

Two pedals drive the bi-cycle of violence: reactive and appetitive aggression

Thomas Elbert¹, Maggie Schauer¹ and James K Moran²

The Good: when you fight to counter threat, your aggression is a *reactive* defense, and often morally justifiable. **The Bad:** when you loot and rob, hurt and kill, to obtain social status or material goods, that is an extrinsic reward. This is *instrumental* aggression. **And The Ugly:** The intrinsic enjoyment of violence. This '*appetitive* aggression' describes a lust for violence, underlying first-person shooter gamers, hunting, and extreme acts of violence, such as murder and massacres. Although violence often results from a combination of these forms of aggression, the differentiation is necessary to understand their interplay, as they drive two interconnected cycles of violence: the reactive cycle, fueled by the motivation to overcome negative feelings, and the hedonically driven appetitive cycle.

Addresses

¹ Department of Psychology, University Konstanz, Germany

² Department of Psychiatry & Psychotherapy, Charité, Berlin, Germany

Corresponding author: Moran, James K (james-kenneth.moran@charite.de)

Current Opinion in Psychology 2017, 19:135–138

This review comes from a themed issue on **Aggression and violence**

Edited by **Brad J Bushman**

<http://dx.doi.org/10.1016/j.copsyc.2017.03.016>

2352-250X/© 2017 Elsevier Ltd. All rights reserved.

Aggressive behavior comes in two flavors: (1) everybody is familiar with *reactive aggression*, when threat and danger causes negative feelings such as fear, anger or rage. The aggressive behavior is thought to counter the attacker and to allow escape from the aversive situation. When the threat is conquered, the negative emotions abate and with it a state of high, sometimes extreme emotional arousal. (2) Aggression, however, can also be motivated by positive feelings, and arousal increases with the exertion of violence. We refer to this as *appetitive* aggression [1,2**]. Usually moral inhibition strongly regulates the conditions that allow aggressive acts. Although most societies condone the reactive form, intrinsically motivated fighting is acceptable only in limited or symbolic form, such as competitive sports or when animals are targeted, for example during a hunt. Although computer gamers who love their daily dose of first-person shooter games

can easily comprehend, by introspection, the appetitive nature of hunting and killing a (virtual) person, real world experiences of appetitive aggression seem to be restricted to combatants, to members of armed groups, to criminal gangs, and possibly also to hunters. Hunting an animal certainly has also practical purposes, such as obtaining meat or protecting crops and livestock. Rewarding properties of such predatory acts may reinforce aggressive behavior through instrumental learning, and the underlying mechanisms are no different from other conditioned behavioral learning. In contrast to this instrumentally motivated aggression, we posit that aggression can be intrinsically motivated, like seeking sex or food. Both, appetitive and reactive aggression rely on biologically prepared behavioral patterns in humans as in many animal species, although the particular psychophysiological pathways may differ between species.

A cat backed into a corner will show a defensive response: it makes itself look threatening, its fur sticks up, it hisses, bites, and strikes with its claws; in contrast, when hunting a mouse, it is stealthy and kills its prey quickly and discreetly. These two forms of aggression have clear functions: one is to escape becoming prey and the other to hunt as a predator. However, as every cat-owner knows, hunting is not just motivated by food. A cat will happily chase a ball of wool, driven by its intrinsic motivation and reward for hunting behavior. It is appetitive aggression that motivates this behavior.

The neural circuitry

Aggression can be experimentally manipulated: Stimulation of the medial hypothalamic nucleus in the cat provokes defensive aggression, whereas stimulation of the lateral hypothalamic nucleus provokes hunting behavior. The same basic neurobiological circuitry guides the behavior of other mammals (mice, rats, hamsters, some primates) [3**]. Although humans do not have this simple hypothalamic dissociation, and their behavior is overlaid by multiple levels of neural and social complexity, there are nevertheless biologically prepared aggressive behaviors corresponding to a defensive or reactive aggression, and a proactive or appetitive aggression.

At a higher level, reactive aggression can be viewed as an amygdala-modulated activation of the defense cascade, whereby its activity is potentiated or inhibited via prefrontal structures, including orbitofrontal cortex, which judges the environmental cues likely to provoke reactive aggression: the frustration of reward as well as nuanced

social judgments [4*]. In rhesus monkeys, orbitalfrontal cortex removal can either increase or decrease aggression, depending upon the social context, for example, if the monkey is already high or low in the dominance hierarchy (see *e.g.*, [5]), suggesting that the orbitalfrontal cortex has a role in making social judgments, and inhibiting or potentiating aggression accordingly. This ‘moral and social’ circuitry may also regulate appetitive aggression, but in general its neural players are less well understood. However, one experiment testing responses to appetitive vs. reactive stimuli, in addition to prefrontal cortex activity, showed pronounced responses in right parietal/temporal regions of the brain in an ordinary group of young men [6**]. This region is a site of fetal testosterone [7], computationally adapted to process spatial relational properties, which apparently extend to social relations [8]. In the developed brain, testosterone acts on brain regions associated with reward regulation, especially the prefrontal cortex and mesolimbic dopaminergic system [9]. In this way, testosterone increases positive affective responses, including appetitive aggression, a mechanism that may in part explain the differences between the sexes in appetitive aggression [10*].

