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THE ROLE OF MATE SEEKING MOTIVES, STATUS ACQUISITION MOTIVES, AND DARK PERSONALITY IN PREDICTING RESPONSES TO AN AGGRESSION-PROVOKING SITUATION

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by

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ABSTRACT

Aggressive behavior is associated with many adverse consequences, prompting extensive research on the potential adaptive functions of aggression. For example, there is evidence that aggression may be beneficial for attaining status and attracting a potential mate (e.g., Buss & Dedden, 1990; Daly & Wilson, 1988; Griskevicius et al., 2009). Additionally, several personality traits have been identified as robust predictors of aggressive behavior (e.g., psychopathic, Machiavellian, narcissistic, and sadistic traits; Chester et al., 2019; Neumann & Hare, 2008; Paulhus & Jones, 2017; Twenge & Campbell, 2003). These two research traditions (i.e., evolutionary and personality) have remained separate, with few studies combining methods and variables. This study examined these relationships by assessing personality traits relevant to aggression that have demonstrated distinct associations with status acquisition and mate seeking (i.e., psychopathic, narcissistic, Machiavellian, and sadistic personality traits), activating mate seeking and status motives through vignettes, and measuring responses to a scenario designed to provoke aggression. While these vignettes had the intended priming effects for women, this was not the case for men. This led us to omit men from the primary analysis and examine them separately in exploratory analyses. Contrary to our hypotheses, motivation to attract a mate, motivation to achieve status, and dark personality traits (i.e., psychopathic, narcissistic, Machiavellian, and sadistic traits) did not predict women's responses to an aggression-provoking situation. The expected interactions between motivational states and personality variables were also non-significant.

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DEDICATION

To my mother, Rosie, whose unwavering belief in me gave me the confidence to pursue my most formidable goals. Her passion for learning and dedication to her students and colleagues taught me the value of education and hard work, and for that I am eternally grateful. Although she was not here for my time in graduate school, I would never have accomplished this without her many years of love and guidance. I have no doubt that she would be immensely proud.

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CHAPTER I - INTRODUCTION

Human aggression can be traced back to our earliest known ancestors and has persisted into modern times despite various individual and societal costs (Fajnzylber et al., 2002; Trinkaus & Zimmerman, 1982; Zollikofer et al., 2002). In describing the research on aggression at the time, Neumann (1987) characterized the human as, "without a doubt, the most destructive creature on earth, unmatched in his volume or motivation by any other animal group" (pgs. 17-18). Attempts to better understand aggression have led to extensive research on its connection to personality, as well as its evolutionary motivations and adaptive functions (Cuomo et al., 2008; Deason et al., 2019; Furnham et al., 2013; Goldstein et al., 2008; Griskevicius et al., 2009; Knight et al., 2018; Wyckoff et al., 2019). Despite this, few studies have considered both adaptive functions (e.g., fundamental social motives such as status and mate seeking) and dark personality traits (e.g., psychopathy, narcissism, sadism) when studying aggression. The current study aimed to provide a more comprehensive view by examining both evolutionary motives and dark personality variables in predicting both direct and indirect aggression.

Aggression

Baron and Richardson (1994) defined aggression as "any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment" (pg. 7). Krahé (2013) highlighted several essential components of this definition. First, aggression is determined by the aggressor's intent rather than the consequences of the aggressive act. An act committed with the goal of causing harm is considered aggression regardless of whether the victim is harmed. Second, this definition requires that the victim is motivated to avoid the act, excluding situations in which

someone consents to an injury-causing action (e.g., a painful medical procedure). Third, Krahé (2013) noted that "harm" refers to a variety of actions that qualify as "treatment that is not wanted by the target persons" (pg. 9). Thus, in addition to acts that cause physical injury, actions such as spreading rumors or hurting someone's feelings also qualify as harm.

