

**The Tribal Instinct Hypothesis:
Evolution and the Social Psychology of Intergroup Relations**

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Abstract

The social science literature abounds with examples of people's tendency to categorize others on the basis of group membership and to preferentially help ingroup members over outgroup members. We argue that this is largely a product of an evolved psychology of intergroup relations, which we refer to as the *tribal instinct hypothesis*. Furthermore, we argue that tribal tendencies are more powerful among men than among women, which we refer to as the *male warrior hypothesis*. In this chapter, we outline the evolutionary history of the tribal instinct and male warrior psychology, and we review evidence consistent with these hypotheses. We also discuss implications of these hypotheses for managing real-world intergroup relations.

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If a team of alien biologists were to collect data about different life forms on Planet Earth, what observations would they make about us, humans? They would witness the cities, churches, schools, and hospitals that we built and note that we are very good at helping fellow humans in sometimes very large groups. But they would also see evidence of our darker side: All around the world, they would witness incidents of violence and warfare between armies, militias, religious groups, and street gangs. Upon their return, the alien research team would likely conclude that humans are a tribal species, capable of both extreme benevolence toward members of ingroups and extreme hostility toward members of outgroups. On that basis, they would presumably put us in the same category as some colonial insect species—such as ants, bees, and termites—that also engage in tribal warfare (Wilson, 1975).

Luckily, we do not have to wait for invading aliens to make such astute observations about humans. Almost 150 years ago, Charles Darwin (1871), the father of the theory of evolution by natural selection, made the following statement in his book *Descent of Man*:

A tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good, would be victorious over most other tribes; and this would be natural selection. (p. 132)

Darwin's observation had little impact on the social sciences for over a century. But this is changing. In this chapter, we analyze human intergroup psychology from an evolutionary perspective by conceptually integrating existing data and by offering several novel hypotheses.

Evolutionary Perspective on Intergroup Psychology

In recent years, an increasing number of scholars have adopted an evolutionary approach to integrate existing theories of human group psychology and deduce novel hypotheses (Buss, 2005; Van Vugt & Schaller, 2008). This approach is based on the simple premise that the human mind—and its behavioral outcomes—have been shaped by biological evolution, just as human physiology has been shaped by evolution, and just as all other animal species have been shaped by evolution. Evolutionary social psychology, an interdisciplinary branch of evolutionary psychology, proposes that because other people constituted a prominent feature of human environments, the human mind has evolved to be a highly social mind, comprising many functional psychological adaptations specifically designed to solve problems associated with group life (Buss, 2005; Cosmides & Tooby, 1992).

Although sociality conferred considerable benefits to humans—leading to the evolution of a diverse array of psychological mechanisms that make cooperative group living possible—it also generated a large number of problems, both within and between groups. Different problems call for different, functionally specialized solutions, and several research programs have made significant strides by focusing on those functionally specialized adaptations (Schaller, Park, & Kenrick, 2007). Suggested instances of such adaptations include theory of mind, social intelligence, language, sex-specific mating tactics, altruism and aggression, and specific strategies for managing intergroup relations (Kenrick, Li, & Butner, 2003; Kurzban & Neuberg, 2005; Van Vugt & Schaller, 2008). Individuals (or groups) with such capacities would have been better equipped to extract reproductive benefits from group living, allowing these psychological mechanisms to spread. As we emphasize in this chapter, many of these adaptations pertain to unique problems that emerged in intergroup contexts.

In the search for specific social adaptations, it is useful to make a distinction between *proximate* and *ultimate* explanations. Upon observation of some instance of intragroup or intergroup helping, one could ask at least two distinct kinds of questions. First, one could

inquire into the specific aspects of individuals or contexts that lead people to display such tendencies; this is the strategy adopted by the vast majority of social psychologists—see, for instance, Batson’s (e.g., Batson et al., 1997) and Cialdini’s studies (Cialdini et al., 1997) regarding the relationship between empathy and helping, or research into the costs and benefits of different helping acts (Dovidio, Piliavin, Schroeder, & Penner, 2006). Second, one could inquire into the ultimate, evolutionary functions of such acts, by asking questions such as: In what ways did the capacity for empathy or helping increase the reproductive fitness of ancestral humans and groups? Or, what specific problems associated with survival and reproduction were solved by tendencies to empathize with and preferentially help ingroup members over outgroup members?

A related question concerns the *phylogenetic* origins of such tendencies—when did empathy and helping emerge in our species, and are there perhaps homologues in other species? Addressing such different kinds of questions is likely to produce a more complete picture of the phenomenon; however, it is important not to confuse these distinct levels of explanation (Buss, 2005; Van Vugt & Van Lange, 2006). For instance, explanations invoking evolutionary function do not imply that people are actually motivated—consciously or unconsciously—to behave in a manner that maximizes their reproductive fitness. (The actual contents of people’s motivations are empirical matters, to be illuminated by psychological research.)

