

The Male Warrior Hypothesis

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Abstract

The social science literature abounds with examples of human tribalism, the tendency to categorize individuals on the basis of their group membership and treat ingroup members benevolently and outgroup members malevolently. I argue that this tribal inclination is an evolved response to the threat of coalitional aggression and intergroup violence that were endemic in ancestral human environments (and are still common today). Here I hypothesize that intergroup conflict has profoundly affected the psychology of men in particular – the male warrior hypothesis -- and present evidence consistent with this claim. I also discuss implications of this hypothesis for managing intergroup relations in our society.

The Male Warrior Hypothesis

Alien biologists collecting data about different life forms on Planet Earth would no doubt come up with contradictory claims about human nature. They would witness the human capacity to help complete strangers in sometimes large groups, yet they would also observe many incidents of extreme violence, especially between groups of males. To make sense of the data, the alien researchers would probably conclude that humans are a fiercely tribal social species. Some time ago, Charles Darwin speculated about the origins of human tribal nature: “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.” (1871, p. 132). Unfortunately Darwin’s brilliant insight was ignored for more than a century by fellow scientists, yet it is now gaining impact. Here I offer an evolutionary perspective on the social psychology of intergroup conflict, offering new insights and evidence about the origins and manifestation of coalitional and intergroup aggression.¹

Social scientists are increasingly adopting an evolutionary approach to develop novel hypotheses and integrate data on various aspects of human social behaviour (Barkow et al., 1992; Buss, 2005; Van Vugt & Schaller, 2008). The evolutionary approach is based on the premise that the human brain is a product of evolution through natural selection in the same way as our physiology has been selected for. Evolutionary-minded psychologists further propose that the human brain is essentially social, comprising many functionalized mechanisms – or adaptations -- to cope with the various challenges of group living (Dunbar, 1993). One such specialized mechanism is coalition formation. Forming alliances with other individuals confers

considerable advantages in procuring and protecting reproductively relevant resources – such as food, territories, mates, or off-spring – especially in large and diverse social groups. Coalitional pressures may have led in human evolution to the emergence of some rather unique human traits such as language, theory of mind, culture, and warfare. It has been argued that ultimately the need to form ever larger coalitions spurred the increase in human social network size and led to a concomitant brain size in order to hold these networks together and deal effectively with an intensified competition for resources – this has been dubbed the Machiavellian Intelligence hypothesis, the Social Brain hypothesis, or the Social Glue hypothesis (Byrne & Whiten, Dunbar, 1993; Van Vugt & Hart, 2004). According to these hypotheses, our social brain is therefore essentially a tribal brain.

In searching for the origins of the human tribal brain it is useful to make a distinction between *proximate* and *ultimate* causes. An act of intergroup aggression such as war, terrorism, gang-related violence or hooliganism could be explained at two different levels at least. First, why did this particular group decide to attack the other? This proximate question interests most sociologists, political scientists, historians, and social psychologists studying social conflict. Second, one could ask why humans have evolved the capacity to engage in intergroup aggression – this ultimate question interests mostly evolutionary-minded psychologists and anthropologists. Addressing questions at different levels produces a more complete picture, but these levels should not be confused (Buss, 2005; Van Vugt & Van Lange, 2006).

In terms of ultimate causes of intergroup aggression, there are three classes of explanations generally invoked (Kurzban & Neuberg, 2005; Van Vugt, 2008). The first treats it as a by-product of an adaptive in-group psychology. Being a highly social and cooperative species, humans likely possess tendencies to favour helping

