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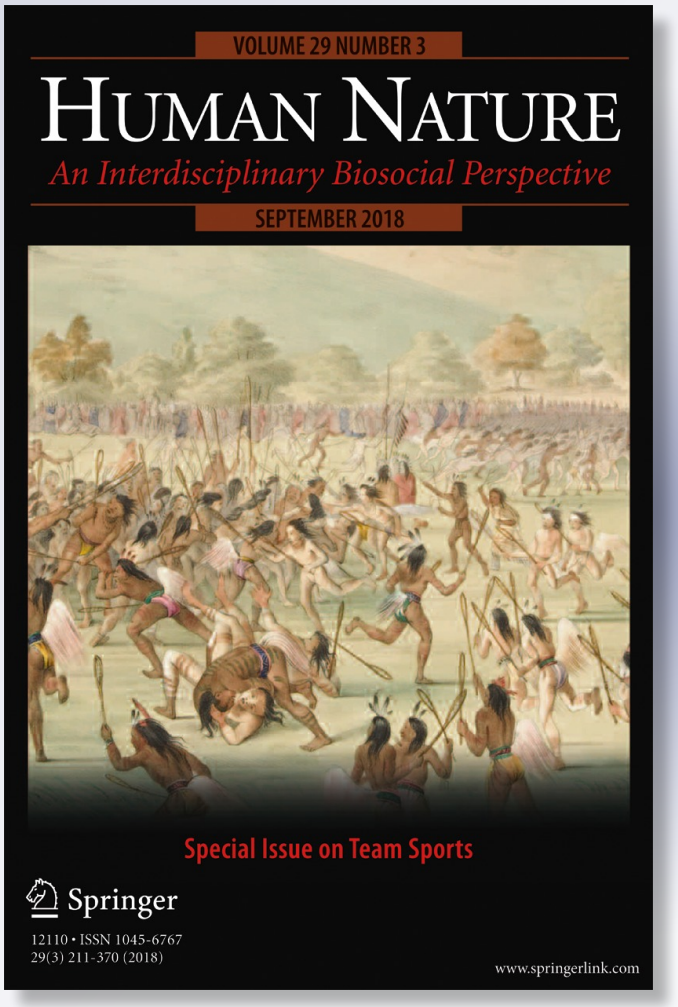

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Men's Interest in Allying with a Previous Combatant for Future Group Combat

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Abstract Intra- and intergroup conflict are likely to have been recurrent features of human evolutionary history; however, little research has investigated the factors that affect men's combat alliance decisions. The current study investigated whether features of previous one-on-one combat with an opponent affect men's interest in allying with that opponent for future group combat. Fifty-eight undergraduate men recruited from a psychology department subject pool participated in a one-on-one laboratory fight simulation. We manipulated fight outcome (between-subjects), perceived fighter health asymmetry (within-subjects), and the presence of a witness (within-subjects) over six sets of five rounds of fighting. Following each set, we asked men how interested they would be in allying with their opponent for future group combat. We found that men were more interested in allying with their opponent for future group combat if their opponent won the fight or if a witness was present, but perceived fighter-health asymmetry did not affect men's decision to ally with their opponent. Exploratory analyses revealed a two-way interaction between fight outcome and the presence of a witness, such that winners without a witness present expressed less interest in allying with their opponent for future group combat. Our findings suggest that men attend to the benefits of allying with a man who has demonstrated relatively superior fighting ability. Alliance with a previous opponent for group combat may vary with the relationship value of the opponent and the utility of demonstrating cooperativeness to third-party observers. These findings inform our understanding of coalition formation.

Keywords Combat · Valuable relationships · Conflict · Post-conflict reconciliation · Coalitions · Evolutionary psychology

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Inter- and intragroup conflict have been recurrent features of human evolution. Cross-cultural research indicates that intergroup conflict occurs in the vast majority of cultures studied (Brown 1991; Pinker 2011; Wrangham and Peterson 1996). Evidence from nonhuman primates documents clear cases of intergroup conflict—for example, raids of neighboring territories conducted by male chimpanzees (Wrangham and Peterson 1996)—suggesting phylogenetic consistency across social primates.

