# Collective Violence

## Comparisons between Youths and Chimpanzees

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ABSTRACT: **Patterns of collective violence found among humans include similarities to those seen among chimpanzees. These include participation predominantly by males, an intense personal and group concern with status, variable subgroup composition, defense of group integrity, inter-group fights that include surprise attacks, and a tendency to avoid mass confrontation. Compared to chimpanzee communities, youth gangs tend to be larger, composed of younger individuals, occupying smaller territories and having a more complex organization. Youth gangs also differ from chimpanzee communities as a result of numerous cultural and environmental influences including complex relations with non-gang society. These relations are governed in important ways by such factors as perceived economic and personal constraints, policing, family structure, and levels of poverty, crime, and racism. Nevertheless, the concepts that sociologists use to account for collective violence in youth gangs are somewhat similar to those applied by anthropologists and biologists to chimpanzees. Thus in both cases collective violence is considered to emerge partly because males are highly motivated to gain personal status, which they do by physical violence. In the case of youth gangs, the reasons for the prevalence of physical violence in status competition compared to non-gang society are clearly context-specific, both culturally and historically. By contrast, among chimpanzees the use of physical violence to settle status competition is universal (in the wild and captivity). The use of physical violence in individual status competition therefore has different sources in youth gangs and chimpanzees. Regardless of its origin, however, its combination with an intense concern for status can explain: (1) why individual males form alliances among each other; and hence (2) how such alliances generate social power, closed groups, and a capacity for defense of territory or pre-emptive attacks on rivals. This comparison suggests that the use of physical violence to resolve individual status competition is an important predictor of collective violence at the gang level. We therefore view the similarities in aggression between humans and chimpanzees that we review here as being adaptive responses to local conditions, predicated on an inherent male concern for social status.**

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## INTRODUCTION

As students of primate behavior, we see both parallels and contrasts between numerous aspects of our own behavior and that of our primate relatives. These comparisons are by no means limited to violence, nor to members of any particular human population.[1,2] Youth gangs occur worldwide, among numerous ethnic groups (in Europe,[3,4] Asia,[5] and other places; for a review, see Klein[6]).[7] They may be found in inner cities, in rural areas,[8] and in suburbs and middle-class schools.[9] We view gangs and their associated violence as part of a general human pattern of intergroup aggression. Accordingly our goals are first, to characterize similarities and differences between the gang-related behavior of youths and chimpanzees; and second, to ask whether the similarities mean anything for the role of behavioral biology in youth violence.

Our major conclusions may be anticipated as follows. While many behaviors are different between youth gangs and chimpanzee communities, there are some similarities in male social relations that are sufficiently strong to suggest that they function analogously. The most striking similarities involve the striving among males for each other's respect. Accordingly we propose the fighting-for-status hypothesis (FSH), which suggests that the behavioral similarities come from a common tendency for male status to be settled by fighting. According to the FSH, young males whose status is determined by fighting need allies to protect themselves from victimization, and these alliances are the primary basis of both youth gangs and chimpanzee communities. Once such alliances are in place they can be used for various secondary activities, including intergroup killing and crime. We assume that the frequency and nature of these secondary activities are explicable by the sociocultural or ecological context, such as the pattern of inequity of wealth, mortality risks, racism, or subculture.[10,11]

Note that according to our proposal, the principal biological influence on collective violence is the male's concern for status. We assume that this status drive is an inherent tendency of both humans and chimpanzees, and that it develops predictably in male adolescents, regardless of race, ethnic group, or culture. Its effects on social relations, however, are unpredictable because they depend on two factors whose outcome is determined by the sociocultural context. First, is status settled by fighting, or by nonviolent means, such as success in sports, school, or employment? According to our hypothesis, gangs form when status is settled by fighting. Second, to what extent are the alliances afforded by gang membership used in the service of crime, hostility towards other gangs, or risky activities? The answer to this question determines (among other things) the degree to which gangs are antisocial with respect to mainstream society.

We stress that our proposal is not intended to represent a complete account of gang behavior. It is designed only to explain certain behavioral similarities between youth gangs and chimpanzees.

Below, we first present our view that cultural and biological approaches provide complementary rather than alternative perspectives in the analysis of human behavior. We then summarize our understanding of key features of, in turn, the behavior

of youth gangs, intergroup violence among non-human primates in general (which show few similarities with humans), and the behavior of chimpanzee communities (where similarities are found with youth gangs). We next consider similarities and differences between youth gangs and chimpanzees, so as to isolate common factors. Finally, we present our hypothesis that similarities in the two systems can be explained by a parallel focus on two variables, that is, male status-seeking and the prevalence of interpersonal violence.

## CULTURE AND BIOLOGY IN COLLECTIVE VIOLENCE

Many people assume that biological explanations of behavior are irrelevant to a complex human behavior such as intergroup aggression. Three reasons for this are commonly advanced, but each has the same kind of fallacy. They wrongly assume that if variation is cultural, biology is irrelevant.[12] We stress here that cultural variation and biological influences are not incompatible.

The first reason widely given for rejecting a biological influence is simply that the behavior varies culturally. For example the frequency, style, and scale of intergroup conflict, as well as its relationship to societal norms, all vary extensively over time and among cultures. Furthermore these patterns have changed much too fast over historical time for genetic differences to have been responsible for the changes.[13]

The conclusion that genetic differences do not underlie differences in such patterns of violence is undoubtedly right. In a similar way, different populations of humans have widely different diets, which have likewise changed too fast over historical time for genetic differences to be responsible for the variation in cuisines. But because of the particular design of our digestive systems, which is determined by our biology, humans are restricted to a different set of foods from those that are eaten by horses, lions, or gorillas. In short, the fact that population differences are not caused by genetic differences is irrelevant to whether or not biology affects behavior.

The second reason that pushes many people to think that biology is irrelevant is that conscious deliberations often generate the decisions that underlie violence. The tactics that individuals employ are therefore not biologically determined "fixed action patterns." Instead, they are the products of individual creativity, group discussion, and adaptability to local context. So hard-wired genetic programs are not responsible for the particular kinds of behavior that are expressed. As before, this undoubtedly correct conclusion does not mean that biology is irrelevant. It means only that biology's role is limited. For example, it might be limited to setting behavioral goals. By analogy, the fact that humans can use new food items and devise new recipes does not mean that biology is irrelevant to our food choices and eating habits. Biological influences crucially promote our desire for sugar, but not our decision to obtain fudge, for example, by cooking it in our own kitchens rather than buying it. Thus, the fact that we employ novel behaviors does not undermine the notion of a deep role for biology underlying those behaviors. As before, the question that remains is whether humans have intrinsic tendencies that account for our predisposition to become involved in collective violence.