members of in-groups (Brewer, 1979; Brewer & Caporael, 2006; Tajfel & Turner, 1979). As a by-product of this ingroup favoritism people show either indifference or (perhaps worse) a dislike for members of out-groups. An alternative by-product hypothesis views intergroup aggression as an extension of interpersonal aggression. The argument is that humans have evolved specialized mechanisms to engage in aggression against conspecifics and these mechanisms have been co-opted to cope with a relatively novel evolutionary threat, namely aggression between groups (Buss, 2007). The third class focuses explicitly on an adaptive intergroup psychology. The argument is that humans likely evolved specific psychological mechanisms to interact with members of out-groups because such situations posed a significant reproductive challenge for ancestral humans. This latter hypothesis accounts for the highly textured social psychology of intergroup relations and is therefore more persuasive. For instance, people do not have some hazy negative feeling toward an outgroup; in some instances, outgroups motivate a desire to approach or avoid and in other instances, to fight, dominate, exploit, or exterminate.

Recent work on prejudice and intergroup relations recognizes this textured nature of intergroup psychology and has generated many new insights and empirical findings consistent with this view (Cottrell & Neuberg, 2005; Kurzban & Leary, 2001; Schaller et al., 2003; Sidanius & Pratto, 1999; Van Vugt et al., 2007; Van Vugt & Park, 2009). Given the complexity of intergroup relations there are probably many different adaptive responses pertaining to the nature and type of intergroup challenge. From an evolutionary perspective, it becomes clear that not all intergroup situations are equal because not all outgroups are equal. For instance, not all outgroups consist of coalitions of individuals who engage in coordinated action—think of the homeless, the elderly, or people with blue eyes. Humans are likely to have evolved coalition-detection mechanisms that are responsive to various indicators of tribal

alliances (Kurzban et al., 2001). As Kurzban and Leary (2001) note, “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). In modern environments, heuristic cues such as skin color, speech patterns, and linguistic labels—regardless of whether they actually signal tribal alliances—may engage these mechanisms (Kurzban et al., 2001; Schaller et al., 2003). Perhaps equally important, many other salient cues—gender, age, eye color—may be far less likely to engage this tribal psychology. We should note that although this tribal psychology likely evolved in the evolutionary context of competition for resources (such as territories, food, and mates) this does not imply that it is contemporarily activated only within contexts involving actual intergroup conflict as proposed, for instance, by realistic conflict theory (Campbell, 1965).

The specific psychological reactions of individuals in intergroup contexts should further depend on whether one’s group is the aggressor. For the aggressors, desires to dominate and exploit—and the associated psychological tendencies—would be functional. For the defending party, desires to yield, avoid or make peace—and the associated psychological tendencies—would be functional. Of course, in many situations, a group’s position as being the dominant or subordinate party is transient or ambiguous so it is likely that the two psychological tendencies are activated in similar situations by similar cues and moderated by similar variables (social dominance theory; Sidanius & Pratto, 1999).

The Male Warrior Hypothesis

An important implication of this evolutionary tribal brain hypothesis is that intergroup conflict may have affected the psychologies of men and women differently. Intergroup conflict has historically involved rival coalitions of males fighting over

scarce reproductive resources (Keegan, 1994), and this is true for early humans as well as chimpanzees, our closest genetic relative (Chagnon, 1988; De Waal, 2006; Goodall, 1986a). Men are by far the most likely perpetrators and victims of intergroup aggression, now and in the past. As a consequence, this aspect of coalitional psychology is likely to be more pronounced among men, which we dubbed the *male warrior hypothesis* (MWH; Van Vugt et al., 2007; Van Vugt & Park, 2009). This hypothesis posits that due to a long history of male-to-male coalitional conflict men have evolved specialized cognitive mechanisms that enable them to form alliances with other men to plan, initiate, execute and emerge victorious in intergroup conflicts with the aim of acquiring or protecting reproductively relevant resources.