Evidence suggests that human males have evolved information-processing heuristics for solving ancestrally recurrent adaptive problems related to combat and coalitional aggression (see McDonald et al. 2012). Historical and cross-cultural research documents that inter- and intragroup conflict is overwhelmingly perpetrated by men (Goldstein 2001)—a proposition corroborated by physiological, psychological, and behavioral evidence of male-specific adaptations for combat in humans (reviewed in Sell et al. 2012). The causes of combative fights are predictable (Ong 2012), such that the events leading to combat include structured escalations (Sell 2011) that mirror nonhuman escalations of violence (Clutton-Brock et al. 1979; Payne 1998). Because fighting can inflict substantial costs on males (e.g., physical injury, death), escalations typically lead to combat only between relatively evenly matched opponents (Daly and Wilson 1988; Gould 2003). As expected, then, men can accurately assess the formidability and physical strength of other men, in part, to gauge whether escalation to physical combat will be successful (Sell et al. 2009).

Combative contexts include one-on-one combat, such as status contests (Wilson and Daly 1985), and intergroup conflict, such as warfare (Van Vugt 2009). Research documents cross-cultural acceptability of combative tactics of varying severity across different combative contexts—referred to as *implicit rules of combat* (Romero et al. 2014). Following conflict, men often engage in *post-conflict reconciliatory behaviors* (also referred to as post-conflict affiliative behaviors) (Benenson and Wrangham 2016; see also Pham et al. 2017).

Post-conflict reconciliatory behaviors are any "friendly" behaviors that combatants engage in following a conflict (de Waal 2000). Post-conflict reconciliatory behaviors have been documented in nonhuman primates, including chimpanzees (de Waal and van Roosmalen 1979), macaques (Aureli and van Schaik 1991), and baboons (Castles and Whiten 1998a, b). In humans, reconciliatory behaviors may include verbal praise and physical contact, such as a hug or a handshake (Benenson and Wrangham 2016; Pham et al. 2017; Wang and Li 2007). The *valuable relationships hypothesis* (Cords 1994; de Waal and Aureli 1997) posits that post-conflict reconciliation between two combatants occurs when the benefits of future cooperation with a combatant outweigh the costs of prolonged conflict.

Behaviors that promote cooperation with a previous combatant (de Waal 2000; McDonald et al. 2012) may be particularly likely to occur in intensely social species (Koski et al. 2007), such as humans. Men, in particular, may have evolved psychological mechanisms that motivate the formation of male coalitions for intergroup conflict—referred to as *the male warrior hypothesis* (McDonald et al. 2012). Compared with women, men spend more time engaged in affiliative behaviors following conflict, even after intense competition (Benenson and Wrangham 2016). Research has demonstrated a reduction of future conflict between former opponents following post-conflict reconciliation (Aureli et al. 2002), and that post-conflict reconciliatory behaviors are associated with increases in the perceived relationship value of the transgressor (McCullough et al. 2014). Post-conflict reconciliation has also been shown to reduce anxiety in third-party observers, suggesting that

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public reconciliation between competitors may enhance group cohesion by diminishing the threat of prolonged interpersonal conflict (Judge and Bachmann 2013).

Post-conflict reconciliation, then, appears to facilitate the maintenance of relationships that may be particularly valuable for future intergroup conflict (de Waal and Aureli 1997; McDonald et al. 2012). Valuable relationships may arise via formation of future cooperative alliances or through reputation management within the social group. The success of intergroup conflict—and, ultimately, the success of each individual fighter—depends, in part, on the fighting abilities of individual group members. Men may therefore be interested in cooperating with prior one-on-one combatants who honestly demonstrated relatively good fighting ability. In the present study, we test this by asking participants to compete against another individual in simulated physical combat and provide assessments of their competitor's performance and suitability as a future ally. We hypothesize that men will be more interested in allying with a competitor in a future (hypothetical) two-on-two matchup if that opponent demonstrates an ability to fight well. In the current study, we operationalize good fighting ability in two ways: (1) consistently winning one-on-one matchups, given that better fighting ability (e.g., effective striking, defense) reliably leads to victorious outcomes (Association of Boxing Commissions 2009); and (2) fighting at a relative health disadvantage, given that men, in particular, can accurately detect opponent differences in formidability, such as size and status (Chiao et al. 2009; Sell et al. 2009). We predict that if an opponent consistently wins one-on-one fights, the participant will be more interested in allying with the opponent for future group combat (Prediction 1). We also predict that if an opponent fights with a relative disadvantage, the participant will be more interested in allying with that opponent for future group combat (Prediction 2).

