

Chapter 6

Sexual Selection and the Psychology of Intergroup Conflict

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Violent intergroup conflict is pervasive and has existed throughout history with the available evidence suggesting that it was even more prevalent in the distant past, relative to the present (Pinker 2011). Research also suggests that it is unlikely to have originated in one place or to have spread by cultural diffusion or conquest. The foundational works of world literature such as the *Iliad*, the *Bhagavad Gita*, the *Torah*, and the *Quran* provide a window on the brutality of ancient societies in which conflicts of interests between individuals belonging to differing groups were less often characterized by diplomacy, than by hostile action such as raids, warfare, kidnapping, and rape.

Archeological evidence affirms that this state of affairs likely characterized pre-estate societies predating civilization, with evidence stretching back to at least the Upper Paleolithic (e.g., Keeley 1996; Kelly 2005). This intergroup aggression has almost exclusively been perpetrated by groups of males against other males in contexts ranging from small-scale coalitional skirmishes to regional and geopolitical conflicts (for reviews, see Daly and Wilson 1988; Keegan 1993; Wrangham and Peterson 1996). Evidence for male aggression, going back from deep time to the present, can be inferred from genetic studies comparing the global and regional distribution of the Y-chromosome DNA (inherited from male ancestors) relative to mitochondrial DNA (inherited from female ancestors) in extant humans. Researchers find less variance among Y-chromosome DNA, indicating the presence of fewer male ancestors relative to female ancestors, with estimates of our most

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recent female common ancestor having lived 150–200 KYA, whereas our most recent male common ancestor is estimated to have lived only since the Upper Paleolithic era, approximately 30–50 KYA (Makova and Li 2002). Such findings are consistent with a historical explanation in which there was stronger selection on Y-chromosome DNA relative to mitochondrial DNA, as a result of higher male mortality relative to female mortality in the Upper Paleolithic. Evidence of strong selection on Y-chromosome DNA continuing to relatively recent times can be inferred via comparisons where regional conquests perpetrated by a relatively small number of invading males has been documented in detail. For example, extant South American Indian populations show little to no evidence of the persistence of Y-chromosome DNA from native populations in the New World from their most common male ancestor who lived only a few centuries ago (Mahli et al. 2008). However, native mitochondrial DNA is well represented among extant peoples throughout Latin America (e.g., Makova and Li 2002), suggesting strong selection for European male invaders in the last few centuries. Thus, genetic evidence is consistent with both anthropological and historical data suggesting that intergroup violence displacing natal populations has been primarily perpetrated by males against other males.

The presence of differential levels of intergroup aggression between the sexes is expected to be associated with sexual dimorphism, in size and strength, as well as in the design of the psychology of males and females (Daly and Wilson 1988; Tooby and Cosmides 1988), and it is with the latter that this chapter is concerned. The evolutionary approach in which this discussion is framed is referred to as an *adaptationist perspective*, wherein one considers the likely selection pressures that recurred over evolutionary history to frame testable hypotheses regarding human cognition, attitudes, emotions, and behavior (Andrews et al. 2002; Buss et al. 1998; Tooby and Cosmides 1992). An adaptationist approach assumes that psychological systems underlying behavior are “for” functional ends—that is, they exist to solve a problem relevant to one’s survival or reproduction. Therefore, research from an adaptationist perspective that seeks to understand the psychology of intergroup conflict is informed by a consideration of the kinds of adaptive problems faced by our Paleolithic ancestors, and how group living helped them address these challenges. In this chapter, examples from recent psychological literature on race bias are used to describe how fundamental aspects of the psychological mechanisms underlying intergroup conflict may operate.

In this chapter, we address a fundamental question regarding a putative evolved psychological system responsible for the mental representation of groups at its most basic level, as well as this system’s working mechanisms that generate xenophobic biases. As one might imagine, functional solutions to various problems may require different strategies, which may be generated from distinct psychological systems. Such possibilities include psychological mechanisms evolved to identify social categories (Cheney and Seyfarth 1982; Tajfel 1982) which may then be used to demarcate coalitional groups (Kurzban et al. 2001), familial clans, and cultural or ethnic groups (Gil-White 2001; Hirschfeld 1996)—none of which are mutually exclusive.