Below, we proceed by discussing some key findings from the literature on intergroup relations that lend credence to the idea that humans may have a specific tribal psychology. We then offer three possible evolutionary scenarios for the emergence of the peculiar tendencies that are suggested by the literature. The most likely scenario, in our view, is that intergroup psychology emerged as a specific adaptation to deal with the pressures of complex group life in ancestral environments, which were marked by coalitional conflict and cooperation—we

refer to this as the *tribal instinct hypothesis*. We review pieces of evidence consistent with this hypothesis. This hypothesis further suggests that there may be sex differences in particular aspects of our evolved intergroup psychology, due to the differential selection pressures on men and women in ancestral environments—we refer to this as the *male warrior hypothesis*. We describe evidence for a specific male warrior psychology. Finally, we discuss implications of the tribal instinct hypothesis for managing intergroup relations in contemporary society.

Key Findings on Intergroup Relations

The social science literature on intergroup relations is substantial and diverse (Abrams & Hogg, 1990; Brewer & Brown, 1998; Hewstone, Rubin & Willis, 2002). Amidst the mountain of data, there are at several consistent empirical findings that paint a clear picture about human intergroup psychology. Here we present a non-exhaustive list of eight key findings that can be distilled from this literature.

First, humans make spontaneous ingroup–outgroup categorizations and preferentially help ingroup members over outgroup members. People sometimes perform quite costly helping acts on behalf of ethnic groups, religious groups, businesses, or states (Van Vugt, Snyder, Tyler, & Biel, 2000). In life-and-death situations, people are more likely to help kin than nonkin (Burnstein, Crandall, & Kitayama, 1994). Intergroup discrimination also occurs under minimal group conditions. Many experiments have shown that people preferentially give money or points to ingroup rather than outgroup members even when people are divided into groups based on a trivial criterion, such as the preference for a particular painter (Brewer, 1979; Tajfel & Turner, 1979).

Second, humans appear to be unique in their capacity to form deep emotional attachments to large, anonymous groups that are merely symbolic in many ways. Once people identify with a particular group, such as a sports team, they feel good when it does well and suffer when it does poorly (Branscombe & Wann, 1991). Empathy, an emotional experience

that often moves people to behave altruistically, does not move us as much when the potential recipients are members of outgroups (Stürmer, Snyder, Kropp, & Siem, 2006; Stürmer, Snyder, & Omoto, 2005). Humans also display loyalty to symbolic groups, sticking with them despite being better off by allying themselves with other groups (Abrams, Ando, & Hinkle, 1998; Van Vugt & Hart, 2004; Zidaniuk & Levine, 2001).

Third, humans dislike group members who are disloyal. In opinion groups, members who hold different opinions than the majority are disliked and ignored—the *black sheep effect* (Marques, Yzerbyt, & Leyens, 1988). Members of task groups who are not pulling their weight for the group—the “bad apples”—are subject to scorn, exclusion, or punishment (Fehr & Gächter, 2002). One recent study found that group members spend a substantial portion of their experimental earnings (25%) to altruistically punish disloyal ingroup members (Van Vugt & Chang, 2008).

Fourth, humans have a tendency to derogate or even actively harm outgroup members. For instance, people tend to think that outgroup members are less moral and trustworthy than members of the ingroup (Judd & Park, 1988). People denigrate members of outgroups when they get an opportunity and feel Schadenfreude when a rival group loses status (Leach, Spears, Branscombe, & Doosje, 2003); they even deny typical human emotions to outgroups (i.e., *infracommunication*; Leyens et al., 2001). Finally, people find it easy to morally justify aggressive actions against members of outgroups (Brewer & Brown, 1998).

Fifth, intergroup contexts are often automatically perceived as competitive and hostile. When individuals play Prisoner’s Dilemma Games against other individuals, they tend to make cooperative decisions; yet, when individuals form groups and play the same game against other groups—or play as leaders on behalf of their groups (Johnson et al., 2006)—they tend to make competitive decisions (a phenomenon known as the *group discontinuity effect*; e.g., Insko et al., 1994). Fear and distrust of outgroups seem to underlie the

discontinuity effect (Insko, Schopler, Hoyle, Dardis, & Graetz, 1990). When groups (rather than individuals) work together, people almost automatically expect the other party to cheat, which then serves as justification for a pre-emptive strike (Johnson et al., 2006; cf. Snyder, 1984).

Sixth, intergroup helping sometimes happens. When individual members of ingroups and outgroups form a friendship or cooperative partnership, this can serve as a catalyst for reducing intergroup prejudice and hostility. A successful example is the Jigsaw class room in which school children of different ethnic groups are encouraged to work together on cooperative tasks, and, under the right conditions, these activities promote positive intergroup relations (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). Furthermore, high-status groups sometimes offer help to low-status groups to affirm their superior status—an example of *competitive altruism* (Hardy & Van Vugt, 2006). However, as Nadler and Halabi (2006) have recently shown in the context of relations between Israeli Arabs and Israeli Jews, low-status group members (Arabs) might refuse help from high-status group members (Jews) if they believe that the status relations between the groups are either unstable or illegitimate.