In the current study, the construct of aggression was further divided into two categories based on the immediacy of the behavior: direct and indirect aggression. *Direct aggression* is any aggressive action that occurs face-to-face with the victim (Richardson & Green, 2006). This can include acts of overt physical, sexual, or verbal aggression, as well as threats, physical intimidation, and other aggressive behaviors. *Indirect aggression* refers to aggressive behavior that does not occur face-to-face with the victim (Richardson & Green, 2006). It has been defined as any behavior committed to cause harm so that the aggressor can remain unknown to the victim (Archer & Coyne, 2005). Björkqvist and colleagues (1992) added, "the perpetrator attempts to inflict pain in such a manner that he or she makes it seem as though there has been no intention to hurt at all" (p. 118). Indirect aggression can take many forms, including malicious gossip, vandalism, social exclusion, sending hurtful messages anonymously, manipulation, or attempting to negatively influence others' opinions of someone (Archer & Coyne, 2005). Though relational aggression is sometimes viewed as synonymous with indirect aggression, it is best regarded as a distinct concept that does not fall cleanly into a "direct" or "indirect" classification. Relational aggression is generally indirect, but it can also be direct (e.g., confronting someone and threatening to expose secrets, ignoring someone physically present; Archer & Coyne, 2005; Coyne et al., 2006). Thus, relational aggression is

differentiated from the “direct” and “indirect” categorizations of aggression by specifying the type of harm one intends to cause (Linder et al., 2002).

Correlates of Aggression

Direct aggression, including intimate partner violence, costs the United States nearly $2.1 trillion in medical expenses and $73 billion in justice system costs throughout a lifetime (Peterson et al., 2018). Further, Peterson and colleagues (2018) estimated that $1.3 trillion in work productivity is lost among perpetrators and victims of intimate partner violence in the United States. Although these estimates only include a subset of the most severe aggressive behaviors, the Centers for Disease Control (2019) estimated that about 2 million emergency room visits per year could be attributed to incidences of physical aggression. Direct aggression is also associated with several adverse psychosocial and mental health-related outcomes. Among children, victims of physical aggression experience more symptoms of depression and anxiety than their peers (Craig, 1998), and perpetrators are at increased risk for future maladjustment, academic problems, and dropout (Xie et al., 2002). In adults, victims of physical aggression are more likely to experience health problems, depression, substance abuse problems, and poor social support (Porcerrelli et al., 2003). Moreover, other forms of direct aggression, including verbal aggression and emotional abuse, are associated with problematic drinking behavior, depression, anxiety, and hostility (Keashly & Harvey, 2005; Richman et al., 1996, 1999; Teicher et al., 2010).

Studies of indirect aggression in children have identified many adverse correlates of both perpetration and victimization. Children who have been victims of indirect aggression report more anxious and depressive symptoms, higher levels of loneliness and

peer rejection, and future social maladjustment (Archer & Coyne, 2005; Craig, 1998; Crick, 1996; Crick & Bigbee, 1998; Crick & Grotpeter, 1995; Eslea et al., 2004; Linder et al., 2002). Olafsen and Viemeroe (2000) found that girls who were victims of indirect aggression were more prone to developing self-destructing coping, such as substance use, self-harm, and suicidal ideation. Studies of indirect and relational aggression in emerging adult and adult samples show social and psychological difficulties for both victims and perpetrators of relational aggression (Bagner et al., 2007). Examples include peer rejection, poor psychological adjustment, symptoms of depression, symptoms of anxiety, antisocial personality features, interpersonal problems, borderline personality features, and low levels of prosocial behavior (Bagner et al., 2007; Crick & Grotpeter, 1995; Czar et al., 2011; Dahlen et al., 2013; Werner & Crick, 1999).

Gender and Aggression

Many behaviors associated with indirect or relational aggression (e.g., gossip and social exclusion) are assumed to be more prevalent among women. While some of these behaviors are more common among girls during childhood (Coyne et al., 2006; Crick & Grotpeter, 1995; Lagerspetz et al., 1988; Marsee et al., 2005), findings are less clear for emerging adults and adults. Some studies have found that men engage in indirect aggression as often or more often than women (Archer, 2004; Czar et al., 2011; Dahlen et al., 2013; Lento-Zwolinski, 2007; Schmeelk et al., 2008). Others found that men are more likely to commit direct aggression, while women are more likely to utilize indirect aggression (Daly & Wilson, 1988; Griskevicius et al., 2009; Hess & Hagen, 2006).