Third, humans were once considered to be the only mammal in which groups deliberately kill members of rival groups. Human collective violence was therefore as-

sumed to result from our species' unique development of culture, and therefore to be independent of biology. It was even claimed that lethal violence could not be favored by natural selection, since it would be bad for the species. Factors held to be responsible included the acquisition of lethal weapons, new kinds of resource distribution, the random occurrence of immoral individuals or chance historical developments such as the adoption of a patriarchal philosophy.[14–19] But this line of thinking has been undermined by the discovery that a variety of other species share with humans a tendency for collective violence, including deliberate killing of rivals from neighboring groups. Prominent examples are social carnivores like wolves, lions, and spotted hyenas, and one of humans' two closest relatives, chimpanzees.[20, 21] As a result, the claims that human violence is uniquely lethal or necessarily maladaptive are no longer viable.

Behavioral biologists have accumulated a growing body of evidence that violent behavior—like other categories of behavior—depends on an interaction between internal factors and external factors, such as social and ecological context.[22] For example, hormones such as testosterone are routinely associated with aggressive behavior, including competition for sexual partners. Individual hormone levels, however, vary according to both internal and external factors. Thus in a study of wild chimpanzees, Muller and Wrangham (2004) found that male testosterone increased in the presence of sexually receptive females, but only if those females had previously given birth.[23] (Male chimpanzees are in general less attracted to, and less likely to compete for, females who have not yet demonstrated their reproductive capacity.[24])

This brief discussion leads to two conclusions. First, cultural and biological explanations are complementary levels of explanation, each viable in different ways. Second, the precise role of biology in human collective violence remains to be determined.

## PATTERNS OF COLLECTIVE VIOLENCE

### *Gangs of Young Males*

The following attempt to characterize typical patterns of social organization and violence in youth gangs is based mainly on information from the United States. Our short review is designed to allow comparison with chimpanzee behavior. For those interested in the diversity of gang cultures, Knox (1994)[25,26] and Klein (1995)[6] provide excellent introductions.[6,25,26]

#### *Definition*

Gangs vary widely in their organizational development. Knox describes four levels of formality and sophistication.[25] Small "pre-gangs" have voluntary membership, unstable leadership, and no role structure. "Emergent" gangs have leaders, an oral tradition, and expected norms of conduct. In "crystallized" gangs a disciplinarian usually enforces norms, and there are multiple levels of internal organization including a mid-management structure. "Formalized" gangs demand a commitment that is close to irreversible, have a highly centralized hierarchy, and often have formal

codes or written constitutions regulating behavior rather strictly with respect to dress, drugs, personal relations with relatives and lovers, clubhouse behavior, etc.[7, 27,28]

Such a wide range of gang types means that any definition is unsatisfactory. The following definition is sufficiently general to capture the essence of a youth gang. It is a "group of youths who are banded together in a specific context and whose activities include, but are not limited to, criminal acts. Adults may or may not be a part of this group, but when there is adult involvement, they will only represent a small minority of the gang membership."[29]

*Gang Organization*

Youth gangs are mostly urban, and occur generally in poor and ethnically homogeneous areas where population densities can reach up to more than 15,000 people per square mile (6,000 per sq km).[27,30] Gang members are mainly male (85–96%),[7] starting around 12 years old or sometimes younger, and have typically grown up together.[7] Only a proportion of local adolescents join gangs (e.g., up to 10% of young males in low-income neighborhoods.)[7] Males normally stop participating in gang activities around their early 20s or before,[27] though more recently, in areas such as post-industrial Milwaukee[31] and Los Angeles,[32] individuals stayed involved with gangs as adults. The principal activity is "hanging out," that is, peaceable association in small subgroups.

Gang membership can reach more than 100, but gang size commonly averages around 30 (32.3 [range 7.0–68.2] in six U.S. cities [1974–75], calculated from Alonso [1999][30]; 31.5 in the U.S. in 2000, calculated from Egley and Arjunan [2002][33]; 75% of gangs had fewer than 25 members[34]). Entrants commonly undergo an initiation ceremony that tests toughness, but many gangs include "fringe" members, individuals with a variable degree of identification with the gang and less likely to be involved in violence.[6]

*Gang Territoriality*

Not all gangs value combat: some tend to retreat from conflict, such as those based around a marijuana subculture.[35] However, most gangs identify with a territory, which they defend against other gangs. The frequency of intergang fighting varies widely (e.g., increasing in the U.S. over the 20th century[6, 27]). The territory is often marked with prominent signs, including aggressive symbols and taunts directed to specific rivals.[30,36] It is normally small enough to be easily covered on foot: for example, the average territory size in Los Angeles decreased from 1.7 sq mi (4.3 sq km) in 1972 to 0.23 sq mi (0.6 sq km) in 1996.[30] Territorial benefits include rights to ownership, occupancy, or entrepreneurial activity.[2]

Intergang fights may serve a variety of purposes, such as "to inflict humiliation and insult…to increase the victor's reputation and status…to regain territory…sometimes to gain new territories…"[27] (p. 13). They can also occur because of a need to re-establish discipline, or from boredom and apathy.[27] Violence can also have the effect of "tactical pre-emption" by diminishing the power of a rival gang (e.g., by killing one of its members).[4] But the motive most frequently advanced for involvement in gang fights, according to Miller *et al.* (1968),[37] is that reputations are threatened. In the words of Short and Strodtbeck (1968) "the primary purpose of battle is to prove oneself, not to capture anything"[35] (p. 247).

Thus, according to the review by Baumeister and colleagues in 1996, "Violence is typically precipitated when one person impugns the honor or dignity of the other, most commonly by an insult, but also by any violation of etiquette … the occasion for violence is often a merely symbolic aspersion that the rival group's claims are unfounded (such as by making a humorous verbal insult or writing the name of one's gang in the home territory of the other gang)."[38] A reputation for toughness is important because "there is a common perception that the safety or security of the group and all its members depends on maintaining a solid "rep" for toughness vis-à-vis other groups." A youth quoted by Vigil (1988) appears typical when he stresses the importance of a gang's dominance with respect to rivals: "The only thing we can do is build our own little nation. We know that we have complete control in our community. It's like we're making our stand … we're all brothers and nobody fucks with us. … We take pride in our little nation and if any intruders enter, we get panicked because we feel our community is being threatened. The only way is with violence"[39] (p. 131). Even among school gangs friction is said to be mainly the result of intimidation of members of one gang by another.[9]

Gang fights include a range from "hits" to "fair fights" and full-scale battles, either planned or spontaneous. "Hits," in which "smaller bands of youths engage one or two rivals," appear to be the commonest type, though we have not found any numerical data[27] (p. 13). "Fair fights," that is, arranged encounters between single members of rival gangs, are said to be infrequent, as are battles.[38] Fights may occur as isolated incidents or as "warfare" ("a continuing series of retaliatory engagements between members of rival groups"[27] [p. 13]). They are mostly with neighbors, but Ley (1976) reported 23% of 188 intergang fights to involve gangs separated by intervening space.[40] Gangs fight mostly alone, but sometimes in a planned alliance with another gang, which may or may not be a neighbor.