Whatever combination of basic cognitive processes underlie how people mentally represent race categories, we believe that a research program that tests hypotheses about when and how race bias is expressed can be enriched by considering the kinds of challenges people face when interacting with individuals from a social group other than one's own (hereafter referred to as the *outgroup*). When studying individual responses to others in intergroup contexts, it is helpful to think of outgroups as posing different kinds of adaptive challenges than are posed by members of one's own group (the *ingroup*). Furthermore, the problems posed by outgroup members differ markedly depending on whether the target or the perceiver is male or female. As such, one might expect that the psychology of intergroup conflict ought to differ considerably between men and women in some domains but not in others. Here we utilize an adaptationist perspective to frame our understanding of the psychology of intergroup conflict, and showcase how this perspective has the potential to provide the conceptual tools for framing interesting hypotheses regarding the psychology of race and ethnic bias and why these biases are so persistent and pervasive in society. In doing so, we draw attention to the fact that our history of intergroup conflict and the unique problems it posed for our male and female ancestors may be responsible for why we tend to be biased when judging and evaluating ingroups and outgroups, and we argue that these biases served functional outcomes for the agents of group-based prejudice and discrimination. An appreciation of this history is crucial to understanding the psychological underpinnings of our propensity for warfare and xenophobia.

A Meta-Theoretical Approach to the Psychology of Intergroup Conflict

In attempting to provide coherent accounts of how the psychology of intergroup conflict operates, it is perhaps most fruitful to stay true to a broader computational approach shared by psychologists of different stripes, and avoid the language of the false dichotomies of *nature versus nurture*, *genes versus culture*, or *personality versus social context*. Rather, a computational approach suggests that the workings of the mind can be understood as the output of psychological systems with working mechanisms designed “for” a purpose or goal of the system (e.g., Tooby and Cosmides 1992). The mechanisms that compose these systems can be understood even without specific knowledge of the contributions made from one's genes versus socially transmitted information. The computational systems devised by natural selection are indifferent to whether information is obtained from one's genes or one's environment (e.g., Dawkins 1982; Kaplan and Gangestad 2005). Rather, the mechanisms that generate behavior operate on decision rules that are shaped by natural selection as a function of their influence on survival and reproduction in a given environment. From this broad, computational understanding of how psychological systems operate, the utility of dichotomous thinking regarding notions such as the relative importance of “persons” versus “social situations” in predicting human

behavior and cognition (Mischel 1979) becomes less relevant. This is because an individual's personality and environment are more rightfully conceptualized as informational input into the computational systems of the mind—systems which must yield, as do all replicating systems found in nature, to the forces of selection.

A Theory of the Psychology of Intergroup Conflict: Separate Adaptive Problems between the Sexes and Adaptive Solutions

Our discussion of the workings of the psychological systems relevant to intergroup conflict begins with the acknowledgment that the challenges faced by ancestral men and women, and the solutions to those problems, likely differ as a function of differences in sexual strategies between men and women. As such, we draw heavily on the insights of parental investment and sexual selection theories (Darwin 1871; Bateman 1948; Trivers 1972). We posit that selection has produced psychological systems for managing the cognitive processing of the risks and benefits of physical and sexual aggression in intergroup contexts, which differs between men and women (Thornhill and Palmer 2000; Tooby and Cosmides 1988; Navarrete et al. 2010).

The Roots of a Male-Specific Psychology of Prejudice

Sexual selection is a form of natural selection that operates along two pathways (Darwin 1871; Fisher 1930; Andersson 1994), *intra-* and *intersexual* selection. Intrasexual selection involves competition between members of the same sex, and produces traits that are useful in competition with same-sex rivals in gaining access to mating opportunities (e.g., elongated teeth and horns, large muscles). Intersexual selection describes a feedback process in which the strategies and preferences of one sex give rise to counterstrategies and preferences in the other. Rather than evolving to address same-sex competition, this process typically facilitates the evolution of traits that are useful for attracting members of the opposite sex (e.g., plumage and nuptial gifts), but the process can also be applied to understanding how one sex deals with the sexual strategies of the other sex (e.g., female estrus).