Divergent findings concerning gender and aggression may reflect methodological differences. Most studies that found no gender differences in the frequency of indirect

aggression measured how often participants engaged in behaviors associated with indirect aggression over a specified period (e.g., Archer, 2004; Czar et al., 2011; Dahlen et al., 2013; Lento-Zwolinski, 2007; Schmeelk et al., 2008). On the other hand, studies finding gender differences were more likely to measure how participants responded or would like to respond in aggression-provoking situations (e.g., Daly & Wilson, 1988; Griskevicius et al., 2009; Hess & Hagen, 2006). While men and women may engage in indirect and relational aggression at similar rates, men may be more likely to respond with direct aggression and women with indirect aggression in situations where aggression is used. In the present study, we asked participants to respond to a hypothetical situation designed to provoke an aggressive response. We included gender as a variable to provide information about its potential role in understanding participants' responses.

Fundamental Social Motives

According to evolutionary theory, successful survival and reproduction are fundamental motivators of human behavior, emotion, and cognition (Kenrick et al., 2012). Activating certain survival- and reproduction-related motivations leads to differences in attention, memory, stereotyping, and social perception, among other variables (Ackerman et al., 2006; Becker et al., 2005; Fox et al., 2001; Maner et al., 2005; Schaller et al., 2003). These motives have been termed "fundamental social motives" and were defined by Neel and colleagues (2016) as "systems shaped by our evolutionary history to energize, organize, and select behavior to manage recurrent social threats and opportunities for reproductive fitness" (pg. 4). In their evaluation of individual differences among social motives, survival and reproductive motives were broken down to form eleven distinct but related social motives considered fundamental to human

survival and reproduction: self-protection, disease avoidance, group affiliation, exclusion concern, independence, status, mate seeking, mate retention, breakup concern, kin care, and childcare. Rather than being conceptualized as stable personality traits, they are typically viewed as requiring activation by an environmental cue (Neel et al., 2016). The natural activation of these fundamental social motives differs based on factors such as age, sex, relationship status, parent status, childhood stability, and personality. For this study, the status and mate seeking motives were of primary interest due to their unique associations with aggression and dark personality traits (Buss & Dedden, 1990; Felson, 1982; Griskevicius et al., 2009; Jonason & Zeigler-Hill, 2018).

Anderson and colleagues (2015) defined the status motive as "the respect, admiration, and voluntary deference an individual is afforded by others, based on that individual's perceived instrumental social value" (pg. 2). Status is afforded by others (Barkow, 1975; Benoit-Smullyan, 1944; Blau, 1964; Blau & Scott, 1962; Goldhamer & Shils, 1939; Henrich & Gil-White, 2001; Kemper, 1990; Kemper & Collins, 1990; Leary et al., 2014; Thibaut & Kelley, 1959) as a result of possessing characteristics that could be of use to others (Berger et al., 1972; Blau, 1964; Goldhamer & Shils, 1939; Leary et al., 2014; Ridgeway, 1984; Thibaut & Kelley, 1959). The desire for status is considered universal, and there is little evidence of gender or age differences in the motivation to attain status (Anderson et al., 2015; Huo et al., 2010; Fournier, 2009; Weisfeld et al., 1984). Although the motivation to attain status is similar for men and women, the adaptive function of status differs by gender. For men, one of the primary adaptive functions of attaining status is to aid in attracting a mate. According to Sexual Selection Theory (Trivers, 1972), high-status men are considered desirable mate choices because of

an increased likelihood of having access to resources that ensure the survival of themselves, their mate(s), and their offspring. For women, status can increase access to resources through securing group affiliation (Anderson et al., 2012).