The age at which individuals are most involved in violence can vary. Vigil (1988) reported that older gang members were more likely to be involved in alternative ways of achieving status, such as employment or gain-associated crime, than in violence.[39] He found that older adolescents tended to goad the young into intergang violence. But Spergel *et al*. (1989) reported that violence by younger gang members was less lethal than that perpetrated by older adolescents and young adults.[41] In keeping with this conclusion, over a decade in Chicago, the median age at which youth gang members committed homicide was 19 years.[27]

### *Intragang Relationships*

Relationships among males within gangs are partly regulated by codes that suppress overt competition and therefore create a norm of respectful treatment from other gang members. For this reason, leaders of most street gangs are rarely authoritarian.[6] The enjoyment of positive respect is considered a strong part of the appeal of being in a gang.[42] But even so, honor (*machismo*, self-esteem, status, power, heart, reputation, respect, deference) is seen as a dominant concern among gang youth not only in relationships between gangs, but also within them. Thus, in spite of the code of respect, gang members remain highly competitive with each other. "The intragroup 'pecking order' is constantly at issue," according to Miller *et al.* (1968) [37] (p. 150). The code of the streets was said by Anderson (1994) to center around "respect," which meant being "granted the deference one deserves"[43] (p. 82).

Non-gang youth likewise value status and whether or not boys are in gangs they measure status by various criteria such as *toughness* (physical prowess, bravery, and skill in athletics and games such as pool and cards), *smartness* (skill in repartee, capacity to "dupe" fellow group members), expressed *resistance to authority*, and *daring*.[37] But what appears special about status competition among gang males is the importance of physical fighting. Thus, Short and Strodtbeck (1968) reported that "in nearly all gangs we studied, over a three-year period, we found that skill in fighting was highly valued"[35] (p. 247). "A reputation for being tough and a good fighter is one of the only ways to attain status" according to Gardner (1983)[44] (p. 27). Lien (2001) likewise reported that among Norwegian gangs, ideals of masculinity based on physical fighting ability were highly valued,[4] and Vigil specifically claimed that the need to be seen as "becoming a man" promoted violence in adolescents.[39] "Especially in the inner cities, respect is a commodity worth dying for," wrote Nisbett and Cohen (1996)[45] (p. 90). Among non-gang youth, by contrast, physical fighting appears less important than other indices of status.

In line with the notion that status within a gang is determined importantly by physical fighting ability, most people see the concern for status as a key contributor to overt aggression. As Klein and Maxson (1989) report, "violent activities … serve important social and psychological functions in asserting masculinity … the emphasis on machismo and honor have been seen as legitimating and thus facilitating violent behavior in circumstances that challenge gang members' courage or territory"[46] (p. 203). Jankowski (1991) found that gang members were violent toward people "whom they perceived to show a lack of respect or to challenge their honor," or when violence could enhance their status or discredit their rivals[42] (p. 142). Versions of this conclusion are common among gang researchers, illustrated by Vigil's comment about occasions when gang members experience hostile stares, chance encounters with enemies, or direct attacks: "Violence is expected or required under these and other conditions and situations; otherwise the gang member risks being disrespected ('dissed') by other gang members."[7] (p. 228) Youth gangs thus appear to be commonly characterized by a system of status competition that depends importantly on the ability to fight.

### *Explaining Homicides in Interactions between Youth Gangs*

Two kinds of explanation have been prevalent for the occurrence of violence towards rival gangs.

The first, and currently less accepted, is that homicidal individuals are inherently aberrant or sociopathic. Yablonsky (1967) in particular hypothesized that the boys recruited by gangs tend to have an especially violent nature.[47] Vigil found some evidence that youth gang members indeed have a "psychological state of quasi-controlled insanity" (pp. 230–1), and that "these crazies can be responsible for most of the gang homicides or, at the least, for instigating more conflicts and confrontations" (p.237).[7] Unlike Yablonsky, however, Vigil argued that this kind of psychological state was a consequence, rather than a cause, of the dangers of street life.[7,47] "Strangely, sharing this aura of aggressiveness bordering on a quasi-controlled insanity mindset and behavior makes for a strong street bond. Street gang members look up to one another and show deference and respect for the locos and ghetto he-

roes" (p. 237).[7] Likewise, "This psychosocial mindset has become a requisite for street survival and a behavioral standard for identification and emulation. Gang members collectively value *locura* [being dangerous or unpredictable] because it helps assuage fear and the anxiety associated with the fight–flight (and even the middle ground of fright) dilemma that street realities impose on a person" (p 230–1).[7]

Like most researchers, therefore,[6,27] Vigil (2003) considered that youth gang violence is not normally a result of individual cognitive failure, or of gangs' recruiting violent types.[7]

The second view therefore predominates, which is that gangs and gang violence emerge from a predictable social ecology. For example, Tolan *et al.* (2003)[48] (p. 286) consider youth gangs as tending to reside "in communities with structural characteristics such as concentrated poverty and high crime, a social ecology that is consistent with Wilson's (1987) definition of [the] inner city…" [49] Klein (1995) and many others agree.[6] For example, Knox claimed that of the many hypotheses that have been proposed for the formation of gangs, three had empirical and theoretical support: economic disadvantage, racism and oppression, and political corruption.[25]

Exactly what it is about such factors that tend to generate gangs has not yet been resolved. The traditional focus has been on delinquency or aggression rather than violence, and has had two main schools according to Klein.[6] The sociological school, based on 1950s and 1960s data from Chicago and New York, proposed "strain theory." According to strain theory, delinquency is a reaction of lower-class boys to a sense of failure in the face of the norms and values of the middle-class. A contrasting anthropological notion from Boston was "lower-class theory," proposed by Walter Miller. Miller (1968) saw delinquency not as a reaction to the middle class, but as the product of normal values of toughness, fatalism, and street smarts.[37] The two theories produced different kinds of intervention system (providing more opportunities, and heavy punishment for offenses, respectively). But neither of these intervention systems has worked well, and the empirical association of gangs and gang violence with specific conditions of the inner city remains vague.[6,25] A typical list of causes includes "the adoption of economic functions by some urban gangs, the use of violence to regulate illicit commerce, the proliferation of firearms, the effect of prison on neighborhood gangs, and the effect of mainstream cultural values of money and success on gang youth with limited opportunities" (pp. 369–370).[50] Thus, while there is broad agreement that the development of street gangs and intensified violence is related to the conditions of poverty, hopelessness, inequity, racism, and other harsh conditions of the inner city, the causal connections remain clouded.