Lessons from those who have killed

Serious intraspecific aggression in humans can be studied in groups engaged in planned and sustained criminal activities (criminal gangs), or in regions where conflict and war prevail. Accordingly, our team has investigated fighters in conflict regions across four continents, and gang members living in South African townships. People who have experienced threats to their lives show anxiety and a hyperactive defense cascade, as they have to relive their traumatic experiences. However, others become aroused at remembrances of war, they miss fighting, and describe it variously as exciting like a sport, addictive like a drug, or positively arousing like sex. Based on these findings, [11] have developed the *appetitive aggression scale* and found that its score predicts violent acts in the community as well as participation in organized violence, but does not predict domestic violence. The latter seems to be driven by the individual’s own history of childhood familial violence and later trauma-related disorders, especially depression [12].

People who have killed in combat often report that it is difficult at the beginning to overcome the moral barriers: some say that they had to throw-up after the first kill, others recalled that they were anxious and nauseous for days afterwards. But the second time such responses were smaller or absent – ‘an order is an order’ – as members of armed groups would reason [13**]. Drugs also help to ease the moral pain. Gradually, with more fights, killing becomes more appetitive, culminating in an occasionally literal bloodlust (in the Eastern Democratic Republic of the Congo, 8% of surveyed combatants reported having eaten the flesh of their enemies, [13**]). At the

physiological level, this morally unacceptable pleasure may be accompanied by an adrenalin surge, by the release of cortisol and especially endorphins, which block the pain and increase stamina—an obvious advantage during the fight for survival as well as during a hunt. All that is needed then is the readjustment of moral rules, and a positive feedback loop will be set in motion that can even culminate in massacres. To dehumanize the enemy is one common way to avoid moral concern. Even in computer games it is frequently a Zombie or a creature from outer space that needs to be defeated. According to the propaganda, it was ‘cockroaches’ not humans that were killed in the Rwandan genocide. Jihad, the armed struggle against unbelievers, it similarly waged against a despised and dehumanized outgroup. The enemy is variously described as ‘hairy monkeys’, ‘rats’, or ‘gooks’ [14*]. As the individual commits more acts of violence with elements of positive affect, the tendency to commit them grows still further, and acting aggressively is perceived ever more positively. This latent passion for fighting and dominance can probably be evoked in almost all men and at least in some women. The cumulative outcome of whole groups, tribes, or communities enacting appetitive aggression is war and destruction, to the point of trying to extinguish entire ethnic groups—the ‘totale Krieg’ (total war), a warfare that includes all civilian-associated resources and infrastructure as legitimate military targets.

An evolutionary perspective

From an evolutionary point of view, aggression up to and including the killing of conspecifics is a strategy underlying intrasexual competition in males of many species, particularly mammals [15]. A person’s propensity to kill comes about as an economic trade-off between the advantages of killing a rival and its social costs (access to resources, reduce intrasexual competition, and gain access to more sexual partners, reduction in the cost of supporting non-genetic rival’s children) [16]. Similar strategies are followed in chimpanzee groups, whose violence can be best explained as a functional adaptation rather than an aberration driven by environmental factors such as habitat destruction [17*].

From this picture of the evolutionary advantages of instrumental violence, it is only a short step to postulating that an ability to enjoy and relish killing would have a survival advantage for our evolutionary forebears. Hunting is an activity that became increasingly necessary in the Pliocene as hominid diets required more animal protein to support their larger brains and shorter guts. Hunting is a difficult and dangerous task, the rewards (*i.e.*, nourishment, status), may be days away. The hunter who enjoyed the tracking, the death struggle of the creature, the smell of its blood, and the sound of its screaming, likely had more success in this endeavor [18**]. If people can enjoy killing so much, why would the previous sentence strike some readers as repulsive? Having one preprogrammed

Download English Version:

<https://daneshyari.com/en/article/5033446>

Download Persian Version:

<https://daneshyari.com/article/5033446>

[Daneshyari.com](https://daneshyari.com)