The mate seeking motive involves efforts to acquire a partner, typically for reproduction and resource acquisition. This can include either a short-term or long-term mate, as each can be adaptive depending on the characteristics of the prospective mate, gender, and environment (Gangestead & Simpson, 2000). Notably, both mate preference and the strategy used to acquire a mate vary based on how gender and environmental circumstances influence the "trade-off" between parenting and mating effort (Gangestead & Simpson, 2000; Trivers, 1972), as well as age, fertility, and relationship status (Neel et al., 2016). For example, men's reduced obligatory investment in the birth and immediate caretaking of offspring provides them more opportunity for reproduction; however, men with a long-term mating strategy who remain monogamous to one female partner are only able to reproduce as often as their mate. Thus, it would be advantageous for men with few resources to adopt a short-term mating preference that would allow for more frequent reproduction since having more offspring increases the likelihood that genes will be passed on (Trivers, 1972). On the other hand, while a long-term mating strategy may result in fewer offspring, resource contributions from two parents can increase an offspring's likelihood of survival, reducing the need for many offspring (Gangestead & Simpson, 2000). Mate seeking motives are higher for individuals not in intimate relationships (Neel et al., 2016).

Fundamental Social Motives and Aggression

Human aggression has evolved to be specific to social context and used as a method to achieve the goals of survival and reproduction (Archer, 2001; Buss, 2005; Buss & Duntley, 2006; Campbell, 2005; Hawley, 1999). For example, using aggression to defend oneself or one's family could increase the likelihood of survival while communicating an ability to inflict injury to potential threats (Archer et al., 1998; Griskevicius et al., 2009). Aggression in response to minor provocations is usually linked to perceived threats to status (Felson, 1982; Griskevicius et al., 2009), as status may be important enough to risk personal injury due to its reproductive benefits (Betzig, 1986; Buss, 1989). Thus, aggression may have evolved as a means of achieving or protecting status via sexual selection (Daly & Wilson, 1983; Pellegrini & Archer, 2005; Trivers, 1972) if mating-related benefits exceed the cost of potential injury (Darwin, 1871/1981; Kokko et al., 2003).

Gender differences in preference for type of aggression are consistent with parental investment theory (Trivers, 1972), which explains sex-specific behaviors as a byproduct of physical investment in reproduction. Because women are limited in how often they reproduce, they will be more selective when choosing a mate, as certain mates present a greater likelihood of offspring survival (i.e., good genes, access to resources, ability to protect). Thus, men must compete to earn the woman's preference, and direct aggression can serve to eliminate potential competitors (Griskevicius et al., 2009). Considering resource acquisition can indicate mate value (Trivers, 1972), an individual motivated to attract a mate may be more inclined to engage in risky behavior to secure resources (Buss & Shackleford, 1997). Additionally, parental investment theory suggests

that it is of greater reproductive importance for women to avoid illness or injury. Thus, for women, the potential costs of direct aggression are more likely to outweigh the potential benefits (Campbell, 1999; Taylor et al., 2000). As a result, indirect aggression can serve as a lower-cost strategy for managing intra-sexual competition and conflict as it decreases the likelihood of physical injury (Bjorkqvist, 1994; Buss & Dedden, 1990; Buss & Schmitt, 1993; Griskevicius et al., 2009).

Dark Personality Traits

The decision to respond aggressively with either direct or indirect aggression is based on evolutionary trade-offs associated with motivational states (i.e., inherited preferences for the option in which the benefits most often outweigh the risks depending on the adaptive task one is attempting to solve). At the same time, individual differences influence how one weighs the risks and benefits associated with these trade-offs. Dark personality traits (e.g., psychopathy, narcissism, Machiavellianism, and sadism) have been linked to an increased propensity to engage in aggressive behavior and other morally transgressive behaviors (Buckels et al., 2013a, 2014, 2019; Chester et al., 2019; Jones & Paulhus, 2009, 2010; Lobbestael et al., 2014; Paulhus & Jones, 2017).

Psychopathic Personality Traits

Psychopathy is a personality construct that includes behavioral (e.g., antisocial behavior, impulsivity, aggressive behavior), affective (e.g., low anxiety, lack of empathy, lack of remorse or guilt), cognitive (e.g., grandiosity, egocentricity) and interpersonal (e.g., superficiality, manipulativeness, an inability to form strong emotional connections) features (Ansel et al., 2014; Blair et al., 2005; Drislane et al., 2014; Hare & Neumann, 2005, 2009; Lynam & Derefinko, 2006). Psychopathic traits exist along a continuum