A complementary approach has been advocated by Vigil (2003), who stressed that once a subculture of violence develops, it tends to perpetuate itself.[7] Thus he argued that the reason that a teenager becomes violent begins with his becoming marginalized from dominant society. There are multiple reasons for his being marginalized, such as being socialized in the street, belonging to a single-parent family, being exposed to criminal activity, having limited access to entry-level jobs, being treated harshly or unevenly by authorities, being unreasonably faulted for his problems, or being otherwise made to feel hopeless.[51] But whatever the cause of his adopting street life, he is then exposed to a norm of violence. "[A] violent way of life dominates the streets, and a subcultural group of youth are the carriers that instruct newcomers in the art of street violence. Street socialization…explains how a person becomes exposed to the streets and then learns the gang subculture to partic-

ipate in violent acts"[7] (p. 235). Thus the "subculture of violence" theory claims that local cultural norms are responsible for encouraging violent responses in the face of disrespect.

This "multiple marginality" hypothesis accounts well for the process by which the street subculture influences teenagers and instills a norm of violence. But it gives no clues as to why violence tends to be patterned in any particular way, such as its association with territorial defense; it fails to explain the origin of the subculture; and it offers no clues why youth gangs should be similar to chimpanzees, where subcultural norms and urban ecology are largely irrelevant.

Below, therefore, we suggest an alternative hypothesis. Like contemporary gang researchers, we will propose that central tendencies in patterns of intergang violence emerge from parallel uniformities in the street subculture. But we will also suggest that the reason the street subculture favors a norm of violence in intergang relations emerges from a further unifying phenomenon. Specifically, we suggest that the subculture of the street is created by an environment in which physical violence is required to achieve personal inter-male status. According to our hypothesis, this is because the anarchy of the street means that street boys have no one, aside from other street boys, to protect them from older male bullies.

### *Non-Human Primates in General*

At least 100 species of non-human primates live in social groups that have regular hostile intergroup interactions. Intergroup interactions may involve defense of territory, non-territorial dominance over rival groups, and/or competition among males for females. But although these interactions are aggressive, they have little in common with patterns seen among youth gangs or other human groups. First, groups are generally stable, so that the entire bisexual troop is always together. Second, most aggression involves chases and calling, rather than physical fighting. Third, deaths from coalitionary killing are rare in most other primate species. Infrequent cases of such killing have been reported for several monkey species,[12] and a relatively high rate of coalitionary killing reported for one population of white-faced capuchin monkeys,[52] but even in these cases there is no evidence of deliberate hunting of victims, no avoidance of territorial boundary areas, no boundary patrolling, and no separation of males into small fighting units. The patterns of violence within most non-human primates, therefore, are too different from those in youth gangs to provide any illuminating comparisons.[53]

Status competition, however, occurs among males of many species of group-living primates in ways that tend to echo that among humans. In particular, males begin competing more intensely for status in adolescence, probably as a consequence of rising testosterone levels. This means that status competition based on physical fighting cannot account on its own for the patterns of violence seen in youth gangs and chimpanzees.

Likewise, segregation into groups that are dominated by males cannot in itself account for the observed patterns of violence. Thus males in many species of non-human primates spend part of their adolescence and early adulthood in all-male groups before they enter breeding groups. Species with this life-history pattern are mostly those with polygynous breeding groups, such as hanuman langurs and gelada baboons.[53] The all-male groups have not been much studied, but there are no reports

of territoriality or lethal interactions within or between groups. All-male groups of these primates therefore do not offer informative parallels with human male subgroups.

## *Chimpanzees*

### *Community Organization*

Chimpanzee violence differs from the pattern found in other non-human primates partly because it includes deliberate lethal attacks on rivals in neighboring communities. To place these attacks in context, we begin by describing the social system. Our review of intergroup interactions and social organization is based mainly on Wilson and Wrangham (2003).[21] Goodall (1986) and Boesch and Boesch-Achermann (2000) provide supplementary details.[20,54]

Chimpanzees live in groups called "communities" or "unit-groups" containing up to at least 150 individuals at low population densities (up to about 13 per sq mi, or 5 per sq km). Males spend all their lives in the same community, whereas most females leave at adolescence (around 10–13 years) to join another community.

Rather than traveling in a cohesive unit, the entire community rarely or never comes together. Instead, individuals travel, feed, and sleep in parties containing one to twenty or more individuals, often averaging 5 to 10 in number. Males tend to be more gregarious than females, often in mixed subgroups averaging perhaps 4–5 males and 1–2 females. As late juveniles (around the age of 8 years) males begin leaving their mothers and thereafter travel increasingly with adult males. Mothers spend most of their time in particular neighborhoods or individual core areas, whereas males tend to use the entire community range more evenly (up to 15 sq mi [38 sq km] or more).

### *Community Territoriality*

Male chimpanzees routinely defend their ranges as territories. Females may attack new immigrant females, and are sometimes the targets of intergroup aggression by males, but rarely take part actively in territorial aggression. Territories tend to include a heavily used central area surrounded by a less frequently used periphery that may overlap extensively with neighboring territories. Although chimpanzees visit borders infrequently, the risk of encountering neighbors in those regions affects behavior. Chimpanzees often appear tense or cautious at such times, and are more likely to visit borders when in parties with many males. Success during intergroup encounters depends greatly on the number of males in rival subgroups. This probably explains why chimpanzees that visit borders tend to be in relatively large subgroups, with few females.

The overall pattern of intergroup interactions is similar across the major long-term study sites. Hostile intergroup relationships are the norm, in the sense that in the majority of cases where members of one community detect the presence of neighbors, interactions are immediately aggressive. Within the overall hostile relationship between communities, the nature of a particular interaction depends on the age, sex, and reproductive state of the individuals involved. As the number of males increases within a subgroup, the behavior is more likely to involve aggression and violence, especially if the rival subgroup contains only one male.