To the extent that cooperation between two in-group members is valued by others (Apicella et al. 2012), and given that one-on-one contests are often witnessed by members of the social group, we hypothesize that the presence of a witness during combative contests will affect men's interest in allying with their opponent for future intergroup combat. Specifically, we predict that men will report more interest in allying with their opponent when in the presence of a witness (Prediction 3).

Method

Participants and Procedure

We recruited 58 men (*M* age = 20.5 years, *SD* age = 3.1 years) from a Midwestern US state university psychology department subject pool.[1] Participants arrived at the laboratory at a scheduled time and were presented with a consent form (all study sessions were conducted by a male researcher). Consenting participants were seated at a private desktop computer station. Participants played Street Fighter 2, a one-on-one fight simulation game in which each player controls an avatar that performs various combat behaviors (e.g., punches, kicks, throws). Street Fighter 2 was originally released on the Super Nintendo

[1] Data and results reported here were collected as part of a larger project (Pham et al. 2017), which examined predictors of post-fight respect. Study 3 in Pham et al. 2017 contains further detailed procedures and protocol, and all study materials are available online.

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gaming console. For the current research, participants played Street Fighter 2 on a desktop computer version using ZSNES—a software package that emulates the original Super Nintendo console version with high fidelity. ZSNES contains two features relevant to the current research: (1) multiplayer functionality over Local Area Networks that allow multiple players across different desktops to participate in the game and (2) modifications to the game's software, such as manipulating a player's health. The experimenters informed participants of these unique ZSNES features. Players fought each other in a series of six sets of five rounds (30 rounds total). A colored bar above each player's avatar was displayed at the top of the screen to signify their avatar's health (i.e., the number of times the player can be hit before he loses the round). A round concluded when one player's health bar reached zero.

The experimenter introduced the participant to the game controls and allowed the participant five minutes to learn and practice the game controls prior to beginning the study trials. Participants were provided a verbal cover story by the experimenter in which the participant was informed that he would compete against another participant in a different room. The experimenter then explained the objective of the game (i.e., to win as many rounds as possible) and informed the participant that he would complete 30 rounds against the opponent in the other room. In fact, the participants played against a computer-controlled player. Across all rounds, participants used the same avatar (Ryu) and their opponent (the computer-controlled player) used the same avatar (Ken). All the combative moves of these two particular avatars can be performed by either computer-controlled players or human-controlled players.

Before each set of rounds, the experimenter acted as if he was communicating with another experimenter on a cell phone to coordinate the start of each fight. The experimenter provided the participants with information about the health of their opponent prior to the start of each set of rounds (i.e., their opponent would have equal, double, or half the amount of health as the participant). After each set of five rounds, participants responded to several questions specific to that set of rounds. Participants provided their responses to these questions privately on a computer for half of the sets, and verbally to the experimenter for half of the sets. On completion of the study, participants were informally probed for suspicion that they were not playing a real participant (no participants reported suspicion), debriefed, and compensated with course research credits.

Manipulations and Materials

We employed a 2 (fight outcome; between-subjects) × 2 (witness; within-subjects) × 3 (perceived fighter health asymmetry; within-subjects) research design. We manipulated fight outcome by randomly assigning each participant to play against either an easy opponent (win condition) or a difficult opponent (lose condition). Participants assigned to the win condition won more rounds ($M = 23.97$, $SD = 3.61$) than participants assigned to the lose condition ($M = 2.76$, $SD = 3.35$), $t_{56} = 23.20$, $p < .001$. To manipulate fighter health asymmetries between the participant and the opponent, participants were informed prior to each set of rounds that the experimenter had manipulated the game so that their opponent had (1) equal, (2) double, or (3) half the amount of health as the participant. In fact, neither combatant's health was manipulated. Health bars on the computer screen were occluded to mask the fact that health was not actually manipulated. To manipulate