Seventh, finding from the anthropological and sociological literatures indicate that managing intergroup relations is primarily a male activity. In most societies, intergroup aggression and warfare occurs almost exclusively between coalitions of men in the form of armies, militias, street gangs, and hooligans (Goldstein, 2003); and most victims of intergroup conflict are men (Daly & Wilson, 1988; Keeley, 1996; Staub, 1999). However, men are also the primary peacemakers between groups (De Waal, 2006). Men (but not women) even suffer vicariously from intergroup competition. Dutch scientists observed a higher number of cardiovascular deaths among Dutch male soccer fans on the day that their national football team was eliminated on penalties from a major tournament (Witte, Bots, Hoes, & Grobbee, 2000).

Eighth, and finally, humans share some aspects of their tribal psychology with other species such as ants, termites, bees, and—our closest living genetic relatives—chimpanzees. Wild chimpanzees form coalitions to defend their territory against neighboring troops and are known to attack and kill “foreign” chimps, which is also limited to males (Goodall, 1986; Wrangham & Peterson, 1996). Furthermore, female chimps can safely migrate between communities, whereas male chimps are often injured or killed.

In sum, the social psychological literature suggests that humans have a pronounced tribal psychology, comprising tendencies to (a) quickly distinguish ingroup from outgroup members and prefer ingroup members, (b) form deep affections toward ingroups, (c) dislike disloyal ingroup members, (d) actively discriminate against outgroup members, and (e) engage in competition with outgroups. Related literatures suggest that (f) acts of intergroup helping sometimes occur, (g) managing intergroup relations in the real world is primarily a male activity, and (h) some aspects of tribal psychology are observed in other social species, including nonhuman primates and social insects, suggesting a degree of continuity across species.

Evolutionary Origins of Tribal Instincts

Where does this tribal psychology come from? More to the point, were there adaptive problems that might have been solved, at least partly, by this tribal psychology? Evolutionary explanations fall into three broad categories (see also Kurzban & Neuberg, 2005).

The first explanation interprets our tribal psychology as a byproduct of a domain-general capability for stimulus categorization. The influential social identity and self-categorization theories of intergroup relations are based on this assumption (Tajfel & Turner, 1986; Turner, 1987). Essentially, the argument is that intergroup processes result from our cognitive tendency to make sense of the world around us. Just as we distinguish between, say,

plants and animals to categorize our physical world, we categorize people as belonging to the same versus different groups to make sense of our social world.

From an evolutionary perspective, it is quite unlikely that intergroup psychology is merely the product of a general cognitive categorization capacity, because different categories of people (e.g., ingroup–outgroup, male–female, kin–nonkin) pose specific adaptive threats and opportunities that are simply not encountered in other, nonsocial categorization contexts. Upon encountering a group of strangers, it would be crucial for our ancestors to know—and know quickly—whether they were members of the same or a different clan, which would then elicit different adaptive responses (e.g., fight-or-flight). Inappropriate responses could have been lethal. Although domain-general cognitive processes—such as memory and recognition—no doubt play a role in shaping tribal psychology, such processes, by themselves, cannot produce the functional content of adaptive responses, including specific cognitions and emotions pertaining to the social category in question, and the specific behavioral response that is most likely to be adaptive.

The second explanation views our tribal psychology as a side effect of the extreme sociality of our species. The argument is that the innate tendency to help ingroup members sometimes unintentionally produces conflict with other groups (Brewer, 1979; Brewer & Caporael, 2006). For instance, it would have made sense for ancestral humans to share food with members of the same band because of the likelihood of reciprocation (Trivers, 1971). Thus, a request for food coming from members of a different band should be met with some suspicion. Perhaps a problem with this second hypothesis is that it cannot explain why humans are sometimes openly hostile against members of outgroups rather than just mildly distrusting. One possibility, suggested by realistic group conflict theory (Campbell, 1972), is that intergroup contact is a relatively modern phenomenon. In ancestral environments, population densities would have been much lower and thus competition among groups might

have been rare. In modern environments, resource competition between groups is more intense and so a certain suspicion against outgroups could easily turn into intergroup hostility. Indeed, intergroup discrimination is often stronger when there is resource competition (Brewer & Campbell, 1976). However, it is well documented that intergroup prejudice occurs in the absence of direct resource interdependence (Turner, 1987), suggesting that it is perhaps a more deeply ingrained response. Thus, it seems unlikely that our tribal psychology is a byproduct of a deep ingroup commitment.

The third explanation is that humans have evolved specific adaptations for managing intergroup relations—specifically, evolved tendencies to form coalitional alliances in order to exploit and dominate other individuals or groups (Kurzban & Leary, 2001; Sidanius & Pratto, 1999; Van Vugt, De Cremer, & Janssen, 2007). Indeed, intergroup conflict appears to have been quite common in ancestral environments (Alexander, 1987; Tooby & Cosmides, 1988). Fossil evidence of warfare dates back at least 200,000 years, and it is estimated that 20–30% of ancestral men died as a result of intergroup violence, constituting a strong selection pressure (Keeley, 1996). Comparable percentage is obtained in an anthropological study of the Yanomamo, a modern hunter–gatherer tribe in the Amazon basin (Chagnon, 1988). Alexander (1989) has argued that the biggest threat for early humans came from other groups, which instigated an evolutionary arms race to form ever larger coalitions, ultimately resulting in the constitution of modern states and nations. As Kurzban and Leary (2001) noted, “membership in a potentially cooperative group should activate a psychology of conflict and exploitation of out-group members—a feature that distinguishes adaptations for coalitional psychology from other cognitive systems” (p. 195).

