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## **UCSB Study Links Strength and Beauty to Anger, Pro-War Attitudes**

Anthropologists, psychologists, and other experts in human behavior have long recognized anger as a universal emotion. Evident in humans across all cultures, and in babies as young as 6 months old, anger is demonstrated by certain facial expressions and changes in physical demeanor. Until now, however, the exact function of anger -- the advantage that led to its evolution -- has remained mysterious.

A new study by scientists at UC Santa Barbara provides evidence that anger serves as a nonconscious bargaining system, triggered when someone places too little weight on one's welfare. The researchers' findings are published online this week in the Proceedings of the National Academy of Science. The study, titled "Formidability and the Logic of Human Anger," was co-authored by Aaron Sell, a postdoctoral fellow at UCSB's Center for Evolutionary Psychology, along with the center's co-directors, John Tooby, professor of anthropology, and Leda Cosmides, professor of psychology.

The anger system implicitly guides the angered person to take steps that are designed to motivate the offender to treat the angry person better. The two bargaining tools humans have at their disposal are the ability to confer benefits and the ability to inflict costs. Angry expressions and behavior signal a threat -- implicit or otherwise -- to withhold future benefits or to inflict costs. These incentives pressure the other individual into giving the angry person's welfare a higher priority.

The theory that anger evolved for bargaining predicts individual differences in anger-proneness, the authors point out. Using anger to renegotiate how one is treated will be more effective if one has more bargaining power, and this will be a function of one's ability to inflict costs or confer benefits. Stronger men, for example, are better able to harm others in a fight, giving them social leverage during our evolutionary history. That should also be the case now, if our minds are designed to respond to this ancestral selection pressure. As predicted, the study showed that men with greater upper body strength feel entitled to better treatment, anger more easily and frequently, and prevail more often in conflicts of interest. Attractive women should also have social leverage, by virtue of their ability to confer benefits. The study found that women who see themselves as more attractive behave as stronger men do: They also feel entitled to better treatment, anger more easily, and have more success resolving conflicts in their favor.

One of the study's more intriguing findings concerns attitudes toward the use of force.

"Not surprisingly, stronger men more strongly endorse the use of force as an effective way to settle personal disputes. However, this relationship could have been learned by payoffs," said Sell. "Because of this, we wanted to show that the system is not designed to be rational in the modern world, but rather was designed to operate in the much smaller social world of our ancestors."

Tooby added: "In that world, with conflicts among a handful of men, a man's individual strength was relevant to whether his coalition would win. If our minds are calibrated to the ancestral world, then stronger men should more strongly favor the use of military force to settle conflicts, compared to weaker men. That is what we find. Muscle mass shapes our political opinions."

Cosmides emphasizes how strange a finding this is, according to conventional theories.

"An American man's upper body strength has no rational relationship to the efficacy of the American military and its deployment overseas. Yet stronger men favor the use of military force more than weaker men do." The authors say that they designed the study in the run up to the war in Iraq, when they noticed that people would draw opposing conclusions from the same facts. "That raised the possibility that individuals are responding to the same facts differently. At least part of that

response involves muscles," said Sell.

At the center of the study is the recalibrational theory of anger, which proposes that the function of anger is to recalibrate how much weight others put on the angry individual's welfare compared to their own. "The fact that anger is connected to violence is widely known," said Sell. Tooby added "What is not widely grasped is that anger evolved to play a central role in cooperative relationships as well."

This research is part of a larger project on the evolved design of motivational systems that Tooby and Cosmides created, for which Cosmides won the National Institutes of Health Director's Pioneer Award in 2005.

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