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the presence of a witness, participants responded to questions privately at the computer (witness absent) for 15 rounds, and verbally to the experimenter (witness present) for 15 rounds. The order in which participants responded with a witness present or absent was counterbalanced across participants. Each set of rounds contained a unique combination of the "witness" variable (two levels) and the "perceived fighter health asymmetry" variable (three levels), such that each participant received all possible combinations of "witness" and "perceived fighter health asymmetry" manipulations by the conclusion of the study. At the end of each set (i.e., every five rounds), participants answered questions about the set of rounds just completed, including "Would you want your opponent on your team in a two-person versus two-person match-up?" on a 10-point Likert-type scale ranging from 1 (definitely not) to 10 (definitely yes). Participants also answered several demographic questions (i.e., age, ethnicity, sexual orientation).[2]

Results

We conducted a 2 (fight outcome) × 2 (witness presence) × 3 (perceived health asymmetry) mixed-model ANOVA to examine whether fight outcome, presence of a witness, or perceived fighter health asymmetry affected men's interest in allying with their opponent for future group combat. There was a main effect for fight outcome ($F_{1, 56} = 6.08$, $p < .05$, $\eta_p^2 = .10$, Cohen's $f = .33$), whereby men who lost ($M = 7.13$, $SE = 0.37$) were more interested than men who won ($M = 5.87$, $SE = 0.37$) in allying with their opponent. There was also a main effect for witness presence ($F_{1, 56} = 7.62$, $p < .01$, $\eta_p^2 = .12$, Cohen's $f = .37$). Men with a witness present ($M = 6.76$, $SE = 0.27$) reported greater interest in allying with their opponent than men without a witness ($M = 6.24$, $SE = 0.28$). There was no effect for perceived fighter health asymmetry ($F_{2, 55} = 0.49$, $p = .62$, $\eta_p^2 = .01$, Cohen's $f = .01$).

We investigated two-way interactions between the manipulated variables on an exploratory basis. A two-way interaction emerged between fight outcome and presence of a witness ($F_{1, 56} = 6.34$, $p < .05$, $\eta_p^2 = .10$, Cohen's $f = .34$; Fig. 1). Men who won were more interested in allying with their opponent when there was a witness present ($M = 6.37$, $SE = 0.38$) than when a witness was absent ($M = 5.37$, $SE = 0.39$; $t = 2.94$, $p < .01$). For men who lost their fights, the presence ($M = 7.15$, $SE = 0.38$) or absence ($M = 7.10$, $SE = 0.39$) of a witness had no effect on their interest in allying with their opponent ($t = 0.28$, $p = .78$). No additional interactions emerged.

Discussion

The current study investigated whether three features of one-on-one combat with an opponent—fight outcome, perceived fighter health asymmetry, and the presence of a witness—affected men's interest in allying with that opponent for future intergroup combat. We hypothesized that men would be more interested in allying with a previous opponent if that opponent demonstrated good fighting ability—operationalized as winning the fight (Prediction 1) and fighting with a health disadvantage (Prediction

[2] Participants also completed the HEXACO personality inventory (Lee and Ashton 2004) and a spitefulness inventory (Marcus et al. 2014).

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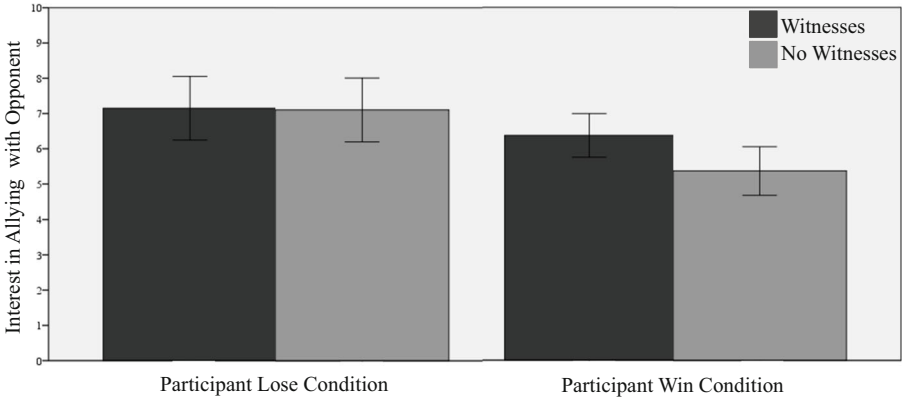