We refer to this idea as the *tribal instinct hypothesis*. It assumes that our tribal psychology is the result of a long history of intense intergroup rivalry and competition, a history that shaped the way we think and behave in intergroup contexts.

According to the tribal instinct hypothesis, not all intergroup contexts are equal. Notwithstanding the fact that people spontaneously form ingroup–outgroup categories and favor ingroups in minimal group setting, powerful attachments to the ingroup and malicious hostility toward outgroups are observed in only a limited subset of all possible ingroup–outgroup contexts. (Imagine all the possible ingroup–outgroup categories, such as male–female, old–young, rich–poor, tall–short, blonde–brunette, righty–lefty, innie–outie, ad infinitum.) Specifically, only outgroups that conform to a sort of “tribal outgroup” status are targets of the various functional psychological and behavioral responses associated with the tribal instinct (Schaller, Park, & Faulkner, 2003). Because not all “groups” matter from a tribal perspective, humans should have evolved coalition–alliance detecting mechanisms that are responsive to various indicators of tribal alliances—for example, “patterns of coordinated action, cooperation, and competition” (Kurzban, Tooby, & Cosmides, 2001, p. 15387). In modern environments, heuristic cues such as skin color, speech patterns, and linguistic labels—regardless of whether they actually signal tribal alliances—may activate these mechanisms (Kurzban et al., 2001; Schaller, Park, & Faulkner, 2003).

Specific Groups, Specific Responses

One implication of the tribal instinct hypothesis is that the contents of psychological responses to groups that fit a “tribal template” (ethnic groups, nations, sports teams) should be distinct from contents of psychological responses to other kinds of groups (genders, ages groups, innies or outies). Because of the potential threat posed by tribal outgroups to one’s well-being, humans likely evolved functional responses associated with the perception of such outgroups. What are these functional responses? “One answer is obvious: The construction of overly simplistic stereotypes and prejudicial beliefs describing outgroup members as hostile, untrustworthy, and dangerous” (Schaller, 2003, p. 224). Moreover, evolutionary cost–benefit analysis suggests that walking around cloaked in constant fear and distrust is likely to have

imposed substantial costs in addition to conferring benefits—thus, such responses are likely to have evolved to be functionally flexible, being activated when additional information (from the environment or from within) suggests heightened danger or probability of intergroup contact (Schaller, Park, & Faulkner, 2003).

One piece of information indicating heightened danger is the onset of darkness. A series of studies have examined the effects of ambient darkness on functionally specific psychological responses. In one study, Schaller, Park, and Faulkner (2003) asked Canadian students to rate the ingroup (Canadians) and an outgroup (Iraqis) on four trait dimensions, two of which were danger relevant (hostile, trustworthy) and two of which were not (ignorant, open-minded). The ratings were made in either a dark room or a well-lit room. By reverse-scoring the negative items and by subtracting ratings of the outgroup from ratings of the ingroup, a measure of ingroup favoritism was created. The results showed that, for the traits unrelated to danger, ingroup favoritism was identical across the dark and light conditions; however, for traits connoting danger, ingroup favoritism was higher in the dark. Schaller, Park, and Mueller (2003) conducted similar studies employing computer-based reaction-time methodology. They found that students placed in a dark room were more likely to implicitly associate members of an outgroup (Africans) with danger-relevant stereotypes (but not with danger-irrelevant negative stereotypes); moreover, these effects were specific to participants with chronically heightened beliefs about danger.

Another cue suggesting heightened threat posed by outgroup members is being a member of a numerical minority. Schaller and Abeyesinghe (2006) observed that there often are “double minority” situations in which all members of conflicting groups perceive themselves to be in the minority. For instance, Sinhalese outnumber Tamils within Sri Lanka but, within southern Asia more broadly, Tamils outnumber Sinhalese. In a study conducted in Sri Lanka, Schaller and Abeyesinghe (2006) asked Sinhalese students to first complete a

geography task that temporarily made salient either just the island nation of Sri Lanka (within which Sinhalese outnumber Tamils), or a broader region of south Asia (within which Sinhalese are outnumbered by Tamils), and then to complete measures of stereotypes and conflict-relevant attitudes. Results revealed that when participants focused on the broader geographical region (and thus perceived the ingroup as the minority), they were more likely to ascribe danger-relevant stereotypes to Tamils.

More broadly, this sort of evolutionary functional approach has greatly aided inquiry into mental events by facilitating the articulation of more textured and fine-grained hypotheses (Schaller et al., 2007). Research has found, for instance, that it isn't simply a general feeling of negativity that underlies all forms of prejudice; rather, different emotional–motivational states, activated within specific people and under specific circumstances, compel specific kinds of aversive reactions that underlie phenomena categorized as “prejudice” (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2006).

