



Guns, germs, and tribal social identities: Evolutionary perspectives on the social psychology of intergroup relations

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**Guns, Germs, and Tribal Social Identities:
Evolutionary Perspectives on the Social Psychology of Intergroup
Relations**

Mark Van Vugt

University of Kent at Canterbury

Justin H. Park

University of Bristol

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Abstract

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A phenomenon of perennial interest to social psychologists is people's tendency to categorize others on the basis of group membership and to exhibit a preference for members of the ingroup relative to the outgroup. Recent work emphasizing the evolutionary functions of outgroup aggression, exploitation, and avoidance have shed new light on previously observed intergroup phenomena and generated many new empirical findings. We delineate two distinct evolved psychologies of intergroup relations and review recent research pertaining to each. One research line (on the psychology of warfare) focuses on the intergroup competition for resources; as we describe below, such competition—and the associated exploitative psychology—is more amplified among men. The other research line (on the psychology of disease avoidance) focuses on the need to avoid contagious disease. Because the threats posed by competitive versus disease-carrying outgroups are qualitatively distinct, the psychological reactions may also be qualitatively distinct.

Guns, Germs, and Tribal Social Identities:

Evolutionary Perspectives on the Social Psychology of Intergroup Relations

Though it may not be obvious to modern-day city dwellers, humans are a tribal species. Our tribal psychology shows up in many familiar guises. First, people make spontaneous ingroup–outgroup categorizations and favor ingroup over outgroup members in a wide variety of situations (e.g., Brewer, 1979; Tajfel & Turner, 1979). Second, even when ingroups are large, symbolic, and composed of mostly unfamiliar individuals, people readily identify with them and show ingroup loyalty, sometimes at great personal cost (e.g., Abrams et al., 1998; De Cremer & Van Vugt, 1999; Van Vugt & Hart, 2004; Zdaniuk & Levine, 2001); furthermore, people despise selfish and disloyal ingroup members, and they readily punish defectors (e.g., Fehr & Gächter, 2002; Marques et al., 1988). Third, and perhaps most relevant to our present thesis, people have a specific stance with respect to outgroups and intergroup situations. When intergroup relations are salient, people are automatically prejudiced against members of outgroups and find it easy to morally justify intergroup aggression and violence (Brewer & Brown, 1998; Fiske, 2002; Leach et al., 2003). Indeed intergroup contexts are often automatically perceived as competitive and hostile (Wildschut et al., 2003; Johnson et al., 2006).

Perhaps not surprisingly, these phenomena have occupied social psychologists for a long time, and there is no shortage of explanations for them. Broadly speaking, there are two classes of explanations. The first class focuses on people's ingroup psychology. Being a highly social and cooperative species, humans likely possess tendencies to exalt the ingroup (Brewer, 1979; Brewer & Caporael, 2006; Tajfel & Turner, 1979). As a byproduct of favoring ingroups, people will show indifference, or worse, a dislike for outgroups. The second class of explanations—the one that we endorse in this article—focuses explicitly on people's

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3 psychological dispositions with respect to outgroups. The argument is that humans likely
4 evolved specific adaptations for managing intergroup relations because such situations
5 provided important reproductive challenges for ancestral humans.
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10 As our objective is to advance the second class of explanations, we should clarify what
11 it has to offer, above and beyond what is offered by the “byproduct” explanations. First,
12 explanations that focus exclusively on the positive aspects—the benefits of sociality—and
13 treat negative aspects as a byproduct are missing something fundamental about how people’s
14 minds work. Human social life is full of threats as well as opportunities (Schaller et al., 2007),
15 and it is improbable that humans have evolved tendencies to extract benefits but not
16 tendencies to avoid costs. Indeed, looking across the spectrum of human experience, it is clear
17 that people do possess specific reactions to negative things, which are often more powerful
18 than reactions to positive things (Baumeister et al., 2001; Haselton & Nettle, 2006). There are
19 good evolutionary reasons for this: “Organisms that were better attuned to bad things would
20 have been more likely to survive threats and, consequently, would have increased probability
21 of passing along their genes” (Baumeister et al., 2001, p. 325).
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38 Second, and perhaps more important, explanations that treat negativity toward
39 outgroups as a byproduct cannot account for the highly textured psychological and behavioral
40 reactions to outgroups. People do not have some hazy negative feelings toward outgroups. In
41 some instances, outgroups motivate desires to dominate and exploit; in other instances, they
42 inspire desires to exclude and avoid. Recent work on prejudice, stereotyping, and intergroup
43 processes that recognizes this textured nature of intergroup psychology has generated many
44 new insights and empirical findings (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001;
45 Schaller et al., 2003; Sidanius & Pratto, 1999; Van Vugt et al., 2007). We provide more
46 specific examples below.
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Given the complexity of sociality and intergroup relations, there are probably many different psychological tendencies pertaining to interactions with different kinds of outgroups depending upon the specific challenges in a given interaction. In this article, we focus on two domains of intergroup contact—warfare and disease avoidance—and describe recent research pertaining to these two domains.