Fig. 1 Results of two-way interaction between fight outcome and witness presence predicting men's interest in allying with an opponent for future combat. Error bars represent 95% confidence intervals

2). The results support Prediction 1 but not Prediction 2, in that men were more interested in allying with their previous opponent if their opponent had won the fight, but not when they thought their opponent had a health disadvantage. We also found support for the prediction that men would be more interested in allying with an opponent if a witness was present (Prediction 3). Exploratory analyses revealed a two-way interaction between fight outcome and presence of a witness, such that the presence of a witness only affected men's interest in allying with their opponent if their opponent had lost the fight.

Given an evolutionary history of intergroup conflict (McDonald et al. 2012) and the benefits afforded to men who engage in strategic combat (Pinker 2011), it is reasonable to expect that men may attend to features of one-on-one combat to inform their decisions about cooperative alliances. Our results show that men are more interested in allying with an opponent who is successful in one-on-one combative contests. This result accords with evidence indicating that men are attentive to combat-relevant features of other men, such as other men's formidability and physical strength (Sell et al. 2009), and their willingness to display signs of respect to combatants following combat (Pham et al. 2017; Romero et al. 2014). Our results support the proposition that men are interested in allying with combatants that honestly demonstrate competent fighting ability—ability that can, in part, be displayed during one-on-one combative contests.

Our results did not support the prediction that perceived health asymmetries between one-on-one combatants affect men's interest in allying with their opponent. Given the costs associated with physical combat, one-on-one fights do not occur often between unevenly matched opponents insofar as handicapped opponents typically avoid risky encounters (Gould 2003)—though, men who engage in a handicapped fight in which they are at a disadvantage garner greater respect from their opponent (Pham et al. 2017). Although we caution over-interpretation of a null result, we speculate that the lack of an effect of perceived fighter health asymmetry for combat ally decisions suggests that fighter symmetry among group combatants (at least with regard to health) may be less important than for one-on-one combat. Future research might explore the composition of group combat members with regard to characteristics known to play a role in one-on-one combative fights, such as opponent size and physical strength.

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Online group video games, such as Call of Duty, could also be used in future research to test hypotheses with regard to combat ally decisions and formidability assessments—such methods could be applied at a large scale given the popularity of national and international eSports tournaments. The null result may also be attributable the lack of salience of the manipulation since opponent health bars were occluded from view during the study. A more effective manipulation of health may alternatively reveal that individuals would be less interested in allying with a previous unhealthy combatant given a general aversion to unhealthy individuals (Schaller and Park 2011).

Research on humans and on nonhuman primates shows that combatants sometimes engage in behaviors that promote reconciliation and future cooperation following physical conflict (de Waal 2000; Sell et al. 2012). One explanation for this behavior is that reconciliation following conflict may signal one's cooperativeness or prestige to the social group—a form of reputation management—or may promote intragroup cooperation that is advantageous for future intergroup conflict (Judge and Bachmann 2013; McDonald et al. 2012). Our results accord with this explanation in that men in our sample reported more interest in cooperating with an opponent when a witness was present. Exploratory analyses revealed that the effect of a witness being present is qualified by an interaction with fight outcome: losers are generally interested in allying with winners with or without a witness being present; winners of one-on-one combative contests, however, are more interested in allying with their opponent in the future when a witness was present, as compared to when a witness was not present. That winners offer future cooperation only if a witness is present may reflect a means by which socially dominant men maintain prestige (i.e., freely conferred status; Snyder et al. 2008) in their social group by displaying willingness to cooperate with others, despite their dominant position and ability to supplant competitors. Future research is needed, however, to test this hypothesis.