Most encounters are auditory only, involving calls exchanged at distances up to 1.2 mi (2 km). The sound of neighbors' calls usually generates a strong response. There are often signs of apparent fear and/or excitement, such as open-mouth grinning and bristling hair. Reassurance gestures are also common, such as embracing and mounting other subgroup members. Males and females differ in their willingness to approach neighbors, with males being more likely to approach real or simulated strangers.[55] Willingness to approach also depends on the number of males present; subgroups of three or more males quickly approach simulated intruders, whereas subgroups with fewer males remain quiet, are less likely to approach, and approach more slowly if they do approach.

The outcome of direct encounters varies according to each side's subgroup composition. Males are least likely to act aggressively if the stranger is an adolescent female with a sexual swelling. Males may groom and mate with such females, although they may attack if the female attempts to run away. Remarkably, however, males often attack females, and these attacks can involve considerable brutality, especially if the female has young offspring. At Gombe, males attacked stranger mothers in 76% of encounters.[20] In some cases, males focus their attacks on the female's infant, which they may kill and eat.[56]

Males almost always show fear or hostility to stranger males.[20,54,57] Males sometimes flee from neighboring parties, particularly if they appear outnumbered. Direct intergroup interactions among males include "battles" and "gang attacks." In battles, both sides contain many males. Both sides may exchange pant-hoots and other loud calls while displaying at and charging at their opponents. The outcome is often indecisive and severe injuries rarely occur, unless males from one side manage to isolate and surround a rival.[20, 54] "Gang attacks" involve many males attacking a lone individual, and are the main source of severe injuries, including fatal ones.

Intergroup aggression appears to yield territorial benefits in the form of territory expansion or prevention of territorial loss. In the only direct evaluation, larger territories were associated with increased food availability per female, higher rates of reproduction, and improved infant survival.[58]

### *Intracommunity Relationships among Males*

Male chimpanzees are intensely concerned with relative dominance status, which is a predictor of many aspects of social life including attractiveness to other males, mating success, size of subgroups, and frequency of aggression. Status is recognizable through signals of subordinance, including the "pant-grunt" call. In early adulthood (about 12–15 years) adolescent males begin challenging adults for status, initially females and then males.[59] Status challenges are commonly initiated by the refusal of the rising male to pant-grunt. This may lead to a period of social tension with elevated levels of aggression involving the protagonists and their allies, until (sometimes after weeks) there is a one-on-one physical confrontation. Whoever loses gives a pant-grunt, which marks a formal acknowledgement of a status relationship that then typically lasts for months or years. Most males achieve their highest status in their 20s. Past-prime males (up to at least 40 years old) continue to engage in typical adult-male activities, including grooming, hunting monkeys, mating, forming alliances with other males, and patrolling the territorial boundaries.

Most conflicts among male chimpanzees appear to be concerned with the resolution of status, whereas those among females are over resources. For example, Goodall (1986) reported that the majority of male–male conflicts occurred in the contexts of reunion or social excitement, whereas in the majority of female–female conflicts there was a specific resource at stake such as food or protection of offspring.[20]

Like youth gangs, therefore, chimpanzee communities are characterized by males competing for status through fighting ability.

### *Explaining Chimpanzee Lethal Aggression*

There are two main kinds of explanation of chimpanzee lethal aggression:

One suggests that it is an aberration. The "aberration explanation" suggests that lethal violence by chimpanzees is an abnormal behavior that occurs as a result of human intervention, or that it occurs too rarely to be biologically important.[18,19] These ideas were reviewed by Wilson and Wrangham (2003), who noted that in the five main long-term studies of chimpanzees from 1972 to 2002, 14 lethal attacks on adults of neighboring communities were reported to involve at least eight communities, four as aggressors and six as victims. Fifteen kills of neighboring infants also involved at least eight communities, five as aggressors and six as victims. In all, there was evidence that between 1972 and 2002 at least 12 communities of chimpanzees in four different forests from Tanzania to Uganda experienced lethal intergroup aggression. Although the absolute numbers are small, many different communities have been involved, including the majority of those under long-term observation.[21]

Furthermore the results of violence can be demographically important. In one case (Kahama, at Gombe), a victimized community was driven to extinction, and in another (K-group, at Mahale), a community that lost all its males was believed from indirect evidence to have had several killed by the neighbors. In these two cases the territory and/or females of the extinct community were taken over by the supposed aggressors.[20,60] The persistent occurrence of lethal attacks and the occasionally large demographic consequences mean that the aberration explanation is not well supported.

The other main explanation is functional, addressing the costs and benefits separately. In most animals the costs of lethal aggression are high because intense fighting risks harm to the attacker. But chimpanzees attempt to harm adult victims only when the odds are greatly in their favor, that is, when at least three corner a singleton. As a result of this selective use of coalitionary power, attackers are normally unharmed, that is, their unusual social system (by which individuals travel sometimes alone and sometimes in subgroups) allows them to conduct lethal aggression at low cost.[55,61] This implies that individuals should prefer not to travel alone. There is indeed evidence that solitary foraging is forced on individuals by food shortage.[62] Thus, lethal aggression appears to be made possible by the fission–fusion grouping system, which is the result of the chimpanzee's characteristic foraging adaptation. A corollary of this argument is that in habitats where the food supply does not force individuals to travel alone, lethal aggression should be rare. Evidence from Taï, in West Africa, supports this: individuals rarely travel alone, and it is the only long-term sites where lethal aggression has not been observed. Nevertheless, Taï chimpanzees have often been observed apparently attempting to isolate rivals from neighboring groups by "commando raids."[54]

No immediate benefits have been observed from lethal territorial aggression. For example, the aggressors have not been shown to gain short-term access to more food or females. However, long-term benefits may include both an increase in the relative power balance (thanks to a reduction in the strength of the rival community), and the possibility of territorial takeover by eliminating the neighboring set of males.[61] A larger territorial size has been shown to provide increased food availability and to be correlated with higher rates of survival and reproduction.[58] These points suggest that lethal territorial aggression by chimpanzees is beneficial partly as a long-term strategy for increasing territory size, and therefore for increasing reproductive success.[21]

Thus, male collective violence between chimpanzee communities is explained primarily as a strategy for maximizing access to resources.

## AGGRESSION AMONG YOUNG MEN AND CHIMPANZEES COMPARED

Gangs of young men, like many politically independent human groups, share with chimpanzees not merely a strong tendency for defense of territory, but also various rather specific patterns of intragroup and intergroup interaction that are rare in other animals. Thus, the size and location of subgroups varies unpredictably, and although subgroups tend to avoid direct confrontations with rivals they may search for lone victims and inflict deliberate harm. Deaths can result either from surprise attacks by an invading subgroup or from victims' being found by chance near the border zone. Such similarities are summarized in TABLE 1.