Sex Differences: The Male Warrior Hypothesis

Another implication of the tribal instinct hypothesis is that intergroup relations may have affected the evolved psychologies of men and women differently because of different selection pressures on the sexes throughout evolution. Due to differences in parental uncertainty and investment, men and women are likely to have evolved different mating strategies (Buss & Schmitt, 1993). Intergroup relations have historically involved males more than females (Keegan, 1994), which is true for humans as well as chimpanzees (Chagnon, 1988; De Waal, 2006; Goodall, 1986). As a consequence, not only are males more likely to be perceived as harmful outgroup members, the functional psychological mechanisms that are activated in response to outgroup threat may be especially sensitized among males (Schaller & Neuberg, in press). Furthermore, under some conditions, it could have been advantageous for ancestral men to participate in coalitional aggression and peacemaking afterwards as a

means to increase their mating opportunities. For ancestral women, this strategy would have been less profitable given the risks to themselves and their potential offspring (Taylor et al., 2000).

Although we describe the sex difference in greater detail below, it is worth noting some previous findings. In general, intergroup biases (racism, ethnocentrism) are more strongly held among men than women (e.g., Gerard & Hoyt, 1974; Sidanius, Cling, & Pratto, 1991; Watts, 1996). The notorious Stanford Prison Experiment (Zimbardo, 1970), a demonstration of intergroup humiliation, sadism, and aggression, was conducted entirely with a male sample. In addition, in several of the studies reviewed above, men revealed greater sensitivity to the presence of vulnerability cues. For instance, in one study reported by Schaller, Park, and Mueller (2003), men showed a stronger interactive effect of chronic vulnerability and ambient darkness on the activation of danger-relevant stereotypes. There was a similar sex difference in the study that examined Canadians' beliefs about Iraqi untrustworthiness (Schaller, Park, & Faulkner, 2003).

In sum, we deem it rather unlikely that the rich and complex social psychology of intergroup relationships is just an accidental by-product of a need for categorization or a desire for ingroup sharing. In light of the historical and recent empirical evidence, it seems much more plausible that humans have evolved a specific psychology to deal with intergroup relations. We argue that this tribal instinct is perhaps more extreme among men than among women, with implications for present-day intergroup war and peace relations.

The Male Warrior Hypothesis

How and why did men evolve this pronounced tribal psychology? There are various selection models available to explain what we refer to as the *male warrior hypothesis* (Van Vugt, De Cremer, & Janssen, 2007). We must draw a distinction between individual- and group-selection models. Tooby and Cosmides's (1988) risk contract theory of warfare is an

example of the first. It posits that it may have been advantageous for men to participate in coalitional aggression, as it enabled them to increase access to reproductive resources such as new mates and territories. This propensity could only have evolved—like any physical or psychological trait—if the cumulative reproductive benefits outweighed the cumulative reproductive costs. Tooby and Cosmides (1988) specify a number of conditions that would favor selection of traits associated with intergroup aggression. First, members of coalitions must believe that their group will be victorious (cf. Johnson et al., 2006). Second, people who go into battle must be cloaked into what they referred to as a “veil of ignorance” about who will live or die. Third, the risk that each member takes and the importance of each member’s contribution to the success must translate into corresponding benefits.

The latter condition is crucial. Participating in coalitional aggression is essentially a cooperative activity among several individuals. Like any form of cooperation, it is vulnerable to the free-rider problem. In order for this trait to spread, there must be mechanisms in place to reward heroism and bravery in intergroup conflict and punish cowardice. Such mechanisms were arguably in place in ancestral warfare and continue to be observed today (Keegan, 1994). For instance, war heroes receive compensating benefits for the risks they incurred on behalf of their group, such as a greater share of the loot or prestige in the form of honors and medals. These benefits are not available to those who stay home or desert—deserters often receive harsh punishment.

Whether or not this tribal psychology paid in terms of reproductive success—the currency in evolution—still remains to be seen, but there is supportive evidence. Brave male warriors in traditional hunter–gatherer tribes such as the Yanomamo have more wives and more children (Chagnon, 1988). In modern society, a study of male street gangs in the US suggested that its members had more sexual liaisons than controls (Palmer & Tilley, 1995). In some societies, military men also seem to have greater sex appeal (Schreiber & Van Vugt,

2008). Thus, there may be reputational benefits associated with “warrior” behavior, which could make it a profitable strategy for men in particular (cf. competitive altruism; Hardy & Van Vugt, 2006; Van Vugt, Roberts, & Hardy, 2007).

Even without compensating individual benefits, a male tribal psychology could have evolved via group selection. Multilevel selection theory holds that if there is substantial variance in the reproductive success among groups, then group selection becomes a genuine possibility (Wilson, Van Vugt & O’Gorman, 2008). As Darwin himself had noted (see his earlier quote), groups in which self-sacrifice is more common will fare better, especially if there is competition between groups. Although participating in intergroup competition may be personally risky because of the risk of death or injury, genes underlying propensity to serve the group can be propagated if group-serving acts contribute to group survival.