The Psychology of Warfare

Intergroup conflict is ancient. Not only was intergroup conflict common in human ancestral environments (Alexander, 1987; Tooby & Cosmides, 1988), there is evidence that chimpanzees, our closest genetic relative which are also a group-living species, are highly territorial and that their intergroup encounters are often hostile (Dugatkin, 1997; Goodall, 1986; Wrangham & Peterson, 1996). Fossil evidence of human warfare dates back at least 200,000 years, and it is estimated that as many as 20–30% of ancestral men died from intergroup violence (Keeley, 1996). Many present-day hunter–gatherer groups are just as territorial and violent (e.g., Chagnon, 1988; Eibl-Eibesfeldt, 1974; Kelly, 1995). Alexander (1987) argued that the biggest threat for early humans came from other groups, which instigated an evolutionary arms race to form ever larger coalitions. 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).

From the perspective of coalitional psychology, it becomes clear that not all intergroup situations are equal; indeed, 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, for example, “patterns of coordinated action, cooperation, and competition” (Kurzban et al., 2001). In modern environments, heuristic cues such as skin

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3 color, speech patterns, and linguistic labels—regardless of whether they actually signal tribal
4 alliances—may engage these mechanisms (Kurzban et al., 2001; Schaller et al., 2003).

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6 Perhaps equally important, many other salient cues—gender, age, eye color—may be far less
7 likely to engage the coalitional psychology. We should note that although this coalitional
8 psychology evolved in the evolutionary context of competition for resources (such as
9 territories, food, and mates), this does not imply that it is contemporarily activated only within
10 contexts involving actual intergroup conflict as proposed, for instance, by realistic conflict
11 theory (Campbell, 1965).
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22 Furthermore, the specific psychological reactions of individuals in intergroup contexts
23 should depend on whether one's group is in the position of exploiter or exploited. For the
24 would-be exploiters, desires to dominate—and the associated psychological tendencies—
25 would be functional. For the exploited, desires to avoid or yield—and the associated
26 psychological tendencies—would be functional. Of course, in many situations, a group's
27 position as exploiter or exploited is transient or ambiguous so it is likely that the two
28 psychological tendencies are activated in similar situations by similar cues and moderated by
29 similar variables (e.g., social dominance theory; Sidanius & Pratto, 1999).
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41 *The Male Warrior Hypothesis*

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43 An important implication of the warfare hypothesis is that intergroup conflict may
44 have affected the evolved psychologies of men and women differently. Intergroup aggression
45 has historically involved rival coalitions of males fighting over scarce reproductive resources
46 (Keegan, 1994), and this is true for early humans as well as chimpanzees (Chagnon, 1988; De
47 Waal, 2006; Goodall, 1986a). As a consequence, this aspect of human coalitional psychology
48 may be more pronounced among men, an idea we refer to as the *male warrior hypothesis*
49 (Van Vugt et al., 2007; Van Vugt & Park, in press).
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3 This hypothesis integrates many previously unconnected findings and generates many
4 novel predictions concerning sex differences in specific cognitive and behavioral reactions to
5 outgroups that can be tested using the social psychological literature. Men are expected to be
6 more belligerent than women—and they usually are. Men are generally more supportive of
7 warfare than women in opinion polls and have a stronger aesthetic preference for stimuli
8 involving intergroup conflict such as war and western movies (Van Vugt et al., 2008). When
9 playing war-games in the laboratory men are more likely to attack another country without
10 provocation, and warfare is most intense when men are playing other men despite not
11 knowing the sex of their rivals (Van Vugt et al., 2008). Men also have more positive illusions
12 about winning these simulated intergroup conflicts, which tends to perpetuate conflict
13 (Johnson et al., 2006). These sex differences also emerge when individuals play economic
14 games between groups: All male groups tend to be more competitive than all female groups or
15 mixed-sex groups (Wildschut et al., 2003).