Evolutionary Models

The MWH fits into a tradition of evolutionary hypotheses about gender differences in social behavior. There is already considerable evidence for gender differences in morphology, psychology, and behavior that are functionally related to different selection pressures operating on men and women throughout human, primate, and mammal evolution (Campbell, 1999; Eagly & Wood, 1999; Geary, 1998; Taylor et al., 2000; Short & Balaban 1994). Due to a combination of differences in parental investment and parental certainty men and women pursue somewhat different mating strategies (Buss & Schmitt, 1993; Trivers, 1972). In humans -- as in most other mammals -- mothers invest more heavily in their off-spring and, as a consequence, it will be physiologically and genetically costlier for women to be openly aggressive (Archer, 2000; Campbell, 1995; Taylor et al., 2000). Yet, as the less investing sex and under the right conditions it can be attractive for men to form aggressive coalitions with the aim of acquiring and protecting valuable reproductive resources.

Tooby and Cosmides' (1988) risk contract hypothesis specifies four conditions for the evolution of coalitional aggression, which underscores the evolutionary logic of the hypothesized gender differences in warrior psychology. First, the average long-term gains in reproductive success (i.e., mating opportunities) must be sufficiently large to outweigh the average costs (i.e., injury or death). Second, members of warfare coalitions must believe that their group is likely to emerge victorious in battle. Third, the risk that each member takes and the importance of each member's contribution to victory must translate into a corresponding share of benefits (cf. the free-rider problem). Fourth, when individuals go into battle they must be cloaked in a "veil of ignorance" about who will live or die. Thus, if an intergroup victory produces, on average, a 20% increase in reproductive success then as long as the risk of death for any individual coalition member is less than 20% (say 1 in 10 die) such warrior traits could be selected for. This model assumes that the spoils of an intergroup victory are paid out in extra mating opportunities for the individual males involved and thus it is essentially an individual selection model based on sexual selection.

Alternatively, a specific male warrior psychology could have evolved via group-level 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 noted (see earlier quote) groups of selfless individuals do better than groups of selfish individuals. Although participating in intergroup conflict is personally costly -- 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. In a recent empirical test of this model, Choi and Bowles (2007) showed via computer simulations that altruistic traits can spread in populations as long as there is competition between

groups and altruistic acts benefit ingroup members and harm outgroup members (parochial altruism)

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). Ancestral human groups are likely to have been based around male kin members, with females moving between groups to avoid inbreeding (so-called patrilocal groups). This offers a complimentary reason for the evolution of male coalitional aggression because the men are more heavily invested in their group, hence, they have more to lose when the group ceases to exist. In addition, the collective action problem underlying coalitional aggression is less pronounced when group members' genetic interests are aligned. Incidentally (but perhaps not coincidentally), the same patrilocal structure is found in chimpanzees and male chimpanzees 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 male warrior instincts (Richerson & Boyd, 2005). In fact, many of the evolved propensities for coalitional aggression 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 suppress male warrior tendencies – so-called peaceful societies -- or turn females into dedicated warriors. A modern day example of the latter is the state of Israel which is involved in a continuous war with its Arab neighbors. To increase its military strength Israel has a conscription army of both men and women and it currently has the most liberal rules regarding the participation of females in actual warfare (Goldstein, 2003). We

would expect the socialization practices among Israeli girls to match those of boys, potentially attenuating any innate psychological differences.

Evidence for the MWH from across the Behavioral Sciences

Evidence for various aspects of this male warrior phenomenon can be found throughout the behavioral science literature, for instance, in anthropology, history, sociology, political science, biology, psychology and primatology. As stated, across all cultures, almost any act of intergroup aggression is perpetrated by coalitions of males, for instance, in situations of warfare, genocide, rebellion, terrorism, street-gangs, and hooligan violence (Atran, 2003; Browne, 2007; Goldstein, 2003; Livingstone Smith, 2007). Evidence of male-to-male coalitional aggression goes back as far as 200,000 years ago (e.g., mass graves containing mostly male skeletons with evidence of force; Keeley, 1996). Men are also the most likely victims of intergroup aggression. On average male death rates due to warfare among hunter-gatherers are 13% (according to archaeological data) and 15% (according to ethnographic data; Bowles 2006), suggesting a relatively strong selection pressure on male warrior traits. The figure is sometimes even higher. Among the Yanomamö in the Amazon Basin an estimated 20-30% of adult males die through tribal violence (Chagnon, 1988). (This compares to less than 1% of the US and European populations in the 20th century). Finally, the primate literature reveals that among chimpanzees adult males form coalitions to engage in violence against members of neighbouring troops. This suggests that there is phylogenetic consistency between humans and one of our most closely related species (Wilson & Wrangham, 2003).