Parental investment theory begins with the observation that the sexes differ in the minimum physiological effort they must exert to produce viable offspring (Clutton-Brock and Vincent 1991). The applications of this theory are wide-ranging and apply to humans and nonhuman animals alike. For example, at minimum, women bear the costs of gamete production, fertilization, placentation, gestation, birthing, and lactation, whereas men are minimally obligated to invest only in the energetic resources required for gamete production and fertilization. Given this asymmetry, the marginal fitness gains from acquiring multiple mates are far greater for men than for women, and the costs of mating with a low-quality mate are far greater for women than for men. In other words, women are physically con-

strained by their reproductive physiology for a relatively lower reproductive ceiling over their life span; as a result, increasing the number of sexual partners does not increase reproductive success to the same degree as it does for men. In fact, it can place women at higher risk for harmful consequences of sex—such as those arising from infectious disease and low genetic quality of the copulating partner—without the offsetting benefit of steeply increased offspring number as is true for men.

Merging insights from sexual selection and parental investment theory suggests that the fundamental differences in reproductive physiology between the sexes produce an asymmetry in the strength of intrasexual competition, with competition for mates operating more strongly in males (Trivers 1972). For men, risky, aggressive, and physically dangerous tactics used to subdue, debilitate, or eliminate same-sex competitors can greatly increase reproductive output via increased status and its associated fitness benefits, including increased sexual access to the opposite-sex surplus (Griskevicius et al. 2009). For women, however, the same tactics do not increase potential reproductive output given the constraints of women's reproductive physiology.

Given that men have more to gain than women from engaging in interpersonal violence, this logic may be extended to apply to *intergroup* violence as well. Assuming that collective action problems characteristic of intergroup conflict are addressed (e.g., Choi and Bowles 2007), the winners of such conflicts may be rewarded with additional territorial and food resources, increased status, and direct acquisition of females from the defeated group (Manson and Wrangham 1991; Mitani et al. 2010; Tooby and Cosmides 1988; Wrangham et al. 2006). Thus, just as interpersonal violence is typically a male affair, when we apply the principles of sexual selection and parental investment to the problem of human intergroup aggression, we should similarly expect males to be both its primary agents as well as its primary targets (Buss and Shackelford 1997; Daly and Wilson 1988; Sidanius and Pratto 1999). This can occur even under conditions of high risk of injury or death, given that the formation of coalitions is typically characterized by mechanisms for effective risk management, such as pooling risk across individuals behind a “veil of ignorance” regarding one's probability of injury or death, and “winner take all” outcomes that create large payoffs for survivors (Choi and Bowles 2007; Tooby and Cosmides 1988). Such incentives explain sex differences in the willingness to engage in risky and aggressive strategies in order to dominate other groups, as well as the motivation to avoid being dominated. As such, with a high-risk, high-reward incentive structure, it is likely that a *male-specific* psychology of intergroup conflict may have evolved to perpetrate or resist intergroup dominance and aggression among males. Thus, to the extent that racial categories can be mentally represented as coalition-like entities to the human mind (Kurzban et al. 2001), we submit that the workings of this psychological system should be detectable in empirical investigations of intergroup bias—including sex differences in behavior, emotional reactions, attitudes, and cognitive processing of group phenomena.

Evidence for a Male-Specific Psychology of Intergroup Conflict

Given that men are willing to accept more risk in competition for valued resources, we predict that in behavioral studies of intergroup conflict, men should be less inhibited to embrace aggressive intergroup strategies. Consistent with this expectation, men report more competitive intergroup interactions than women (van Vugt et al. 2007), and are more likely to engage in “pre-emptive strikes,” without provocation, in simulated war games (Johnson et al. 2006). In a recent experimental study, researchers found that men, but not women, were more likely to endorse statements supporting war after they had been primed with attractive members of the opposite sex (Chang et al. 2011). Such results are consistent with the notion that, for men, intergroup conflict may serve the ultimate purpose of gaining access to reproductive resources.

Data from surveys measuring racial attitudes and discrimination support this perspective. Based on the notion that racially prejudiced attitudes can be conceptualized as a type of “low-level” expression of intergroup aggression among males, Sidanius and Veniegas (2000) made the following two predictions: (1) men should express greater racial prejudice and discrimination than women and (2) such prejudice should be more strident against men (compared to women) of the racial outgroup. Survey evidence does in fact suggest that men are, on average, more biased than women on explicit measures of race bias (e.g., Ekehammar 1985; Ekehammar and Sidanius 1980, 1982; Furnham 1985; Marjoribanks 1981; Sidanius et al. 1991; Sidanius and Ekehammar 1980). Archival and audit studies provided some support for the second prediction that men are the targets of greater levels of group-based prejudice. Examples are readily found in audit studies in the educational system (Gordon, Piana and Keleher 2000), the labor market (Arai and Thoursie 2007; Arai, Bursell, and Nekby 2008; Carlsson and Rooth 2007; Stroh et al. 1992), sales pricing of automobiles (Ayres 1991), and criminal sentencing (Bushway and Piehl 2001; Steffensmeier et al. 1998).