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18 Critics could argue that these are manifestations of a greater tendency of men to be
19 aggressive and competitive in general—between groups and between individuals alike.
20 However, men and women are quite similar in levels of interpersonal aggression, although
21 they clearly differ in tactics with men being more physically aggressive and women more
22 verbally aggressive (Archer, 2000; Simpson & Van Vugt, in press). Furthermore, intergroup
23 aggression actually involves high levels of collaboration among ingroup members, and,
24 following the logic underlying the male warrior hypothesis, men are expected to cooperate
25 more with each other if there is intergroup competition. This is exactly the pattern we found in
26 a recent set of studies (Van Vugt et al., 2007). University students played public good games
27 in small groups in the laboratory either under conditions of interpersonal competition or
28 intergroup competition (an induced prestige competition between rival universities). Whereas

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3 women contributed more overall to their group, men contribute significantly more when their
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5 groups was competing with other groups.
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8 We further predict sex differences in cognitive manifestations of this intergroup
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10 conflict psychology. Although the evidence is premature, a number of recent studies show
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12 that men are more likely to inhumanize members of outgroups, particularly when these
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14 outgroups constitute a coalitional threat. In a recent study (Van Vugt et al., 2008), men and
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16 women, all Christians, were asked to describe a Christian or Muslim target using either
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18 human (e.g., civil) or animal-typical (e.g., feral) words. Interestingly, Christian men were
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20 more likely to describe the Muslim target in animal-typical ways, thus showing some
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22 evidence of inhumanization. We hypothesize that inhumanization is a functional
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24 response in aggressive intergroup encounters, as it is much easier to maltreat outgroup
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26 members when they are being considered less than human (cf. Haslam, 2006). It remains to be
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28 seen whether inhumanization strategies are particularly likely when outgroup targets are
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30 male, as the male warrior hypothesis would predict.
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36 There is some evidence that outgroup males are considered more threatening. A
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38 different functional response in dealing with outgroup members is to (mis)perceive aggressive
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40 intention in such people. Maner et al. (2005) termed this tendency *functional projection*, and
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42 they proposed that people are more likely to perceive anger in the faces of outgroup members,
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44 especially males, even if they are holding neutral expressions. In two studies, Maner et al.
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46 (2005) found that experimentally heightened self-protective motive (which involved showing
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48 participants scenes from the movie *Silence of the Lambs*) increased the tendency among
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50 White Americans to perceive anger in the faces of Black men and Arab men but not in the
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52 faces of White men or women. In another study involving only male targets, Ackerman et al.
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54 (2006) showed that the typical outgroup homogeneity effect—the tendency to think that
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3 outgroup members look alike—disappeared for angry outgroup faces. This makes sense, as
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6 individuating outgroup members becomes important in potentially aggressive situations.

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8 Finally, men and women differ in their tribal social identities. Men have a more
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10 collective sense of self that is more strongly derived from their group memberships and
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12 affiliations (Baumeister & Sommer, 1997). Gabriel and Gardner (1999) asked students to
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14 describe themselves by completing the statement “I am...” They found that male students
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16 were twice as likely to make statements referring to a tribal association (e.g., “I am a member
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18 of a fraternity”). In a recent study (Van Vugt et al., 2008) we asked 100 people around the
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20 University of Kent campus to indicate their favorite color and to explain why they picked this
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22 particular color. Among men, almost 30% mentioned a tribal association (e.g., their favorite
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24 football team, the colors of the flag of their country of origin); none of the women did so.
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29 Tribal identity formation probably kicks in at an early age. When children engage in
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31 social play, boys are more likely to play competitive team games involving larger coalitions
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33 and more complex rules, and they are less tolerant of individuals who do not adhere to these
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35 rules (Geary, 1998; Sherif et al., 1961). Boys also particularly dislike other boys who play
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37 with girls whereas the opposite is not true (Geary, 1998). We speculate that warrior
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39 tendencies follow a stable developmental trajectory in boys with the aim of preparing them
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41 for participation in coalitional aggression against members of outgroups.
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45 46 **The Psychology of Disease Avoidance**