(Hare & Neumann, 2008), from subclinical levels associated with less impairment (LeBreton et al., 2006), to more severe levels. Psychopathic traits are one of the strongest predictors of overt aggression (Hare & Neumann, 2005; Helfritz & Standford, 2006; Porter & Woodworth, 2006), and are a well-established predictor among criminal psychopaths (Hare & Neumann, 2008; Porter & Woodworth, 2006) and non-criminal populations (Neumann & Hare, 2008; Westhead & Egan, 2015). Studies have linked psychopathic traits to aggression in correctional settings (Cale & Lilienfeld, 2006; Hare, 1981; Hare & McPherson, 1984; Williamson et al., 1987), among civilly committed inpatients (Heilbrun et al., 1998), and among college students (Czar et al., 2011; Miller & Lynam, 2003).

Narcissistic Personality Traits

Narcissistic personality traits include an inflated self-concept, sense of entitlement, inability to endure disapproval or criticism, need for admiration, extreme desire for success (e.g., power, status, beauty, financial gains), grandiosity, and a fixation on impressing others (Buffardi & Campbell, 2008; Lau & Marsee, 2013; Lau et al., 2011; Morf & Rhodewalt, 2001; Ojanen et al., 2012; Raskin & Terry, 1988). Although there is some overlap with psychopathy (Morf & Rhodewalt, 2001; Raskin & Terry, 1988), narcissism centers on superior identity or a need for self-enhancement, while psychopathy tends to be a broader concept (Jones & Paulhus, 2011a). Narcissism is sometimes conceptualized as having two subtypes: grandiose and vulnerable (Miller et al., 2011; Pincus et al., 2009). Traits typical of grandiose narcissism include inflated self-esteem, interpersonal dominance, an inability to acknowledge weaknesses or shortcomings, low empathy, and aggression (Gabbard, 1989; Gore & Widiger, 2016;

Kernberg, 1974; Miller et al., 2011; Ronningstam, 2009), whereas vulnerable narcissism presents as defensiveness and hypersensitivity in the face of criticism, dependence on explicit validation from others, shame, and poor emotion regulation (Dickinson & Pincus, 2003; Gore & Widiger, 2016; Miller et al., 2011; Ronningstam, 2009). Of the two subtypes, grandiose narcissism appears to have a unique association with aggressive behavior in response to provocation (Lobbestael et al., 2014), making it most relevant to the aims of this study. Specifically, individuals high in grandiose narcissism are more likely to respond to criticism with aggression (Barry et al., 2006; Baumeister et al., 1996; Bushman & Baumeister, 1998; Twenge & Campbell, 2003).

Machiavellian Personality Traits

Machiavellianism is a personality construct based on the philosophy of Nicolo Machiavelli, a political advisor in the 1500s, that describes individuals who believe in interpersonal manipulation as a key to success and behave according to this belief (Christie & Geis, 1970; Jones & Paulhus, 2009). Individuals high in Machiavellian traits lack concern for morality, disregard the interests of others while focusing on personal gain in their use of manipulation, and view emotional manipulation as acceptable behavior (Bagozzi et al., 2013; Dussault et al., 2013; Lau, 2010; Lau & Marsee, 2013). Additionally, individuals with these traits are more skilled at manipulating, lying, and detecting others' manipulation attempts (Lau, 2010; Lau & Marsee, 2013). Machiavellianism has been linked with direct and indirect aggression among adults (Baughman et al., 2012). While there is some evidence that individuals high in Machiavellian traits use calculated forms of aggression for personal gain (Paulhus & Jones 2017), Machiavellian aggression may also be reactive (Pailing et al., 2014).

Machiavellian traits are associated with poor emotion regulation (Lau & Marsee, 2013), and individuals high in these traits are more likely to retaliate against remorseful wrongdoers (Harrel, 1980). Still, Paulhus and Jones (2017) suggested that Machiavellian aggression should be limited to situations where the aggressor can act without consequences that outweigh potential benefits. Taken together, Machiavellian aggression tends to be inconsistent and situation-specific (Jones & Paulhus, 2009; Paulhus & Jones, 2017).