Although such outcomes are indicative of “real world” discrimination, such studies have the limitation that, because the gender of the agent of prejudice is anonymous, it is not clear if the male-targeted outcomes are the result of greater discrimination by men or if women also contribute to such negative outcomes for outgroup men. However, several laboratory experiments have demonstrated the greater evocative potential of male outgroup targets in engendering biased reactions. For example, vignettes involving criminal men of racial outgroups elicit greater bias with respect to punitive attitudes about criminal sentencing relative to vignettes involving outgroup women portrayed as criminals (Haley et al. 2004); resistance to extinction of conditioned fear is greater toward outgroup men than women (Navarrete et al. 2009); and angry outgroup male faces facilitate superior detection in visual search tasks akin to the kinds of abilities typically evoked by natural hazards such as snakes or spiders (Ackerman et al. 2007).

More recently, Navarrete et al. (2010) tested a set of predictions informed by a consideration of the specific selection pressures postulated to have shaped the intergroup

psychology of men. Namely, that (a) discriminatory outcomes would be greater when men were pitted against other groups of men compared to women and (b) aggression and social dominance would more consistently predict bias for men, relative to women.

The researchers conducted an experiment with male and female participants who were asked to make recommendations for zero-sum resource allocations to ingroups and outgroups composed of all males or all females. They found that when given the option of inflicting a spiteful, costly punishment on another group at the cost of ingroup resources, men elected to punish outgroups composed of men, more so than outgroups composed of women. Interestingly, women showed no bias in punishment, between ingroup and outgroup targets, regardless of their gender composition. In two other studies (Studies 2 and 4; Navarrete et al. 2010), men's racial prejudice, but not women's, was related to individual differences in aggression, particularly when the men's goal of intergroup dominance was chronically salient.

Consistent with the widely documented sex difference in prejudiced attitudes against outgroups, these patterns of sex-specific relationships among target gender, agent gender, aggression, and the goal of social dominance suggest that a meaningful component of racial prejudice may be fundamentally related to recurring intergroup conflict among human males over evolutionary history. Taken together, this collection of findings is consistent with theoretical expectations. However, the selection pressure arising from male–male competition alone does not explain another important aspect of intergroup prejudice: that exhibited by women. Although there is evidence suggesting that women are generally less explicitly prejudiced than men (reviewed in McDonald et al. 2012), they are clearly not free from bias. In studies where the gender of the outgroup target is manipulated, levels of bias displayed by men and women toward outgroup men are often similar (e.g., Haley et al. 2004; Navarrete et al. 2009), or sometimes even greater for women (e.g., Owens et al. 2000; Stets and Straus 1990; Fisman et al. 2008). Such findings suggest that an understanding of the mechanisms underpinning women's intergroup bias cannot rely solely on processes that evolved to manage intrasexual competition among men.

To improve our understanding in this regard, we might ask: what selection pressures have been at play that might have shaped women's psychology of bias? Intrasexual competition among men may have contributed to a conflict of interest between men and women in the choice and timing of mating in intergroup contexts. Below we describe a *female-specific* psychology of intergroup bias that may have evolved in response to the unique problems that women have faced in conflicts of interest with outgroup men.

The Roots of a Female-Specific Psychology of Intergroup Conflict

Female Reproductive Choice and the Problem of Sexual Coercion

Female reproductive choice is a core component of mating strategies for sexually reproducing organisms (Trivers 1972), and maintaining choice of one's mate is critical to the health and wellbeing of offspring. For human females, two general paternal factors influence the survival prospects of their children: the genetic quality of the biological father and the amount of investment the father makes in providing for the offspring. Lower-quality males with genetic predispositions impairing survival prospects or a low social standing have a higher probability of having low-quality offspring who themselves may not survive or may not be able to obtain mates. Women who conceive without paternal investment are at risk of not having the nutritional or protective resources necessary for birthing and raising healthy offspring. Sexual aggression from strangers poses severe risks across both of these factors. Without the important information about the characteristics of the father of one's offspring that comes with familiarity, the opportunity to judge the quality of the father is compromised even more so than when traits of the attacker are known, which is a cost in its own right, to be sure. Moreover, strangers who invade and aggress sexually may be less likely to remain to invest in childcare and protection following birth. Additionally, unfamiliar outgroup males are almost certainly less likely to be held accountable to ingroup norms for the monitoring and sanctioning of deviance.