Several limitations to the current study should be taken into account for appropriate interpretation of the results. First, the relationship between the two fighters was not measured or manipulated in the current research. We cannot confidently speculate whether the participants in the current research perceived their opponent as an in-group or out-group member—either of which may influence men's willingness to ally with a previous combatant. Future research could manipulate in-group and out-group membership of an opponent to investigate how or whether this affects future cooperation. Second, the interaction analyses were conducted as exploratory analyses and should be interpreted with caution and as speculative, not conclusive. Third, the current study is the first, to our knowledge, to investigate the associations between decision-making processes for one-on-one combat and group combat. The reported study is best viewed as a pilot study for future investigation in this domain of inquiry. Finally, the findings of the current study are limited in their generalizability to women. We recruited only men given that they were the primary participants in group combat (Daly and Wilson 1988; Pinker 2011) and given that men play combative video games more often than women do (Lucas and Sherry 2004). We suspect, however, that similar, although weaker, effects would occur for women participants, in accord with research on combat and formidability with women that show generally weaker effects as compared with men (e.g., Benenson and Wrangham 2016; Sell et al. 2009).

Research suggests that men have evolved mechanisms designed to address adaptive problems before, during, and after conflict (McDonald et al. 2012; Sell et al. 2012). We investigated whether features of one-on-one combat with an opponent (i.e., fight

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outcome, perceived fighter health asymmetry, presence of a witness) affected men's interest in allying with that opponent for future intergroup combat. The results show that losers are more interested in future cooperation with winners—suggesting that men attend to the benefits of allying with a man who has demonstrated superior fighting ability. The results also show that men are more interested in allying with an opponent when a witness is present—suggesting that men's interest in future cooperation may function to maintain prestige or signal cooperativeness to others. The findings of the current study thus contribute valuable data to the understanding of how humans form coalitions (see also Glowacki et al. 2016). We suggest that allying with a previous opponent for group combat may vary with the relationship value of the opponent and with the benefits afforded by demonstrating cooperativeness to third-party observers.

References

Apicella, C. L., Marlowe, F. W., Fowler, J. H., & Christakis, N. A. (2012). Social networks and cooperation in hunter-gatherers. *Nature, 481*, 497–501.

Association of Boxing Commissions. (2009). *Unified rules of MMA (Unified Rules)*. Retrieved from http://www.abcboxing.com/unified_mma_rules.pdf

Aureli, F., & van Schaik, C. P. (1991). Post-conflict behaviour in long-tailed macaques (*Macaca fascicularis*): Coping with the uncertainty. *Ethology, 89*, 101–114.

Aureli, F., Cords, M., & Van Schaik, C. P. (2002). Conflict resolution following aggression in gregarious animals: A predictive framework. *Animal Behaviour, 64*, 325–343.

Benenson, J. F., & Wrangham, R. W. (2016). Cross-cultural sex differences in post-conflict affiliation following sports matches. *Current Biology, 26*, 2208–2212.

Brown, D. E. (1991). *Human universals*. New York: McGraw-Hill.

Castles, D. L., & Whiten, A. (1998a). Post-conflict behaviour of wild olive baboons. I. Reconciliation, redirection and consolation. *Ethology, 104*, 126–147.

Castles, D. L., & Whiten, A. (1998b). Post-conflict behaviour of wild olive baboons. II. Stress and self-directed behaviour. *Ethology, 104*, 148–160.

Chiao, J. Y., Harada, T., Oby, E. R., Li, Z., Parrish, T., & Bridge, D. J. (2009). Neural representations of social status hierarchy in human inferior parietal cortex. *Neuropsychologia, 47*, 354–363.

Clutton-Brock, T. H., Albon, S. D., & Gibson, R. M. (1979). The logical stag: Adaptive aspects of fighting in red deer (*Cervus elaphus* L.). *Animal Behaviour, 27*, 211–225.

Cords, M. (1994). Experimental approaches to the study of primate conflict resolution. In J. J. Roeder, B. Thierry, J. R. Anderson, & N. Herrenschmidt (Eds.), *Current primatology, Vol. II: Social development, learning and behaviour* (pp. 127–136). Strasbourg: Presses de l' Universite´ Louis Pasteur.

Daly, M., & Wilson, M. (1988). *Homicide*. Hawthorne: Aldine de Gruyter.

de Waal, F. B. M. (2000). Primates–a natural heritage of conflict resolution. *Science, 289*, 586–590.

de Waal, F. B. M., & Aureli, F. (1997). Conflict resolution and distress alleviation in monkeys and apes. *Annals of the New York Academy of Sciences, 807*, 317–328.

de Waal, F. B. M., & van Roosmalen, A. (1979). Reconciliation and consolation among chimpanzees. *Behavioral Ecology and Sociobiology, 5*, 55–66.