One condition conducive to group-level selection occurs when the genetic interests of group members are aligned, such as in kin groups. In kin-bonded groups, individuals benefit not just from their own reproductive success, but also from the success of their family members (inclusive fitness; Hamilton, 1964). Interestingly, ancestral human groups appear to have been based around male kin, with females moving between groups to avoid inbreeding (so-called patrilocal groups; De Waal, 2006). This could offer another explanation for why men rather than women would have been more concerned about intergroup conflict (i.e., intergroup conflict would have consequences for their inclusive fitness). The same patrilocal structure is incidentally found in chimpanzees. The males of these groups also engage in coalitional aggression (Goodall, 1986; Wrangham & Peterson, 1996).

These evolutionary models do not preclude the possibility that cultural processes may be at work that could exacerbate or undermine these stronger male tribal instincts (Richerson & Boyd, 2005). In fact, many of the evolved propensities are likely to be translated into actual psychological and behavioral tendencies by socialization practices and cultural norms. Thus,

it is entirely possible that, in certain environments, it could be advantageous for societies to turn females into warriors. A modern day example is Israel, a country at war with surrounding nations. To increase the size of their military, Israel has actively recruited female soldiers, and it currently has the most liberal rules regarding the participation of females in wars (Goldstein, 2003). We would expect the socialization practices among Israeli girls to match those of boys, potentially overriding any evolved psychological sex differences.

Evidence for Male Warrior Psychology

The tribal instincts hypothesis makes numerous predictions regarding the evolved psychological mechanisms underlying intergroup behavior in humans. These can be tested using the extant social psychological literature on intergroup relations. Some of these evolved psychological mechanisms will apply to both men and women to the same degree. In addition, the male warrior hypothesis implies specific sex differences in intergroup psychology. We focus on these in the remainder of this chapter. We review six domains of evidence, representing different aspects of warrior psychology in which we expect to find sex differences: (a) intergroup cognition and behavior, (b) ingroup helping, (c) attitudes toward bravery and heroism in intergroup encounters, (d) preference for between-group hierarchies, (e) social identity, and (f) development.

Intergroup Cognition and Behavior

Warfare, the pinnacle of human intergroup conflict, is an almost exclusively male activity (Keegan, 1994); and when we look elsewhere, most forms of organized violence occur between male coalitions. Does this extend to less violent encounters between groups, such as in competitive sports? Yes. In an international web-based survey (602 participants, 388 women, 214 men), we asked people to recall all the meaningful social interactions they had had in the past month; these were then categorized as person–person encounters (e.g., an argument with a friend), person–group encounters (e.g., ganging up on someone), or group–

group encounters (e.g., a hockey match). They were then asked to rate how competitive these interactions were. As expected, men rated their group–group interactions as more competitive than women (3.10 versus 2.29 on a 1–7 scale). These results are consistent with the results reported by Pemberton, Insko, and Schopler (1996). A quantitative review of the aforementioned discontinuity effect suggested that this effect was stronger among men than among women (Wildschut, Pinter, Vevea, Insko, & Schopler, 2003). Interestingly, in summarizing their results on the discontinuity effect, Pemberton et al. (1996) noted that although both sexes showed the effect, “with women, the effect may have related more to cooperative interactions with individuals, whereas with men, the effect may have related more to competitive interactions with groups” (p. 964).

What about affective reactions toward intergroup conflict? The same web survey asked the sample to rate warfare on a number of affective scales, such as exciting (1) versus boring (7), useful (1) versus useless (7), and pleasant (1) versus unpleasant (7). As expected, men found warfare to be more exciting (3.06 versus 3.83), more useful (4.00 versus 4.71), and less unpleasant (6.35 versus 6.61) than women.

There also appear to be a consistent sex difference in the support for warfare in opinion polls. We inspected the poll data of an ICM/Guardian survey measuring the support for the war in Afghanistan conducted among the British public in the autumn of 2001 (<http://image.guardian.co.uk/sys-files/Politics/documents/2001/11/19/guard-war.xls>). On the question “Do you approve or disapprove of the military action by the United States and Britain against Afghanistan” 76% of men and 56% of women approved.

Given that intergroup conflict is primarily a male activity, any adaptive cognitive and emotional responses (i.e., attributions of hostile intent, prejudicial reactions) concerning outgroup members should be specific to *male* outgroup members. One set of studies tested this hypothesis using an intriguing methodology. Termed *functional projection*, Maner et al.

(2005) proposed that people may tend to perceive anger in the faces of outgroup members (especially male outgroup members), even if those people are holding neutral expressions. In two studies, Maner et al. (2005) found that experimentally heightened self-protective motive (which involved showing participants scenes from the movie *Silence of the Lambs*) increased the tendency among White American participants to perceive anger in the faces of Black men and Arab men (but not in the faces of White men or women). In real-world contexts, not only are outgroup females not feared or avoided, they are often treated by men as spoils of intergroup conflict. There are all too many examples of women being abducted and raped during war.