While these behavioral similarities between human and chimpanzee violence are thought-provoking, they are also limited. Some prominent differences between youth gangs and chimpanzees are listed in TABLE 2. For example membership of chimpanzee communities is obligatory and life-long, whereas among youth gangs it is optional, temporary, and subject to diverse influences from non-gang society, including families, churches, welfare groups, police, criminals, etc. Youth gangs may gain various kinds of benefit from territorial defense such as control of drug sales. In addition to chimpanzee-like tactics, youth gangs pursue their goals by forming alliances with other groups, using weapons, attacking distant groups, having planned battles, developing codes of behavior, and creating symbolic marks of gang membership and ownership of territory. Clearly, therefore, the parallels are not tidy.

We now consider four hypotheses to explain similarities in the development of closed groups of rival gangs (or communities) and the use of lethal aggression by males defending territories.

### *Meaningless Coincidence*

The motivations of human and chimpanzee males could be unrelated, their behaviors might serve different goals, and/or different causes might be responsible for their behavioral tendencies. This is a theoretical possibility that is best evaluated by the plausibility of alternative explanations.

### *Phylogenetic Inertia*

Since chimpanzees are one of human's two closest relatives, a second possibility is that territorial lethal violence is the result of phylogenetic inertia, that is, the ex-

**TABLE 1. Youth gangs and chimpanzee communities compared: similarities related to social organization and violence**

| | Youth Gangs | Chimpanzee Communities |
|---|---|---|
| Social network | Mainly male | Male + female |
| Number of males | <10 – >100 | <10 – >25 |
| Aggressive activity | Mainly male | Mainly male |
| Subgrouping | Yes | Yes |
| Main activity | Socializing, relaxing | Feeding, socializing, resting |
| Territories defended | Often, mainly by males | Yes, mainly by males |
| Avoidance of territorial borders | Yes? | Yes, especially by lone individuals or small subgroups |
| Avoidance of mass confrontations | Yes | Yes |
| "Hits" in neighboring territories | Yes, occasionally | Yes, occasionally |
| Age when males begin to challenge their elders | Adolescence | Adolescence |
| Value of allies in preventing aggression by rivals | Important | Important |
| Gang attacks on helpless rivals | Yes, occasionally | Yes, occasionally |
| Main cause of within-group violence | Unresolved status relationship | Unresolved status relationship |
| Determinant of within-group status | Fighting ability, plus ability to manipulate others through reputation, repartee, etc. | Fighting ability, plus ability to influence others through coalitions, etc. |

pression of a hard-wired genetic program inherited from a common ancestor. However, this explanation is difficult to envisage, as the behavior is not elicited invariably in either humans or chimpanzees. In humans, it occurs in some youth gangs more than others, in some tribes more than others, in a variety of forms, and so on. Among chimpanzees, its frequency varies over time and context.[58] Such variation means that even if humans and chimpanzees retain common biological systems underlying the propensity for violence, the notion of inheritance from a common ancestor has no explanatory value. An additional argument against phylogenetic inertia is that our other closest relative, bonobos (or "pygmy" chimpanzees), appear to lack territorial lethal violence. It would be odd indeed for this trait to persist as an inevitable burden of chimpanzee-like ancestry in humans, but not in bonobos, which in almost every other respect are much more similar to chimpanzees than they are to humans.

**TABLE 2. Youth gangs and chimpanzee communities compared: differences related to social organization and violence**

| | Youth Gangs | Chimpanzee Communities |
|---|---|---|
| Social network | Mainly male | Male + female |
| Number of males | <10 – >100 | <10 – >25 |
| Age of leaving group | Early adulthood | Only by death |
| Proportion of males involved | ≤10% | 100% |
| Social group boundary | Fuzzy (gang includes fringe members) | Unambiguous (all males belong to a specific community) |
| Weapons used in fighting | Routine | No |
| Territory size | Small | Large (>4 sq mi, 10 sq km) |
| Territory marked by signs | Sometimes | No |
| Benefits of territorial defense | Reputation enhancement, entrepreneurial activity, protection from violence | More food, protection from violence |
| Local population density | Very high | Low |
| Formal codes or written constitutions regulating behavior | Yes | No |
| Behavior influenced by society at large | Yes | No |
| Main cause of between-group violence | Challenge to honor | Intrusion in search of food or victims |
| Males attack females associated with rival group | Rare | Common |
| Males kill infants of rival group | Not intentionally | Occasionally |
| Which groups are attacked | Neighbors and more distant groups | Neighbors only |
| Alliances between territorial groups | Sometimes | Never |
| Planned battles (one-on-one or group-on-group) | Sometimes | Never |

*Nonfunctional Tendency for Violence*

A similar hypothesis is that in humans and/or chimpanzees, lethal territorial violence is a nonfunctional behavior present for some reason other than inheritance from a common ancestor. For example, it could in theory be a result of individuals in a large-brained species learning inappropriate behaviors, and thus becoming sociopathic.

In neither species, however, does the role of individually aberrant individuals appear dominant. Evidence concerning gangs was reviewed above. In the case of chimpanzees, there have been occasional suggestions of male killers (or individuals particularly engaged in territorial aggression) being abnormal. For example, at Gombe, Frodo has been depicted in films as being an exceptionally aggressive alpha male,[63] and indeed, Frodo participated in at least three and probably all four intergroup killings known or inferred to have taken place at Gombe from 1993 to 2002.[64] Nonetheless, nearly every other adolescent or adult male in the study community also participated in at least one of these attacks.[64] Among youth gangs quasi-insanity is plausibly interpreted as a mindset that helps individuals survive in a dangerous environment[7] (pp. 230–231). Intergroup killing in violence among tribes and local political groups also tends to involve most or all male members.[65,66] The hypothesis that violence results mainly from sociopaths is therefore not generally supported.

*Functional Response to Local Circumstance*

The fourth possibility conforms to the predominant explanations for both young gang and chimpanzee violence (i.e., that the behavior tends to be functional). The challenge with this line of thinking is that the existing adaptive explanations (reviewed above) are different for the two species. In particular, the specific economic, institutional, and subcultural conditions of urban life that are thought to generate street gangs clearly do not apply to chimpanzees. Instead of such human-specific socioeconomic and sociocultural factors, any factor responsible for similar behaviors between humans and chimpanzees must be relatively simple. The obvious common factor emerging from our review is the importance of status competition.