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48 In addition to intentionally harming one another, people may inadvertently harm
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50 others via communicable pathogens. Communicable pathogens are particularly harmful for
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52 group-living species, especially as populations become denser (e.g., Nunn et al., 2003). For
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54 humans, evolutionarily unprecedented levels of population density have exacerbated the
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56 problem significantly. For urban-dwelling humans, the destruction caused by pathogens is
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58 staggering. Most notably, the “Black Death” in the 1300s killed 20 million people, and the
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3 “Spanish Flu” in the 1900s killed over 25 million people. And because affected groups of
4 humans quickly acquire heritable immunity to highly potent pathogens (so that they may
5 harbor the pathogens without dying), contact between previously divided populations has
6 been disastrous for many groups, such as the indigenous peoples of the American continents
7 (Diamond, 1997).
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15 In response to the selection pressure imposed by pathogens, host organisms have
16 evolved several defenses such as the immune system. But the problem is never fully dealt
17 with, because pathogens themselves evolve—at much faster rates than their hosts—the ability
18 to penetrate the defenses. Given that not all social interactions are likely to transmit pathogens,
19 it would have been adaptive for animals to evolve the capacity to detect pathogen-carrying
20 individuals and selectively avoid them (Kurzban & Leary, 2001; Loehle, 1995; Schaller &
21 Duncan, 2007). Indeed, aversion toward and avoidance of infected conspecifics has been
22 observed in many human and nonhuman animals (e.g., Crandall & Moriarty, 1995; Fincher et
23 al., 2008; Goodall, 1986b; Kavaliers & Colwell, 1995; Kiesecker et al., 1999).
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36 How do we know whom to avoid? After all, pathogens are invisible. Research
37 indicates that people respond to various bodily cues (e.g., lesions, rashes) that are correlated
38 with the presence of pathogens (Kurzban & Leary, 2001; Schaller et al., 2003). The
39 perception of such cues may then trigger specific emotional responses such as disgust (e.g.,
40 Curtis et al., 2004) and the activation of disease-relevant cognitions such as appraisals of
41 contagion and contamination (e.g., Rozin et al., 1986). Developmental psychologists have
42 found that the notion of contagion is something that children learn very quickly (Kalish, 1996;
43 Solomon & Cassimatis, 1999); among adults, the desire to avoid diseased others is correlated
44 with the perceived contagiousness of the disease (Bishop, 1991; Crandall & Moriarty, 1995).
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3 Cues are helpful, but they are not always accurate. Some conspicuous bodily cues (e.g.,
4 burn scars) do not signal the presence of pathogens, and some pathogens leave no mark. A
5 functional approach to such signal-detection problems (Haselton & Nettle, 2006) suggests that
6 it would have been more adaptive to be biased toward falsely inferring the presence of
7 pathogens when they are absent (rather than failing to infer their actual presence). As a result,
8 people may be biased toward inferring that healthy people are diseased, rather than the reverse.
9 An important implication is that any deviation from what is considered “normal” appearance
10 in a given society (even in the absence of contagious disease) may be interpreted as evidence
11 of infection, automatically triggering an aversive response (Kurzban & Leary, 2001; Schaller
12 & Duncan, 2007).

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27 Importantly, people’s automatic aversive response is likely to be functionally flexible.
28 Like physiological immune responses, behavioral responses entail costs as well as benefits.
29 They should thus be activated especially strongly when the benefits of avoiding disease are
30 high (and are likely to exceed the costs). Information concerning the benefits of avoidance
31 behavior may be present in the environment (e.g., outbreak of disease in the local area) or
32 within individuals (e.g., suppressed immune system). Simply put, the motivation to avoid
33 individuals bearing disease-connoting cues is expected to be particularly powerful among
34 people with heightened (perceived) susceptibility to pathogens (Schaller & Duncan, 2007).