Male warriors in traditional societies have higher status, more sexual partners and more children (Chagnon, 1988), suggesting a direct reproductive benefit -- Richard Dawkins labelled this the “Duke of Marlborough” effect (1976). The sexual attractiveness of the male warrior might still be operative in modern society. A US-

study revealed that male youth street gang members have more sexual partners than ordinary young males (Palmer & Tilley, 1995). We recently found that military men have greater sex appeal especially if they have shown bravery in combat (Leunissen & Van Vugt, 2010). Thus, there may be reputational benefits associated with “warrior” behaviors in men (cf. competitive altruism; Hardy & Van Vugt, 2006).

In light of the support for the MWH it is noteworthy that many published intergroup studies in social psychology do not report the results for men and women separately and some only use male samples. One of the classic social psychological study, the Stanford prison experiment (Zimbardo, 1971), which highlighted some disturbing aspects of human coalitional aggression used an all male sample. Team game experiments also often use all male groups (e.g., Goren & Bornstein, 2000). In a personal communication, one of the authors of this study (Bornstein 2006) suggested that pilot research showed that female groups were less competitive.

Psychological Mechanisms Underlying Male Warrior Phenomenon

The MWH offers an integrative, conceptual framework in which findings from diverse literatures can be woven into a coherent story. However this approach runs the risk of being a “just so” story about the role of coalitional aggression in human evolution. It would be much better if we could make specific predictions about gender differences in the psychological mechanisms underlying this warrior psychology and test these predictions in carefully controlled studies. If men have a more pronounced warrior psychology we should expect them to think and feel differently about intergroup conflict and be more likely to plan, support, and commit acts of intergroup aggression (Van Vugt & Park, 2009). In addition, men in groups should make adaptive intergroup choices depending upon information about the sex, size and formidability of the outgroup. For instance, they should respond with anger and aggression towards a numerically weaker outgroup and with fear and avoidance to a

stronger outgroup (especially an all-male group). Finally, these reactions are likely to be produced automatically and spontaneously

To test various aspects of the male warrior hypothesis and find evidence for gender differences in evolved psychological mechanisms I will present some research findings pertaining to various domains such as (1) frequency and likelihood of aggression toward out-groups; (2) protection of ingroup against external threats; (3) likelihood of political support for intergroup aggression; and (4) tribal social identifications. By and large, these studies provide preliminary support for the male warrior hypothesis, yet much work still remains to be done.

1. Propensity for Intergroup Aggression

A first prediction from the MWH is that men should, on average, have a lower threshold to engage in acts of intergroup aggression when given the opportunity. We tested this in various ways. First, we examine how men and women make decisions in war games simulated in the laboratory. Upon being told that they are the leader of a fictitious country interacting with leaders of other countries, a study by Johnson et al. (2006) found that men are significantly more likely to attack another country without provocation (a so called “pre-emptive strike”). Moreover, warfare is most intense when men are playing against other men despite not knowing the sex of their rivals. The lower threshold for intergroup aggression may be due to expectations of success. Indeed men held more positive illusions about winning these simulated intergroup conflicts, a belief that increased the probability that they would attack their opponent (Johnson et al., 2006). Another study analyzing the same dataset found that more male-typical 2D:4D digit ratios, which are thought to index pre-natal testosterone exposure, predicted aggression in the wargame experiments over and above sex. These gender differences also emerge when individuals play economic games

between groups: All male groups tend to be more competitive than all female groups or mixed-sex groups (Wildschut et al., 2003).