Ingroup Helping and Sacrifice

The male warrior hypothesis also predicts a difference in reactions to outgroup threats. More specifically, it predicts that men (more than women) ought to be relatively more willing to help their ingroup during intergroup competition. To test this prediction, Van Vugt et al. (2007) conducted a series of public good experiments in which individuals could contribute to a group fund and, depending on how much each member contributed, receive a return from their investment. Contributing in these games is essentially an altruistic act, because it is not certain whether one gets a return from the group fund (De Cremer & Van Vugt, 1999). Van Vugt et al. (2007) created two game conditions. In the interpersonal condition, participants played the normal public good game; in the intergroup condition, participants ostensibly played the game against groups from other universities. As predicted, more men contributed their endowment to the group in the intergroup than interpersonal condition (92% versus 57%); women appeared not to be affected by this manipulation (53% versus 51%).

Attitudes toward Bravery and Heroism

Buss (1999) reported a study in which students were asked the extent to which they valued various traits in others—such as physical bravery, heroism, risk-taking, pain tolerance

—that could be seen as proxies of warrior characteristics. His findings suggest that these attributes are valued in men more than in women. Another study found striking differences in the frequency with which male and female students test their fighting prowess, by, for instance, arm wrestling or throwing objects at targets (Fox, 1997). Almost 30% of men in this sample indicated that they tested their fighting abilities daily, compared with only 5% of women. In addition, a review of differences in helping behavior between men and women found that men were more likely to engage in more heroic, risky, and physically demanding forms of helping (Becker & Eagly, 2004)—in other words, the kind of helping associated with bravery in intergroup conflict.

Between-Group Hierarchies

Another prediction from the male warrior hypothesis is that men should have a relatively stronger preference for between-group hierarchies, the outcome of intergroup competition. According to *social dominance theory* (Sidanius & Pratto, 1999), groups in society compete for scarce resources, and as some groups are more successful than others, a social status hierarchy emerges in which some groups have greater access to resources than others. This is analogous to the individual dominance hierarchy that we find within other species such as the lion, wolf, or gorilla. Sidanius, Pratto, and their colleagues created a *social dominance orientation* (SDO) scale, which measures people's dispositional preferences for between-group hierarchies. Sample items from this questionnaire are, "To get ahead in life, it is sometimes necessary to step on other groups," "Inferior groups should stay in their place," "Group equality should be an ideal," and "We should do what we can to equalize conditions for different groups" (the latter two items are reverse scored). We administered the SDO scale (1 = low dominance, 7 = high dominance) to our internet sample and found that men scored significantly higher on social dominance than women (2.56 versus 2.28; for a similar result see Pratto, Sidanius, Stallworth, & Malle, 1994).

Social Identity

If the male warrior hypothesis is valid, it suggests that there may be differences in the way social identities are formed among men and women. In particular, one would expect that men's social identities are relatively more intergroup based (i.e., based on favorable comparisons with outgroups). The male warrior experimental data by Van Vugt et al. (2007) suggest that this might be the case. In the intergroup condition, the rise in group contributions among men was mirrored by an increase in group identification (intergroup versus interpersonal conditions: 6.56 versus 4.27; group identification was measured on a 9-point scale). This was not true for women as their group identification remained relatively stable across the intergroup and interpersonal (5.06 versus 4.80).

Along similar lines, Baumeister and Sommer (1997) suggested that men's need to belong is satisfied more by the broader social structure—specifically, “the male quest for belongingness may emphasize hierarchies of status and power” (p. 39). On the other hand, women's need to belong is satisfied more through interpersonal dyadic bonds (see also Gabriel & Gardner, 1999).

Another preliminary finding that might give us some insight into men and women's social identity is an experiment we conducted recently on preference for colors. We asked a convenience sample of 24 men and 30 women to pick their favorite color and tell us why this was their favorite color. A significantly higher proportion of men than women (42% versus 17%) chose a color associated with a tribal ingroup—such as their favorite sports team, flag of country, brand color of University.

Developmental Sex Differences

A final set of findings pertaining to the male warrior psychology has to do with differences between boys and girls in their social play activities. Research conducted in schools and playgrounds in the 1970s found that boys were more likely to engage in

competitive, complex team games involving larger numbers of children and different groups (Lever, 1976). This difference is paralleled by sex differences in friendships. Whereas girls tend to have stable and exclusive friendships with other girls, boys' friendships are more fleeting and less exclusive (Eder & Hallinan, 1978), which is useful for building coalitional alliances for the purpose of intergroup competition.

Alternative Theories, Implications, and Concluding Thoughts

We began this chapter by noting that humans are a tribal species. We put forward different evolutionary hypotheses to explain our distinctive ingroup–outgroup psychology. The tribal instinct hypothesis proposes that humans have evolved a specific intergroup psychology, which is the product of an evolutionary history of managing intergroup relations. This hypothesis is superior, we believe, to alternative explanations that see our intergroup psychology as a byproduct of some other evolved capacity (e.g., stimulus categorization, sharing with ingroup members). The tribal instinct hypothesis uniquely predicts differences between the sexes in intergroup psychology as a function of different selection pressures operating on men and women. The behavioral and attitudinal data that we presented on the male warrior effect are consistent with this hypothesis: Men are more prone to respond to intergroup threats, for example, by preferentially helping ingroups.