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46 These implications have led to several lines of inquiry and interesting discoveries.
47 Several studies have investigated whether various physical “abnormalities” (disability, obesity,
48 facial birthmark, facial features associated with old age) may serve as pathogen-connoting
49 cues (Park et al., 2003, 2007; Duncan, 2005; Duncan & Schaller, 2008; Klaczynski, 2008).
50 Most relevant for the present article, heuristic cues of disease come not only in the form of
51 morphological deviation, but also in the form of cultural “outgroupness.” As noted above,
52 contact with members of other groups often introduced diseases to which individuals had no
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3 immunity (Diamond, 1997). For people within any given culture, certain outgroups may
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5 appear especially foreign with respect to disease-relevant domains, such as food preparation
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7 and hygiene practices. Because each culture has developed (via cultural evolution) its own set
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9 of practices for preventing infection, cultures with different practices—especially in the
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11 domains of food preparation and hygiene—may be perceived as posing disease threats. Thus,
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13 the perception of outgroups, particularly those that are subjectively foreign, may activate
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15 disease-avoidance responses.
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20 Some preliminary evidence for this hypothesis came from studies showing that people
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22 attribute more threat to germs that come from a disliked peer than from a lover (Nemeroff,
23
24 1995). More direct evidence emerged from a series of studies by Faulkner et al., (2004). They
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26 found that Canadian students with chronically heightened concerns about disease tend to
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28 harbor more strongly negative attitudes toward cultural outgroup members, but only those
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30 outgroup members perceived to be subjectively foreign in the disease-relevant domains (e.g.,
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32 Africans, Sri Lankans); such effects were not found for outgroup members perceived to be
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34 subjectively familiar (e.g., Asians, Europeans). Faulkner et al. (2004) also found parallel
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36 effects in studies in which concerns about disease were experimentally manipulated.
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42 Other studies, employing somewhat different methodologies, have replicated and
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44 extended these findings. One study found that chronically heightened concerns about disease
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46 are associated with both outgroup negativity and ingroup positivity, even after controlling for
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48 concerns about death (Navarrete & Fessler, 2006). Another study found that individual
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50 differences in disgust sensitivity are associated with both negativity toward outgroups and
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52 positivity toward the ingroup (Navarrete & Fessler, 2006). Yet another study examined
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54 reactions of pregnant women. In the first trimester of pregnancy, both the fetus and mother are
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56 more susceptible to infection (due to suppressed immune responses), leading to the hypothesis
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58 that women in this period may exhibit stronger disease-avoidance responses. In a cross-
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3 sectional study of pregnant women, Navarrete et al. (2007) found that women in the first
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5 trimester exhibit stronger ingroup positivity and outgroup negativity.
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8 **Implications for the Social Psychology of Intergroup Relations**