Second, there is ample evidence that men and women differ in their involvement in acts of inter-group aggression outside the laboratory (Pemberton et al., 1996). When asked to indicate the frequency of various categories of social interactions over the past month men reported more group-to-group interactions ($M = 18.47$, $SD = 73.48$) than women ($M = 12.77$, $SD = 59.68$). Furthermore, men rated these interactions as more competitive ($M_{\text{male vs. female}} = 3.17$ vs. 2.31 , SD 's = 2.50 and 2.22 ; scale is $1 = \text{very cooperative}$, $5 = \text{very competitive}$).

Thus, consistent with the MWH, men experience intergroup competition more often, they have a lower threshold to start an intergroup conflict and are more optimistic about winning such conflicts.

2. Intergroup Prejudice and Stereotyping

The MWH further predicts that men are more likely to be prejudiced and openly discriminate against members of out-groups especially out-groups that can be viewed as coalitional threats. One manifestation of outgroup prejudice is infrahumanization, the tendency to consider members of outgroups sub-human or animal-like, which is often a precursor of intergroup violence (Haslam, 2006; Leyens et al., 2001). The evolutionary logic is that by considering outgroups as psychologically inferior it will be psychologically easier to treat them badly. In a recent study (Van Vugt et al., 2008), men and women -- all Christians -- were asked to describe a Christian or Muslim target using either human typical (e.g., civil) or animal typical (e.g., feral) words. Christian men were more likely to describe the Muslim target in animal-typical ways, thus showing evidence of infra-humanization. The MWH also predicts that infra-humanization strategies are most likely in male-to-male intergroup contests but this remains to be tested.

Men also show other intergroup biases such as racism and xenophobia more readily and especially in threatening situations. Several experiments yield a greater sensitivity of out-group stereotypes for in-group men, especially under conditions of inter-group conflict (Gerard & Hoyt, 1974; Sidanius, Cling, & Pratto, 1991; Watts, 1996). Mark Schaller, Justin Park and colleagues (Schaller, Park, & Mueller, 2003) have shown that men use danger-relevant stereotypes toward outgroup members more when influenced by cues of ambient darkness. Finally, the notorious out-group homogeneity effect disappears when in-group members are shown angry faces of outgroup males but not females (Ackerman et al., 2006), which is consistent with the idea that outgroup males pose a heightened threat.

These findings support the MWH in that men are more likely to be prejudiced against members of outgroups especially when these constitute a coalitional threat and in addition out-group men are more likely to be discriminated against.

3. Protecting the Group Against External Threats

The MWH also expects the presence of psychological mechanisms that enable men to protect their ingroup against external threats. To defend the group requires that people bond together and help the ingroup (Brewer & Brown, 1998; Van Vugt et al., 2007). Based on the MWH we hypothesize that during intergroup conflict particularly men will step up their efforts to help the in-group. Consistent with this prediction, in public good games we found that men raised their group contributions but only when we activated competition between groups (Van Vugt et al., 2007). In Exp. 1 Van Vugt et al. found that during intergroup competition 92% of men contributed to the public good but only 53% of women. In addition, men showed greater ingroup loyalty by sticking with the group even if it was more (financially) attractive to leave (Van Vugt et al., 2008). As a proxy for ingroup cohesion, men were also more likely to increase their identification with the group under conditions of

intergroup conflict. It remains to be seen whether men are also more likely altruistic punishers of free-riding group members during intergroup conflict as the MWH would predict.

Males are also more likely to be chosen as group leaders during intergroup conflict. Van Vugt and Spisak (2008) found that when two equally suitable candidates of different sexes, Sarah and John, vied for the position of group leader in an intergroup conflict groups preferred the male leader (78%). The male leader was also more effective in eliciting followers' group contributions during intergroup threat. (Interestingly, when the problem shifted towards conflict within the ingroup virtually all groups preferred the female leader).