A point worth making along these lines is that "stranger rape" is less common than rape by those with whom the victim is acquainted in modern societies. However, this is also true of nearly every known kind of violent assault, including murder (Wolfgang 1958), and is due to the logical necessity that most people's social networks are largely a function of their proximity to family, friends, allies, and others with whom they become acquainted (Daly and Wilson 1988). Furthermore, the human proclivity for social interaction along familiar lines is almost certainly due to the fact that we are much better off in proximity to those with shared fates (genetically or otherwise) relative to outsiders whose interests are not closely aligned with ours and who cannot be readily monitored and sanctioned for deviant behavior (Yamagishi 1998; Yamagishi and Kiyonara 2000). As such, the so-called greater "likelihood" of violent or sexual assault by acquaintances or intimate partners relative to strangers may be an artifact of human evolved affiliative preferences serving prophylactic functions, as is suggested by the empirical link between a woman's proximity to her kin and the avoidance of rape (reviewed in McKibbin and Shackelford 2012). Thus, the affordances for victimhood must consider baseline rates of time necessarily spent in proximity to acquaintances/intimates versus that spent among strangers, which almost certainly means that individuals are at a far higher risk of being assaulted by strangers rather than by acquaintances. In other words, the per time unit risk of sexual assault at the hands of unfamiliar outgroup men is

likely to be markedly higher than the threat of sexual assault among familiar men from one's own within-group network, if baseline time in proximity were to be held constant. Therefore, the logic underlying female choice implies that the costs associated with the risks of sexual coercion are exacerbated when one is in proximity to an outgroup male.

On Selection Pressures for a Risk Management System

Tying the logic of the costs of sexual coercion to the logic of coalitional conflict among males described above suggests that men on the weaker side of a coalitional conflict are not the only ones who suffer fitness challenges from invaders. Although women may have a lower probability of being the victims of lethal intergroup violence, they have all too often been the targets of nonlethal sexual violence in times of group conflict (Broude and Green 1978; Levinson 1989; Vikman 2005; Thornhill and Palmer 2000). To be sure, the costs for sexual aggression are potentially quite high for men in most within-group contexts (Smith et al. 2001), including the risk of retaliation from the victim, her kin, or mate, as well as the loss of one's reputation and alliances. Thus, it is not surprising that most men, under most circumstances, do not use sexual aggression as a reproductive strategy.

However, the costs to perpetrators of sexual aggression may be markedly lower when committed against outgroups, particularly when intergroup relations are hostile, such as is the case during warfare (Thornhill and Palmer 2000; Wrangham and Peterson 1996; Vikman 2005). This may be due to a combination of several social processes, including the reduced accountability across group boundaries and ethnocentric moral double standards in the value placed on the interests of outgroup members. At the level of proximate causation, there are studies documenting biases in the activation of empathy to ingroup members in pain versus outgroup members (e.g., Avenanti et al. 2010) and the greater likelihood of harming others when in a group than when alone (e.g., Leidner and Castano 2012). Holding aside the question of whether the human *male* psychology has been shaped by selection to seek out opportunities for sexual aggression (Thornhill and Pamer 2000), the available evidence strongly suggests that sexual coercion is likely to have occurred often enough throughout history to have been an important selection pressure on the psychology of human *females*.

That women have been confronted with the problem of maintaining reproductive choice in the face of challenges from coercive males is evidenced in the historical record of intergroup conflict as documented by historians of antiquity as far back as there are records (Vikman 2005). Mass rape of women and girls were among the punitive measures taken by Greek, Persian, Arabic, Jewish, and Roman armies, with ensuing sexual and conjugal slavery condoned and regulated by both secular and religious law. The Hebrew Bible contains numerous references to the ubiquity of gang rape, sexual slavery, and forced marriage of victims to the perpetrators in descriptions of ancient Semitic tribal conflict, and it is described as an almost trivially obvious expectation of the spoils of battle (reviewed in Pinker 2011). Relatively

recent examples of sexual aggression during violent conflicts such as those committed in Bosnia, Rwanda, Darfur, and the US engagement in Vietnam highlight the continuing risk of sexual aggression for women on the weaker side of group conflicts.