We therefore propose the "fighting-for-status hypothesis" (FSH), which is based on the analysis of youth gangs as "cultures of honor."[45] We note that an important condition shared by street-socialized youths and chimpanzees is unavoidable exposure to interpersonal violence. We suggest that this risk of one-on-one physical combat initiates a cycle of response that ultimately generates gangs (or communities) and therefore intergang (or intercommunity) violence. Thus, the FSH proposes that behavioral similarities between youth gangs and chimpanzee communities come from the common tendency for male status to be settled by fighting. The logic sounds superficially circular, because it argues that violence begets violence. But it is not circular, because the initiating step is one-on-one violence, not gang violence.

## *Chimpanzees and the Fighting-for-Status Hypothesis*

Consider first how the FSH applies to chimpanzees. We suggest that it explains why male chimpanzees form communities, rather than competing individually without any closed social networks.

As in many other species, the ability to dominate other males in conflict is what determines access to valued resources such as mates. Starting at adolescence, therefore, males compete for status in the only available manner, through physical fights. Lone males predictably lose conflicts against teams of two or more, so alliances are favored for all males. The fact that these allies are also rivals makes it a difficult cognitive step.[67] But chimpanzees (like humans) have the requisite cognitive skills. Males who are skillful in establishing alliances are therefore able to avoid being

dominated by physically superior rivals. For example, alpha males are often not the largest.[20]

But alliances do more than protect males from loss of status. They also create a form of social power that can be used to dominate others. Skilled males can use this coalitionary power to dominate a local area. According to this concept, an extended set of alliances becomes crystallized as a closed social network, or community.

Competition then occurs between communities, whether for territory or protection from mutual aggression. This competition is anarchic because winners obtain no benefit from making concessions to losers. Opportunities are therefore taken to kill rivals if the risks of attack are sufficiently low, which occurs when a large subgroup encounters a lone rival.

In short, according to the FSH the ability to use alliances to physically protect against one-on-one domination ultimately generates closed groups that use violence to kill each other.

### *Youth Gangs and the Fighting-for-Status Hypothesis*

For biological reasons, adolescent male humans strive strongly for status in general, including status on the streets (as reviewed above). We assume that this is the result of an evolutionary history of natural selection for male status-striving, ultimately because male status was beneficial in the evolutionary past. We suggest that the key feature of the street subculture that tends to lead to youth gangs and violence is that adolescents and young men who compete for status do so through one-on-one physical violence. They do so, we assume, because the marginalized world in which they live is essentially anarchic, that is, these youths are not protected by their elders or by the wider society from local bullying.

Under these conditions, as among chimpanzees, males are especially vulnerable because (compared to females) they are particularly concerned about status and particularly likely to be put down. In the words of Nisbett and Cohen (1996), they are citizens who "need to be vigilant in their own protection"[45] (p. 91). Accordingly, alliances that protect them from being physically dominated become an adaptive tool. Gang membership provides just such alliances, giving predictable alliance support and enhancing a male's status with respect to other males in the street subculture. As with chimpanzees, the alliances that protect a male from local challenges then become tools that can be used to protect against rival gangs. According to Klein (1995), gang cohesiveness "accelerates violence"[6] (p. 43).

Drive-by shootings and planned hits then provide opportunities for extending the gang's power. So do the characteristically self-serving moralistic views of groups in conflict, whether gangs or nations. Lien (2001) stressed that whether gangs were racist or anti-racist, their moral attitudes were similar: "The enemy deserved to be beaten, as either they were racist, Ku Klux Klaners [*sic*], whores or homos. Because the enemy was thought of as evil and bad, the fight was conceived of as a fight in self-defense, even though the 'enemy' had not made the first move. . . . When the enemy lies on the ground there is a feeling that the game has been won"[4] (p. 170).

According to our hypothesis, this all derives from a way of life in which an intrinsic need for respect is combined with anarchy, in the sense that young males are inadequately protected from physical domination in one-on-one status competition.

### *Evaluating the FSH: Fighting and the Occurrence of Youth Gangs*

The principle that individuals join gangs in order to protect themselves from being bullied emerges often in accounts of street life (see review above). For example, Vigil (1993) reports that

> Street socialization … undergirds established gangs … individuals are often the most unsupervised and reside in crowded housing conditions where private space is limited. These youngsters are driven into the public space of the streets where peers and teenaged males, with whom they must contend, dominate. These peers and older males provide such youths opportunities for a new social network and models for new normative behavior, values, and attitudes. They also generate a need to assuage basic fears stemming from not wanting to be fair game for anyone.
>
> Thus one of the first goals in the streets is to determine where one fits in the hierarchy of dominance and aggression that the street requires for survival. Protection comes from seeking associates who are streetwise and experienced and willing to be friends. In turn, this prompts the youth to return the favor by thinking and acting in ways that his friends approve. The new social bonds are reinforced, a sense of protection is gained, and new behavior patterns and values are learned[68] (pp. 99–100).

The proposal that resolution of status conflict by physical fighting underlies the origin of gangs is supported by Klein's list of the characteristics that tend to be found in "gang joiners and the heavier participators"[6] (p. 76). He lists (1) a notable set of personal deficiencies, perhaps including difficulty in school, low self-esteem, low impulse control, inadequate social skills, and a deficit in useful adult contacts; (2) a tendency towards defiance, aggressiveness, fighting, and pride in physical prowess; (3) a greater-than-normal desire for status, identity, and companionship (satisfied by joining a special group like a gang); and (4) a boring, uninvolved lifestyle.

Similar characteristics are seen in schools, according to Monti (1994), who reports that "boys and girls affiliated with gangs spoke openly about taking money or personal items from other children. The items included everything from candy to clothing. Sometimes the victims gave up the money or item in return for the promise that they would not be molested. On other occasions they were pushed, hit, or kicked until the money or item was relinquished. … The process whereby such extortion or robbery took place was called 'punking' and the victim was referred to as a 'punk.' A punk also was someone who refused to fight in the face of a challenge thrown down by another person. To call someone a punk was intended to be a serious insult, and most youngsters treated it that way"[9] (p. 32). Thus, where adolescents are able to bully each other, gangs benefit the bullies by giving them both more protection and more power. The children who were candidates for gang membership were those who were particularly willing to fight.

Monti claimed that gangs developed if such fighting was allowed: "While school staff knew that many fights occurred over articles of clothing or "he-say-she-say" stuff, they failed to put these events into a larger context. … School staff made a practice of tolerating brawls and gang fights. In so doing, they provided an environment conducive to broader gang activity in the school"[9] (p. 88).