Preference for Hierarchies

There is some evidence that male groups have a different group dynamics that make them more suitable to engage in coalitional aggression. Whereas female groups are more egalitarian, groups of males form more hierarchical groups and these hierarchies tend to be more stable over time. The difference in group structure corresponds with gender differences in leadership style (Eagly & Johnson, 1990; Van Vugt, 2006). Military specialists assume that hierarchy formation is an effective response in dealing with intergroup conflict that requires an urgent, coordinated response (Keegan, 1994).

Research on developmental differences in social play reflects the male warrior tendencies. Boys play in larger groups than girls and more often play complex competitive team games, which sometimes involve the use of weapons such as toy guns and swords (Geary, 1998). Boys also put greater social pressure on team members to conform to group norms during play activities (Sherif et al., 1961) and they have more transient friendships with a larger number of peers than girls (Geary, 1998). Thus, consistent with the MWH, men have psychological mechanisms that

enable them to work in and function better in larger and more hierarchically structured groups and the primary function of such group structures is to compete with other groups.

Support for Tribal Politics

The MWH further predicts gender differences in political attitudes towards inter-group conflict. We hypothesize that men would show relatively stronger political support for warfare as a solution to international conflict because they have more to gain potentially (at least in ancestral times) from intergroup conflict. We tested this prediction using data from a random selection of 10 recent national and international opinion polls that we were able to find on the Internet and found consistent gender differences (sometimes large, other times small but always in the same direction). For instance, a Washington Post-poll in 2003 ($N = 1,030$) asked the question “Do you support the US having gone to war in Iraq?” to which 82% of men agreed versus 72% of women. As another example, a recent poll by Gallup News ($N = 7,074$) found that 46% of men (vs 37% of women) disagreed with the statement “Do you think the Iraq war was a mistake.”

The MWH also expects men to have a stronger preference for between-group dominance hierarchies, the inevitable outcome of intergroup conflict. To test this prediction, we asked an international survey of people to complete the short 10-item social dominance orientation scale (Pratto et al., 1994). This 7-point scale contains items such as “Some groups of people are simply inferior than others;” “We should do what we can to equalise conditions for different groups” “To get ahead in life, it is sometimes necessary to step on other groups. Consistent with other data (Pratto et al., 1994) we found that men were significantly more socially dominant ($M = 2.56$, $SD = 1.13$) than women ($M = 2.28$, $SD = 1.0$).

Thus, in agreement with the MWH, men are generally more belligerent in their tribal politics.

Tribal Social identity

A final prediction from the MWH is that men's personal self-concept should be affected more strongly by their affiliations to tribal groups. In contrast, women's self-concept should be influenced primarily by having meaningful connections with close others. Men have indeed a more collective sense of self which is more strongly derived from their group memberships and affiliations (Baumeister & Sommer, 1997). Gabriel and Gardner (1999) asked students to describe themselves by completing the statement "I am..." They found that male students were twice as likely to make statements referring to a tribal association (e.g., "I am a member of a fraternity").

In a recent study (Van Vugt et al., 2008) we asked 100 people around the University of Kent campus to indicate their favorite color and to explain why they picked this particular color. Among men, almost 30% mentioned a tribal association (e.g., their favorite football team, the colors of the flag of their country of origin); none of the women did so.

Thus, men's social identity seems to be more strongly based on their tribal affiliations than women's, which is consistent with the MWH.

Implications for Intergroup Relations

I presented a framework for studying the psychology of intergroup aggression from an evolutionary perspective. This analysis suggests that not all intergroup relations are alike because not all outgroups are alike. How groups interact with each other is determined by the specific contextual threats and opportunities. When such challenges correspond to evolutionarily relevant threats—threats that were significant enough in ancestral social environments that humans have evolved to deal with

them—they activate a specific tribal psychology. Here I argued that a history of coalitional aggression has produced a distinct human tribal brain including an interrelated set of functional cognitive and behavioral reactions to attack and defend against members of outgroups. Furthermore, as the most likely perpetrators and victims, I hypothesized that the male psychology has been particularly affected by intergroup conflict episodes and dubbed this the male warrior hypothesis. I reviewed the literature on gender differences in intergroup psychology in light of predictions from the male warrior hypothesis and found them to be generally supportive. Further tests are needed.