Regardless of the precise nature of the proximate or functional psychological factors that lead to sexual aggression by men in intergroup contexts, it appears that sexual coercion by outgroup men not only poses unique risks because of the added costs of uncertainty, but also may have historically posed a more probabilistic threat of sexual assault than men from one's own group. Not only has warfare provided greater affordance of opportunities for sexual aggression as far back as the historical record allows (Vikman 2005), but violent intergroup conflict may have been even more common in prehistoric societies than has been the case in historical societies (Bamforth 1994; Chagnon 1996; Daly and Wilson 1988; Ember 1978; Ghiglieri 1999; Keeley 1996; Knauff 1987; Krech 1994; Wrangham and Peterson 1996). In a recent survey of the history and prehistory of violence, Pinker (2011) provides compelling evidence that across cultures and throughout history, physical violence has been reliably correlated with sexual aggression, and physical aggression has substantially declined in modern times. Given the importance of reproductive choice for women, intersexual selection acting on the conflict of reproductive interests between coercive men and discerning women may have favored a female-specific psychology predisposing women to be vigilant against outgroup men to avoid sexual coercion.

Taken together, the observations that (a) sexual aggression is not uncommon among our closest primate cousins, (Smuts 1993) (b) warfare and sexual aggression have been tightly linked as far back as recorded history, (c) physical and sexual aggression are reliably linked across space and time, and (d) intergroup violence was much more common in the past than in modern times, it is not unreasonable to suspect that women have faced recurring threats of sexual assault throughout our evolutionary history, and perhaps threats higher than those encountered in modern Western societies, and that they may have been particularly at risk from men from groups other than their own.

To be sure, by interacting with outgroups, there are potential fitness benefits to broadening the pool of mate choices to include mates of any social group. Although invariant avoidance of outgroup men would drastically decrease the risk of sexual coercion or aggression, there are potential costs to this behavior as well. These costs include diverting attention and energy away from other important tasks and the potential loss of valuable interactions with outgroups, such as trading opportunities or noncoercive mating opportunities. Given that preferences for and against outgroup men have fitness relevant costs, a woman's degree of bias should be expected to vary as a function of her appraised vulnerability to losing control of the maintenance of reproductive choices. As such, we posit that (a) women who perceive themselves to be more vulnerable to sexual coercion and (b) perceive outgroup men as particularly physically formidable (and more capable of overpowering a woman) should be more willing to pay the costs associated with bias (e.g., attention and energy) in order to minimize the probability of sexual aggression and its attendant loss of choice in reproductive partner.

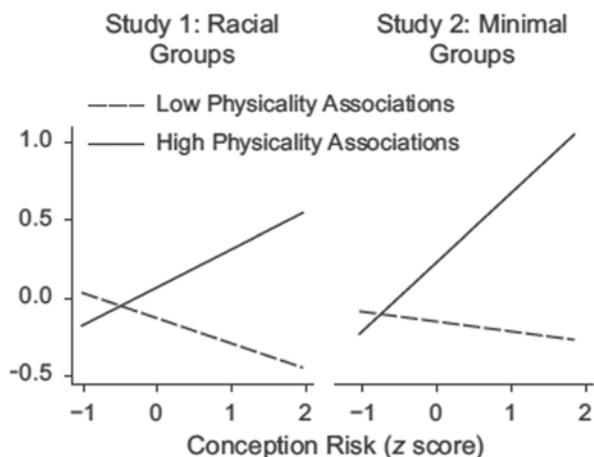
Recent research suggests this may be a productive framework in which to address a female-specific psychology of prejudice. Results from several studies indicate that White women's perceived vulnerability to sexual coercion is positively correlated with negative attitudes toward African Americans (Navarrete et al. 2009; Navarrete et al. 2010, Study 2). One study showed that race prejudice for women was most strongly directed at Black men, not Black women, and that the relationship between perceived vulnerability to sexual coercion and fear toward Black and White men and women was strongest toward Black men (Navarrete et al. 2010, Study 3). Put simply, the degree to which White women were biased against Black men was predicted by how vulnerable White women felt to sexual coercion. Consistent with the notion that a domain-specific link may exist between the avoidance of sexual coercion and the avoidance of outgroup men, this relationship held even when the effect of general fearfulness was statistically controlled.

