investment) mating strategy, and is triggered specifically by short-term (versus long-term) mating motives. A third experiment showed that observers interpret such signals accurately, with women perceiving men who conspicuously consume as interested in short-term mating. Furthermore, conspicuous purchasing enhanced men's desirability as a short-term (but not as a long-term) mate. Overall, the current pattern of data suggests that flaunting status-linked goods to potential mates is not simply about displaying economic resources. Instead, conspicuous consumption appears to be part of a more precise signaling system focused on short-term mating.

References

- Han, Young Jee, Joseph C. Nunes and Xavier Drèze (2010), "Signaling Status with Luxury Goods: The Role of Brand Prominence," forthcoming at *Journal of Marketing*.
- Griskevicius, V., J. M. Tybur, J. M. Sundie, R. B. Cialdini, G. F. Miller, and D. T. Kenrick (2007), "Blatant Benevolence and Conspicuous Consumption: When Romantic Motives Elicit Costly Displays," *Journal of Personality and Social Psychology*, 93, 85-102.

"Evolutionary Goal Scaffolding: Building Social Motives on a Physical Foundation"

Julie Huang, Yale University, USA

Joshua Ackerman, MIT Sloan School of Management, USA

John Bargh, Yale University, USA

The current research begins with age-old question: Are superheroes lonely? More specifically, does having a power like invulnerability (in mere mortal terms, feeling safe from physical harm) heal the wounds of social exclusion? An evolutionary perspective suggests that this prospect may be more than pulp fiction. Modern models of hierarchical motivation suggest basic physical needs and goals, including hunger, warmth and safety, are evolutionarily more ancient than social needs and goals. Because evolution typically works through derived adaptation—building off of (and maintaining links to) pre-existing structures—it is possible that physical goal mechanisms acted as a mental scaffold for the development of social goal mechanisms. Indeed, evidence indicates that physical and social threat processing involve common neural and hormonal substrates. Both also produce states of mental withdrawal, lead people to devalue risky options, and trigger goals to restore feelings of safety through social connection (e.g., Epley et al. 2008; Griskevicius et al., 2009).

The evolved overlap between social and physical safety processing suggests a novel framework for studying consumer goal-pursuit. We propose that cues to physical safety may substitute for social safety cues, thereby completing active social goals. For example, social rejection elicits compensatory goals such as a desire to reconnect with friends or, failing that, a desire for indulgences like Ben & Jerry's. However, feelings of physical safety may satisfy these desires, restoring cognitive resources and de-biasing decisions. This cue substitutability would provide a means of connecting what are seemingly qualitatively different forms of goal-pursuit.

The current experiments provide some of the first research on how evolutionary goal scaffolding affects decision-making. We present three studies showing that responses to social rejection can be alleviated through simulations of physical safety.

Study 1 tested whether a physical safety manipulation interfered with responses from a prior rejection experience. Participants in two conditions recalled in detail a past experience with social exclusion. One group then received a guided visualization task in which they imagined having a superpower—being completely invincible from physical harm. The other group received no such instructions. A third comparison condition first received the superpower manipulation and then completed the exclusion recall task. All participants then responded to several indicators of negative affect. Participants who received the superpower prime after rejection reported less negative feelings than the other groups, suggesting that physical safety cues "turn off" rejection responses in goal-consistent fashion.

In Study 2, participants recalled either a past rejection experience or details about their last meal. Next, half of participants received the invincibility visualization, and the other half imagined having a different, but non-safety related, superpower—the ability to fly. All participants then completed established measures of social reconnection, the desire for which has been shown to strengthen after exclusion. "Flying" participants showed the expected greater desire to interact with friends, whereas "invincible" participants did not. Safety completely attenuated the rejection-control difference, again supporting a goal scaffolding framework.

Study 3 extended these findings to the realm of consumer product decisions. Participants recalled a rejection experience and then received either the flying or invincible superpower manipulation. They then reported their desire for both high status/image-related (e.g., fancy dinner, cosmetics) and low status/non-image-related (e.g., minivan, sofa) consumer products. Invincible participants desired image-related products more and non-image-related products less than participants who could fly. Thus, consumers may feel more freedom to acquire high status, flashy products when unconstrained by self-presentational, social reconnection concerns.

In summary, three studies show that responses to social rejection can be interrupted by processing cues to physical safety, consistent with an evolutionary goal scaffolding framework. This social-physical substitutability has important implications for researchers and marketers, the most significant being that consumer behavior applications need not focus purely on social goal modification, but may also benefit from changing perceptions of related physical needs.

References

- Epley, Nicholas, Scott Akalis, Adam Waytz and John T. Cacioppo (2008), "Creating Social Connection through Inferential Reproduction: Loneliness and Perceived Agency in Gadgets, Gods, and Greyhounds," *Psychological Science*, 19, 114-120.
- Griskevicius, Vladas, Noah J. Goldstein, Chad R. Mortenson, Jill M. Sundie, Robert B. Cialdini and Douglas T. Kenrick (2009) "Fear and Loving in Las Vegas: Evolution, Emotion, and Persuasion," *Journal of Marketing Research*, 46, 384-395.