Gangs occur not only in the inner city and poor schools, but also in suburban schools. According to Korem (1994), the strongest predictor of gang membership in suburban Dallas schools was the "missing protector factor," meaning that a youth could not rely on any immediate family member during a crisis.[29] Mostly these youths were from problem families, in many of which there was physical abuse. But even rich, stable families sometimes produced gang members. A detective cited by Korem

reported that these youths were bring bused to schools with gangs. They said "What am I going to do when I'm on the bus ten, fifteen, twenty minutes and I'm being pounded? No one is going to protect me." This rare occurrence of youths from a well-to-do neighborhood joining gangs supports the hypothesis that exposure to physical violence, and hence the need for protection, makes gang membership attractive.

So do many accounts of the origin of gangs written by gang members. The Spanish Gangster Disciple Nation, for example, includes in its written constitution the following history of its origins: "Why we as a people became a Nation" … "We were … kids attending school, but being the school was dominated by the white, we fought against the white almost every day … never having any intention of being any specific group, so as time went by more Latino's [*sic*] attended the school, thus giving the Latino's [*sic*] more power and making survival easier"[26] (p. 114). Gang constitutions are frequently explicit about the importance of physical protection, such as the Vice Lords, who write, "Defend yourself and every other Vice Lord, with your life if necessary."

This brief evaluation suggests that the FSH finds support from a variety of sources. We therefore suggest that it is worth more serious consideration than we have been able to give it.

## DISCUSSION

### *Overview*

In general, the kinds of collective violence exhibited by youth gangs are part of a common human pattern evident in societies lacking effective central authority, manifested in ethnic riots, blood feuds, lethal raiding, and warfare. Males cooperate to defend group territories, resources, and status; they tend to avoid mass confrontation; and they seek out opportunities to attack members of rival groups at low cost to themselves. These patterns strongly echo the system of collective violence observed in chimpanzees.

A common thread is that males fight to uphold their honor. If they do not fight, they risk being perceived as weak, and are more likely to be attacked in the future. For example, in a study of blood feuds among European tribesmen in Montenegro, Boehm (1984) found that "[f]or their forebears—the tribesmen who lived without any centralized governmental power up to 1840—blood feud was not merely acceptable and legitimate; for them it was a moral necessity that a man (or a clan) take vengeance, if a decent social status was to be maintained. There is on record no division of opinion about the legitimacy of vengeance killing among the traditional tribesmen: A man had to do it in order to keep the respect of his community"[69] (p. 66).

Given that the potential for collective violence is a widespread and arguably universal human trait, the interesting question about youth gangs within industrial society is why they occur in some contexts and not others. By comparing youth gangs with chimpanzees, our attention has been drawn to inter-male status relationships. The fighting-for-status hypothesis suggests that if young males are not protected from bullies by socially approved males (such as family members, police, or schoolteachers), their concern to maintain inter-male status leads them into socially disapproved alliances, which become gangs. Our analysis suggests three main conclusions.

First, the fighting-for-status hypothesis appears to be a viable explanation for the local occurrence of gangs. Although our analysis echoes many themes in the literature on gangs, such as those that portray gangs as "cultures of honor," or stress the importance of respect among gang youths, or see gangs as serving family-like functions, we have not seen this specific proposal before.

Second, the FSH appears capable of explaining important similarities between youth gangs and chimpanzee communities, because in both cases males show intense concern for status, but have no external protectors. By contrast, there is little current support for alternative hypotheses for the parallels between youth gangs and chimpanzees, that is, meaningless coincidence, phylogenetic inertia, or nonadaptive parallels.

Third, our analysis suggests that the causes of gangs and gang violence are partly separable. Physical insecurity causes gangs, we suggest, while factors such as economic inequity, high mortality, and racism intensify the propensity for violence. These two logical pathways are admittedly intertwined. For example, the reasons why youths are vulnerable to being bullied will often overlap with those that intensify the propensity for violence. Nevertheless, gangs can occur in affluent suburbs without being territorial or indulging in significant crime.[29] On the other hand, much inner-city crime is conducted by non-gang members (though how much is not known[25]).

The implication is that prevention of gangs and gang violence will be achieved through partly different routes. Gangs will be reduced, we suggest, by protecting adolescents and young adult males from physical bullying. This accords with conclusions by Korem.[29] Gang violence, on the other hand, will be ameliorated by reducing the conditions of inequity and hostility that predispose youths to take risks.[10,11]

### *Outstanding Problems*

Three problems raised by our analysis are particularly noteworthy:

First, we have taken the adolescent male's rise in concern for status as a given. Although there is considerable informal evidence for this phenomenon in both humans and chimpanzees, it does not seem to have been well operationalized and little is known of its biological underpinnings.[70] Despite preliminary evidence of a role played by testosterone,[71] much remains to be found out about inter-male variation, the causes, timing and psychological nature of the change in concern about status, and the differences between male and female interest in status relationships.

The extent to which an adolescent male's concern for status is influenced by culture is an equally important issue. Knowledge on this point will afford a test of our hypothesis, which proposes that a key factor in the origin of gangs is an intrinsic, biologically generated rise in an adolescent male's concern for inter-male status. The more labile the adolescent male's concern for inter-male status proves to be, the more the FSH will be challenged.

Second, we have not attempted to detail the relationship between alliance formation and higher-level social organization. For example, we have not discussed how alliance formation leads to the crystallization of gangs (or communities) as closed social networks, nor why gangs are often but not always territorial. These are important issues for future study.

Third, the only biological predisposition that we have discussed in the context of gang formation is the postulated drive by males for inter-male status, which appears different in intensity and nature from inter-female status competition.[72] However, there are several other candidates for gender-biased tendencies that could influence gang formation, such as males tending to be more interested than females in joining competitive groups.[73] If such differences are substantiated, they may prove to be additional important sources of gender bias in gang formation and behavior.[74]

## CONCLUSION

Despite many differences between aggression among adolescent males and chimpanzee communities, there are similarities in social structure and violence that appear to have important functional parallels. We suggest that a key feature shared by humans and chimpanzees is a tendency for adolescent males to compete intensely for inter-male status. When these young males live in anarchy (i.e., without external protection from physical violence), they develop alliances to protect themselves from being bullied by stronger males. The protective alliances are then available to be used in territorial aggression and risky and/or criminal activities, depending on the socio-economic and cultural conditions. This "fighting-for-status" hypothesis suggests that an understanding of the change in adolescent males' attitude towards inter-male status will contribute to understanding the basis of gang formation.

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