The link between women's perceived vulnerability to sexual coercion and bias toward outgroup men suggests that outgroup prejudice may be specifically attuned to the costs of sexual aggression, which are not the same throughout the course of a woman's menstrual cycle. Because the reproductive consequences of sexual aggression are strongest during the peri-ovulatory phase of the menstrual cycle (i.e., the window in which a woman can conceive), women should be especially biased toward outgroup males during the fertile part of their cycle. This should be particularly true for women who perceive themselves to be vulnerable to sexual coercion, and for those who view outgroup men as physically formidable. In a test of these specific theoretically derived predictions, Navarrete et al. (2009) reported that the relationship between perceived vulnerability to sexual coercion and multiple measures of prejudice toward outgroups increased in magnitude as fertility increased across the menstrual cycle.

McDonald, Asher, Kerr, and Navarrete (2011) replicated and extended these findings by demonstrating a link between conception risk and implicit prejudice in both racial and nonracial intergroup contexts. In light of the conflict between the potential costs and benefits associated with intergroup interactions, in generating prejudiced evaluations of outgroup men, selection may have favored psychological mechanisms that assess the extent to which such men are perceived as physically formidable, as such traits would increase the effectiveness of a man's attempts to physically overpower and constrain women's behavior, and therefore, reproductive choice. McDonald and colleagues hypothesized that the link between conception risk and implicit intergroup prejudice would be particularly strong for women who associate the outgroup with physical formidability. These findings are not trivial, given that implicit measures of bias have been shown to correlate more strongly with "real-world" behavior than explicit measures (Greenwald et al. 2009).

Two studies were conducted to test this prediction using both White/Black men as targets, as well as men categorized into arbitrarily bifurcated social groups distinguishable solely by shirt colors. Research participants were assigned to groups based on largely arbitrary preferences for one primary color versus another (e.g., yellow vs. blue), after which they completed implicit association tests measuring (a) the extent to which they readily associated outgroup men with physical formidability

Fig. 6.1 Intergroup prejudice as a function of conception risk and physicality associations (1 S.D. above and below the mean). From McDonald et al., 2011, *Psychological Science*



(“physicality”) relative to ingroup men and (b) the extent to which outgroup men were more negatively/less positively evaluated on affectively charged semantic terms (e.g., horrible, evil, or good) relative to ingroup men. Across both studies, the results revealed that conception risk was associated with greater prejudice in intergroup evaluations, particularly when outgroup men were perceived as being associated with physicality. These findings suggest that the psychological system by which women’s evaluations of outgroup men become more negative, as a function of conception risk, does not depend on a specific racial context (e.g., Black versus White). Instead, the mechanisms within the system likely rely on more basic categorization processes that respond to cues that are not dependent on the race of the target, but on the target’s group category—even if largely arbitrary. Such findings are consistent with the notion that our evolved psychology is likely to have been shaped during a time in our evolutionary history when groups were not defined by race but by differences in social alliances marked by nonphysical traits such as linguistic accent, dialect, and social customs or norms (Fig. 6.1).

Overall, these results suggest that women may be equipped with psychological mechanisms designed to protect reproductive choice by avoiding outgroup men, who may have historically posed the greatest reproductive threat, particularly when (a) a women perceives herself as particularly vulnerable to such threats and when (b) the targets are perceived as being most capable of effectively constraining a woman’s reproductive choice.

A Summary of Sex Differences in the Psychology of Intergroup Conflict

We have so far argued that the adaptive problems posed by intergroup conflict have been different for men and women throughout human evolutionary history, and that the manner in which natural and sexual selection has provided ways of dealing

with these problems may have set the stage for important psychological differences between the sexes. We think these differences reflect the workings of an evolved psychology designed to provide sex-specific solutions to the unique challenges that are posed by outgroup men to each sex. These problems and solutions have produced psychological sex differences in the expression of intergroup bias, likely to have evolved on separate sexually selected avenues of conflict: intrasexual conflict, in which men of separate coalitions have competed with each other for potential access to mates, and intersexual conflict, in which women have attempted to avoid sexually aggressive tactics from outgroup men. These paths to prejudice are psychologically manifested as a predisposition for *aggressive* prejudice for men, and greater proneness to *fearful* prejudice for women—both paths directed most strongly toward male exemplars of the outgroup.