Sadistic Personality Traits

Sadism refers to the enjoyment of inflicting pain on others (Baumeister & Campbell, 1999). While clinical sadism may include extreme acts (e.g., sexual torture), sadistic traits that fall into a subclinical range, sometimes described as "everyday sadism," include behaviors such as watching violent videos or playing violent video games (Baumeister & Campbell, 1999; Buckels et al., 2013a; Greitemeyer, 2015). Considering the sadist's enjoyment of others' suffering, it is not surprising that sadistic traits are associated with aggression (Chester et al., 2019; Heilbrun & Loftus, 1986). Buckels and colleagues (2013a, 2014) found that, not only do individuals high in sadism derive pleasure from cruel behaviors, but they seek opportunities to do so and are willing to work for the chance to hurt an innocent victim. Unlike other dark personality traits that often predict context-specific aggression, individuals high in sadistic traits tend to be aggressive regardless of context, provocation, or obvious benefit (Baumeister & Campbell, 1999; Fedoroff, 2008; Reidy et al., 2011).

The Present Study

Previous studies have linked various forms of aggression with dark personality traits (e.g., psychopathy, narcissism, Machiavellianism, and sadism) and the social motives to attract a mate or gain status. Despite this, no studies have examined the combination of dark personality traits and fundamental social motives when the status or mate seeking motives are active. The present study assessed dark personality traits, activated mate seeking and status motives using vignettes, and measured responses to a scenario designed to provoke aggression. We predicted that participants in the Status condition would report a greater desire to compete and a stronger desire for status than those in the Mate Seeking and the control conditions (H1) and that those in the Mate Seeking condition would report a greater desire to attract a mate than those in the status and control conditions (H2). Additionally, we predicted that participants in the Status and Mate Seeking conditions would respond with higher levels of direct and indirect aggression than those in the control condition (H3). Based on previous research linking dark personality traits to direct and indirect aggression, we also predicted that these traits would be positively related to indirect and direct aggression (H4). We predicted that women would be more likely to respond with indirect aggression than direct aggression (H5) and that men would be more likely to respond with direct aggression than indirect aggression (H6) across conditions.

Unlike those with psychopathic, narcissistic, and Machiavellian traits, individuals with sadistic traits appear to be aggressive regardless of context or provocation. Additionally, previous studies have found gender differences in aggressive responses following mate seeking and status motive activation, and sadistic traits have been

associated with indirect aggression in women and both direct and indirect aggression in men. Therefore, we expected the relationship between sadism and aggression to differ by gender such that sadism would be related to responding with indirect aggression for women (H7a), and sadism would be related to responding with both direct and indirect aggression for men (H7b).

Because psychopathic, narcissistic, and Machiavellian traits are associated with context-specific aggression, we expected levels and types of aggression to vary by condition. We expected that, in both the Status and Mate Seeking conditions, psychopathic traits would be associated with higher aggression levels than individuals with psychopathic traits in the control condition (H8). Additionally, we predicted that individuals high in narcissistic traits who were in the Status condition would respond with higher levels of aggression than individuals high in narcissistic traits in the Mate Seeking or control conditions (H9). We expected the type of aggression used to vary by personality traits and condition as well. Specifically, we expected women with high levels of narcissistic traits who were in the Status condition to respond with higher levels of indirect aggression than direct aggression (H9a), men with high levels of narcissistic traits who were in the Status condition to respond with high levels of both direct and indirect aggression (H9b), men with high levels of psychopathic traits who were in the status group will respond with higher levels of direct aggression (H8a), and both men and women who were high in psychopathic traits who were in the Mate Seeking condition would respond with higher levels of indirect aggression than direct aggression (H8b). Finally, we predicted that men and women with Machiavellian traits in the Mate Seeking

and Status conditions would respond with higher levels of indirect aggression than those in the control condition (H10).