Glowacki, L., Isakov, A., Wrangham, R. W., McDermott, R., Fowler, J. H., & Christakis, N. A. (2016). Formation of raiding parties for intergroup violence is mediated by social network structure. *Proceedings of the National Academy of Sciences, 113*, 12114–12119.

Goldstein, J. S. (2001). *War and gender: How gender shapes the war system and vice versa*. Cambridge: Cambridge University Press.

Gould, R. (2003). *Collision of wills: How ambiguity about social rank breeds conflict*. Chicago: University of Chicago Press.

Judge, P. G., & Bachmann, K. A. (2013). Witnessing reconciliation reduces arousal of bystanders in a baboon group (*Papio hamadryas hamadryas*). *Animal Behaviour, 85*(5), 881–889.

Koski, S. E., Koops, K., & Sterck, E. H. (2007). Reconciliation, relationship quality, and postconflict anxiety: Testing the integrated hypothesis in captive chimpanzees. *American Journal of Primatology, 69*, 158–172.

Author's personal copy

Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO personality inventory. *Multivariate Behavioral Research, 39*, 329–358.
Lucas, K., & Sherry, J. L. (2004). Sex differences in video game play: A communication-based explanation. *Communication Research, 31*, 499–523.
Marcus, D. K., Zeigler-Hill, V., Mercer, S., & Norris, A. L. (2014). The psychology of spite and the measurement of spitefulness. *Psychological Assessment, 26*, 563–574.
McCullough, M. E., Pedersen, E. J., Tabak, B. A., & Carter, E. C. (2014). Conciliatory gestures promote forgiveness and reduce anger in humans. *Proceedings of the National Academy of Sciences, 111*, 11211–11216.
McDonald, M. M., Navarrete, C. D., & Van Vugt, M. (2012). Evolution and the psychology of intergroup conflict: The male warrior hypothesis. *Philosophical Transactions of the Royal Society B, 367*, 670–679.
Ong, W. J. (2012). *Fighting for life: Contest, sexuality, and consciousness*. Ithaca: Cornell University Press.
Payne, R. J. H. (1998). Gradually escalating fights and displays: The cumulative assessment model. *Animal Behaviour, 56*, 651–662.
Pham, M. N., Barbaro, N., Mogilski, J. K., Shackelford, T. K., & Zeigler-Hill, V. (2017). Post-fight respect signals valuations of opponent's fighting performance. *Personality and Social Psychology Bulletin, 43*, 407–417.
Pinker, S. (2011). *The better angels of our nature: The decline of violence in history and its causes*. London: Penguin.
Romero, G. A., Pham, M. N., & Goetz, A. T. (2014). The implicit rules of combat. *Human Nature, 25*, 496–516.
Schaller, M., & Park, J. H. (2011). The behavioral immune system (and why it matters). *Current Directions in Psychological Science, 20*, 99–103.
Sell, A. N. (2011). The recalibrational theory and violent anger. *Aggression and Violent Behavior, 16*, 381–389.
Sell, A., Cosmides, L., Tooby, J., Sznycer, D., von Rueden, C., & Gurven, M. (2009). Human adaptations for the visual assessment of strength and fighting ability from the body and face. *Proceedings of the Royal Society B: Biological Sciences, 276*, 575–584.
Sell, A., Hone, L. S., & Pound, N. (2012). The importance of physical strength to human males. *Human Nature, 23*, 30–44.
Snyder, J. K., Kirkpatrick, L. A., & Barrett, H. C. (2008). The dominance dilemma: Do women really prefer dominant mates? *Personal Relationships, 15*, 425–444.
Van Vugt, M. (2009). Sex differences in intergroup competition, aggression, and warfare: The male warrior hypothesis. *Annals of the New York Academy of Sciences, 1167*, 124–134.
Wang, D. H., & Li, H. (2007). Nonverbal language in cross-cultural communication. *Sino-US English Teaching, 4*, 66–70.
Wilson, M., & Daly, M. (1985). Competitiveness, risk taking, and violence: The young male syndrome. *Ethology and Sociobiology, 6*, 59–73.
Wrangham, R. W., & Peterson, D. (1996). *Demonic males: Apes and the origins of human violence*. Boston: Houghton Mifflin.

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