Conclusion

We have described women's bias as primarily targeted toward outgroup men rather than ingroup men or outgroup women because of the costs associated with increased risk of sexual coercion by outgroup men, all else being equal. We have also described men's bias as targeted primarily toward outgroup men, because of the gains to be had by eliminating or dominating other male coalitions. In marshaling empirical support for our claims, we described work that utilized the natural variation existing between individuals on the traits relevant to the function of these biases in order to explain variance in the expression of bias. This is because we do not expect that, as a product of evolution by natural selection, the psychology of prejudice should be characterized by built-in preferences or tastes that are not sensitive to environmental input. Instead, we posit the existence of dynamic, evolved psychological systems that are sensitive to the costs and benefits of any course of action in the face of uncertain outcomes and incomplete information.

The costs of any course of action in response to a given threat are likely to include a risk assessment of one's probability of falling victim to the threat. Highly aggressive and dominant men may feel better able to engage the threat of outgroup men, and therefore express greater prejudice—a syndrome likely to be related to readying oneself for approach-related posturing or violent engagement. On the other hand, women who appraised themselves as highly vulnerable to sexual coercion, and view outgroup men as physically formidable, exhibit more prejudice not because such personality profiles are associated with the need to ready oneself for approach-related contact, but to protect oneself from threats to reproductive choice. Thus, it should be clear that prejudice is not only about approach-related aggression and dominance but also about avoiding danger among those individuals who have appraised themselves as most vulnerable to those dangers. Thus, prejudicial outcomes can arise by opposing strategies of approach and avoidance.

A key limitation with our description of avoidant bias is that there may be overlaps in the psychological mechanisms underlying a female psychology of sexual coercion avoidance with a more general psychology of *disease* avoidance. For

example, instead of experiencing fear and engaging in flight and concealment, when presented with a threat of sexual aggression, women may avoid costly mating by experiencing disgust and engaging in a more measured avoidance (Tybur et al. 2009). Although typically thought of as functioning to motivate pathogen avoidance (e.g., Curtis and Biran 2001), disgust is elicited by a number of sexual behaviors that connote costs such as incest and sexual coercion, as well as other sexual behaviors that involve greater potential disease costs (e.g., anal sex). Effectively, the underlying reasons for avoiding such maladaptive sexual interactions are similar to those motivating women's intergroup bias under selection pressure from sexual coercion. Connecting insights from the growing literature on the connection between disease and avoidance and prejudice on the one hand and the links between rape avoidance and prejudice on the other, is a potentially intellectually rich enterprise waiting to be developed.

In closing, we have been careful to avoid claims that all features of the prejudiced mind are reducible to sexual selection, but have done our best to emphasize an often overlooked, but critically important component of the psychology of intergroup conflict, prejudice and discrimination—the sex of the agent and target. However, there are other problems related to group-based prejudice that have not been treated here, some of which are fundamentally related to sex, such as female coalitional alliances and intrasexual aggression in nonphysical forms. Although not likely to be as explicit or as physically aggressive, as is the case among men, a growing body of work suggests that aggression may not be less common among women, but that it may be only less explicit and physically violent in nature (reviewed in Cross and Campbell 2011). As is the case with females of many primate species, coalitions among women and girls against same-sex competitors may be fundamental to the human condition, even if such competition stops short of physical violence (e.g., Fisher, Tran, and Voracek 2008). A full evolutionary account of such dynamics is waiting to be done, and represents a limitation in current theory and research in evolutionary approaches to social psychology, as it is in this present chapter.

Likewise, our current analysis has left out a major thread within the evolutionary literature, and one, which surely must be a key component of the psychological architecture shared by both men and women with respect to thinking about groups: that of the problem of cooperation within groups and how to coordinate collective action. How the problem of cooperation is relevant to the emergence and maintenance of intergroup biases is an under-explored area of inquiry among evolutionary and social psychological researchers (for exceptions see Brewer 1999, and Gil-White 2001). Perhaps humankind's most noble social instincts can also lead to between-group preferences—our capacity for compassion for others like ourselves, our willingness to sacrifice our own comfort and safety for the benefit of others, and our desire to conform in order to not offend others—these may all have a dark side to them if their expression is contingent on anything other than unconditional love. The frontiers of psychological science is ripe for bold perspectives that seek to explain difficult topics, perspectives that cut across disciplinary lines in the search for ever more accurate narratives of topics such as how and why we can too often be so damned tribal.

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