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10 We have presented a framework for studying the psychology of intergroup relations
11 from an evolutionary perspective. Our analysis suggests that not all intergroup relations are
12 alike because not all outgroups are alike. How people interact with members of outgroups is
13 determined in part by the specific challenges these groups pose to the welfare of the ingroup
14 and its members. When these challenges correspond to evolutionarily relevant threats—
15 threats that were significant enough in ancestral social environments that humans have
16 evolved to deal with them—they elicit a specific intergroup psychology. We discussed two
17 such challenges—warfare and disease avoidance—and argued that they likely contributed to a
18 distinct evolved ingroup–outgroup psychology, consisting of an interrelated set of functional
19 cognitive and behavioral responses to neutralize these threats. In the case of warfare, the
20 primary elicited emotional responses would be anger or fear, and the primary behavioural
21 responses would be aggression, dominance, or, in the case of formidable opposition,
22 submission. In the case of disease avoidance, the primary emotion would be disgust and the
23 primary behavioral response would be avoidance (cf. Schaller & Neuberg, 2004).
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43 We put our assertions to test by examining the impact of various moderator
44 variables—such as biological sex and vulnerability to disease—that according to theory
45 should produce reliable differences in intergroup affect, cognition, and behavior. Our data
46 provided some preliminary support for our main hypotheses, but further tests are needed. For
47 instance, when a warfare psychology is salient some outgroups are inhumanized (they are
48 considered animal-like) whereas others are dehumanized (they are considered robot-like;
49 Haslam, 2006). It would be interesting to know which strategy is likely to emerge and
50 whether it depends upon the size, strength and perceived competence of the outgroup (Fiske,
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3 2002). Another issue is whether there is a spillover between different threats. Some outgroups
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5 may activate both a warfare and disease psychology, and rather than simply inspiring
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7 avoidance, they may be attacked to be eliminated (think of war propaganda in which enemies
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9 are depicted as vectors of disease—rats, lice, parasites—which must be destroyed).
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13 In addition to warfare and disease avoidance, there might be a host of other significant
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15 ancestral intergroup challenges that created their own unique intergroup psychology. Groups
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17 could potentially suffer from cheaters and free-riders—individuals who would use up group
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19 resources such as food without contributing to their provision. Sharing food with members of
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21 outgroups might be especially risky because these individuals could leave the group before
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23 returning the favor (the cultural tradition of sharing with food with strangers suggests that
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25 there are also benefits). When such free-rider threats are salient we should expect an
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27 intergroup psychology that is characterized by anger and stereotypic beliefs of outgroup
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29 members pertaining to dishonesty and untrustworthiness. The primary behavioral reactions
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31 for dealing with freeloaders would be punishment and social exclusion (Kurzban & Leary,
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33 2001). Moreover, such reactions are particularly likely in periods when group resources are
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35 scarce and outgroups are living in proximity (Schaller & Neuberg, 2004). A modern European
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37 manifestation of this kind of intergroup bias is prejudice toward Gypsies, presumably because
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39 they move around and are therefore harder to monitor.
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46 The evolutionary framework also makes various suggestions for interventions to
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48 improve intergroup relations. When outgroups pose coalitional threats, interventions might be
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50 targeted specifically at male-to-male interactions because they are the most likely perpetrators
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52 and victims of intergroup aggression. When outgroup members activate a disease psychology,
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54 there is some reason to believe that interventions focusing on prejudice in young females
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56 might work best (Navarette et al., 2007).
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3 In terms of their objectives, interventions will be particularly successful when they
4 eliminate the sense of threat associated with particular outgroups altogether. An example of
5 an outgroup likely to activate a disease psychology are the homeless. As Schaller and
6 Neuberg (2004) noted, “we might also expect that social services that provide homeless
7 people with clean clothes, washing facilities, and training in interpersonal skills—thereby
8 eliminating cues that heuristically connote disease and group integrity threats—should
9 consequently reduce the stigma such individuals encounter.” Similarly, when outgroups
10 activate a warfare psychology, attempts must be made to individuate members of such
11 outgroups, for instance, by accentuating their personal achievements as students rather than
12 the achievements of their group (e.g., British Asians).
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27 A second aim of interventions is to alter the perceptual cues that elicit threat responses
28 towards particular outgroups such as new immigrant groups. For instance, language, dress
29 code, and particular rituals or customs serve as tribal markers, and the less noticeable they are
30 the more these outgroups will receive positive treatment. Thus, for the sake of attenuating the
31 effects of coalitional psychology, it is important for societies to make it easier for new
32 immigrant groups to adopt the language and customs of the ingroup.
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41 Third, interventions might be focused on changing the specific cognitive and affective
42 responses towards outgroups. However, if it is true that these responses are evolved, then the
43 link between threat and response might be difficult to inhibit or extinguish (cf. fear of snakes
44 and spiders; Ohman & Mineka, 2001). Nevertheless, we suspect that frequent positive
45 interactions with members of outgroups will over time reduce initial aversion or hostility. For
46 instance, friendly interactions with a person with a facial disfigurement will probably erase
47 the initial negative reaction. Similarly, the Jigsaw class room experiments (Aronson &
48 Bridgeman, 1979) demonstrate that cooperative relations between members of different ethnic
49 groups are a good means of reducing prejudice.
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Conclusion

The social psychological literature on intergroup relations is rich and diverse. It is relatively mute about the origins of tribal tendencies in humans and therefore lacks a coherent framework for understanding why different outgroups elicit vastly different responses. We presented here a preliminary framework, inspired by insights from evolutionary psychology and biology, that links particular intergroup challenges, notably warfare and disease avoidance, to particular functional responses. Although such responses may have emerged because they were adaptive in ancestral times, they might not necessarily be functional in modern times. Nevertheless, understanding why particular outgroups elicit particular emotions, cognitions, and behaviors is the first step towards a sensible policy to improve intergroup relations in our society.

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