In addition to intergroup conflict there might be a host of other significant ancestral challenges involving other groups which I did not discuss here. Disease avoidance is one such threat and we would expect a different set of functional responses to a contagion threat rather than a physical threat from an outgroup, for instance, behavioural avoidance rather than aggression. When a disease threat is salient perhaps women respond more strongly. There is some evidence that women are more prejudiced towards strangers when in their most fertile menstrual phase (Navarette et al., 2007). In general, we know very little about the intergroup psychology of females. In addition, the neuroscience underpinning gender differences in intergroup psychology ought to be examined -- for instance, which hormonal differences drive these gender differences in tribal psychology?

The evolutionary framework makes various suggestions for interventions to improve intergroup relations. When outgroups pose a coalitional threat interventions might be targeted specifically at male-to-male interactions because they are the most likely perpetrators and victims of intergroup aggression. In terms of their objectives, interventions will be particularly successful when they eliminate the sense of threat associated with a particular outgroup altogether. Attempts must be made to

individuate members of such outgroups, for instance, by accentuating their personal achievements rather than the achievements of their group. A second aim of interventions is to alter the perceptual cues that elicit threat responses towards particular outgroups such as new immigrant groups. For instance, language, dress code, and particular rituals or customs serve as tribal markers, and the less noticeable they are the more these outgroups will receive positive treatment. Thus, for the sake of attenuating the effects of coalitional psychology, it is important for societies to make it easier for new immigrant groups to adopt the language and customs of the ingroup. Third, interventions might be focused on changing the specific cognitive and affective responses towards outgroups. However, if it is true that these responses are evolved, then the link between threat and response might be difficult to inhibit or extinguish (cf. fear of snakes and spiders; Ohman & Mineka, 2001). Nevertheless, we suspect that frequent positive interactions with members of outgroups will over time reduce initial aversion or hostility. For instance, the Jigsaw class room experiments (Aronson & Bridgeman, 1979) demonstrate that cooperative relations between members of different ethnic groups are a good means of reducing prejudice.

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Footnote

¹I will use the terms coalitional and intergroup aggression interchangeably throughout this chapter. Although there is a difference in scale, both types of aggression involve individuals who as members of groups commit acts of aggression against members of other groups (Brewer & Brown, 1998).

Table

Table 1. The Male warrior hypothesis: Domains of evidence, hypothesized mechanisms, predictions, and support for gender differences.

Domain of evidence	Hypothesized mechanism	Prediction about gender difference	Supported
1. Intergroup aggression	Propensity to engage in intergroup aggression	Men are more likely to make unprovoked out-group attacks	Yes
		Men report having more (competitive) intergroup experiences	Yes
2. Inter-group prejudice	Infra/de-humanization of members of antagonistic outgroups	Men are more likely to infra-humanize members of out-groups	Yes
3. Intra-group dynamics	Ingroup cooperation in response to outgroup threat	Men contribute more to group during intergroup competition	Yes
		Ingroup loyalty during intergroup conflict	Men show more ingroup loyalty during inter-group conflict
		Male leadership bias in intergroup conflict	Groups show stronger preference for male leaders during intergroup competition
4. Tribal Politics	Political support for intergroup aggression	Men show stronger political support for warfare in opinion polls	Yes
		Preferences for social dominance hierarchies	Men score higher on social dominance orientation scale
5. Tribal social identity	Affiliation to tribal groups	Men are more likely to make spontaneous tribal associations when defining themselves	Yes