Alternative Theories

Nevertheless, we should consider alternative explanations for these findings, such as theories that focus on gender roles (e.g., Eagly & Wood, 1999). Essentially, gender-role theories suggest that because of anatomical differences between the sexes (e.g., men having more upper-body strength, women having to bear children), women and men have historically filled different roles, leading to socialization practices that shape boys and girls to develop different psychological characteristics. In a nutshell, the male warrior hypothesis points to

natural selection as the origin of psychological differences between women and men; gender-role theories point to socialization.

From a logical standpoint, it seems extremely unlikely that evolution would shape such distinct and highly specialized male and female anatomies while leaving the psychologies untouched. This sort of Cartesian mind–body dualism is no longer tenable. Evolutionary biology and psychology have convincingly shown that selection operates on all aspect of an organism’s phenotype—including their physique, brains, and behavior—and there is a wealth of data to support this (Alcock, 2004; Dawkins, 1998). The simple fact is that there have been different patterns of selection pressure on males and females, not only during human evolution, but long before the emergence of hominids. And the consequences of such different selection pressures can be observed across the animal kingdom today, in sex-differentiated patterns of behavior in species that simply cannot be said to have “gender roles.” It is thus a major conceptual leap to suggest that human sex differences are unique in the animal kingdom, being dependent entirely on socialization.

Practical Implications for Real Intergroup Settings

The tribal instinct hypothesis and the male warrior hypothesis have several implications for understanding real-world intergroup conflict and for devising interventions to promote more harmonious intergroup relations. As illustrated by the recent empirical findings, these hypotheses provide us with new insights into why certain kinds of intergroup settings arouse especially strong responses among people, and why those responses so often involve fear, danger-relevant stereotypic beliefs, and desire to avoid outgroup members if at all possible. Although intervention methods based on the notion of social identity show promise (e.g., Crisp & Hewstone, 2007; Gaertner & Dovidio, 2000; Fiske, 2002), the tribal instinct hypothesis explains why actual prejudice reduction in the real world is often easier said than done. In modern life, many kinds of outgroups (ethnic outgroups, national outgroups,

religious outgroups) likely tap into the psychology of tribal alliances, and thus, prejudice against such outgroups are, not surprisingly, highly resistant to intervention.

Of course, our hypotheses do not imply that reducing intergroup conflict is hopeless. In fact, our hypotheses offer some specific directions regarding the kinds of efforts that are most likely to pay off. Most obviously, to the extent that resources are limited, efforts toward reducing intergroup conflict should be focused on men more than women, and on male outgroup targets more than female outgroup targets. And because certain groups are more strongly associated with danger-relevant stereotypes (e.g., Muslim men), interventions might focus on people's perceptions of those groups.

Furthermore, one way automatic bias might be reduced is by removing the heuristic perception that certain cues signal coalitional alliances. The research by Kurzban et al. (2001) is illustrative. It has been observed that people have a tendency to automatically categorize others on the basis of race. According to Kurzban et al., this is not because of any evolutionary relevance of "race," but because race-related features are perceived (often incorrectly) as cues for coalitional alliances. Kurzban et al. demonstrated that by providing other, more valid cues of coalitions, people's tendency to automatically categorize according to race could be eliminated. An interesting implication is that one way to reduce intergroup conflict is by reducing people's over-perceptions of coalitional alliances in their social world.

The concept of functional flexibility also offers some insights. To the extent that information connoting danger enhances negative reactions toward outgroups (e.g., Schaller, Park, & Faulkner, 2003), it might be useful to cut down the prevalence of such information in our environments, especially when such information unnecessary heightens people's fears. Indeed, there is evidence of a link between exposure to crime news and fear of violence (Smolej & Kivivuori, 2006). Similarly, to the extent that individual differences in beliefs

about danger are associated with negative reactions, it might be useful to exercise prudence when teaching children about all the dangerous people in the world.

Finally, evolution teaches us that intergroup relations in humans are never static (unlike in many other species): Your enemy today can be your friend tomorrow and vice versa (Keegan, 1994). To cope with these uncertainties, humans have likely evolved a flexible tribal psychology that enables them to form coalitions to compete as well as cooperate with other groups, depending upon the assessment of costs and benefits. For instance, in the face of a formidable enemy, it would make sense for minority groups to forge alliances with others despite previous hostilities. Similarly, dominant groups are sometimes better off helping a subordinate group to assert their dominance rather than starting a potentially costly conflict. This requires psychological mechanisms for peacemaking and peacekeeping between groups, which humans abundantly possess. For instance, acts of helping and reconciliation—such as exchanging gifts and making apologies—are common in relations between human groups (Hardy & Van Vugt, 2006; Nadler & Halabi, 2006; Van Leeuwen, 2007). Furthermore, humans have the capacity to form cross-group reciprocal arrangements, via friendships or intermarriage, which can be another powerful tool for peacemaking.

Thus, although humans have a dark side, history teaches us that progress is possible, if sometimes slow. One might be able to temporarily disregard our darker side by denying our evolutionary history. But having a clear idea of what we are up against is indispensable, if we are serious about improving the human condition.

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