CHAPTER II - METHOD

Participants

A small-medium effect size (Cohen's $f = 0.2$) power analysis indicated that 250 participants would sufficiently detect effects for a 2 (gender) by 3 (condition) MANOVA ($\beta = 0.80$). Participants were recruited using The University of Southern Mississippi's online research system (Sona Systems, Ltd.). Inclusion criteria included age, relationship status, and sexual attraction. The sample was restricted to an emerging adult age range (18-29; $M = 19.62$; Arnett et al., 2014) to capture a specific developmental period in the context of fundamental social motives and make results more easily comparable to other studies of aggression among emerging adults. Because this study measured motivational states reflective of heterosexual mate preferences and most relevant to individuals not in monogamous relationships, the sample was restricted to participants who endorsed at least some opposite-sex attraction who were not in monogamous relationships. To achieve a sample that more closely represented the university's undergraduate gender distribution, we oversampled men until they made up more than 25% of the sample. Data were collected from 484 participants; however, data cleaning resulted in a final sample size of 245 participants (65 men and 180 women). Information about data cleaning and additional demographic characteristics of the sample are provided in the Results section.

Procedure

Participants were presented with a short description of the study, and those interested in participating were instructed to follow a URL to the study's consent form (see Appendix A). The consent form and all measures were hosted in Qualtrics. Participants who provided consent were directed to complete a demographic

questionnaire before being randomly assigned to one of three conditions (i.e., status, mate seeking, or control). Participants in each condition were presented with one vignette designed to elicit the desired motivation associated with that condition (Appendix B). Specifically, participants assigned to the Status condition were directed to a vignette designed to activate a desire for status and competition, those assigned to the Mate Seeking condition were directed to a vignette designed to activate a desire to attract a romantic partner, and individuals assigned to the control condition were directed to a vignette designed to evoke emotional arousal that is unrelated to fundamental social motives. The presentation of each vignette was followed by a brief manipulation check to ensure that the vignette successfully elicited the desired motivational state. Specifically, all participants were asked about the desire to achieve status, desire to compete, desire to attract a mate, positive arousal, and negative arousal. To measure aggressive responses, we presented all participants with an identical short scenario in which a same-sex person is publicly rude to them. We then asked participants to indicate their likelihood of responding with various aggressive and non-aggressive responses.

Additionally, all participants were presented with personality measures in random order. To minimize potential order effects, following the completion of the demographic questionnaire, half of the participants were randomly assigned to complete the personality measures before being presented with the vignette, manipulation check, and an aggression-provoking situation. All other participants completed the personality measures after being presented with the vignette, manipulation check, and an aggression-provoking situation.

To detect insufficient effort responding, we included two directed response items in two of the longer questionnaires (e.g., “Answer ‘strongly agree’ to this question;” Meade and Craig, 2012). Participants who failed to respond correctly to either of the directed response items did not receive compensation and were eliminated from the analyses. Additionally, completion times for each questionnaire/task, each condition, and the overall study were obtained to screen for insufficient effort and potential delays between reading the vignette and responding to the scenario. Participants who completed the study without failing the quality assurance checks were compensated. Finally, at the conclusion of the study, participants were asked to indicate whether distractions were present (e.g., answered a cell phone, had a television on in the background, etc.) while participating in the study. Participants completed the study in less than one hour, and those who completed it without failing quality assurance checks received research credit consistent with school policies. The University’s Institutional Review Board approved the study procedure (see Appendix A).

Materials

Vignettes

Because motivational states fluctuate and can be inconsistent across individuals, it was necessary to prime participants to temporarily adopt the motivational states being measured in this study. Thus, participants were instructed to read one of three vignettes designed to temporarily elicit the motivational state that aligns with their assigned condition (i.e., Mate Seeking, Status, or Control; see Appendix B). The three vignettes had identical directions that instructed participants to adopt the main character's perspective and attempt to experience the emotions they might be experiencing. The

vignettes were developed by Griskevicius and colleagues (2007) and have been used to elicit motivational states in prior studies (Brown & Sacco, 2018; Brown et al., 2019; Griskevicius et al., 2009, 2010).

Status. The status vignette was designed to elicit a desire to achieve status and a motivation to compete for status. Because intrasexual competition is an important component of defining and attaining status (Griskevicius et al., 2009), two versions of the status vignette were used: one with female coworkers and one with male coworkers. Aside from gender-specific pronouns, the vignettes were identical. Participants who reported their sex as female read the vignette with female coworkers, and those who reported their sex as male read the vignette with male coworkers. Griskevicius and colleagues (2009) found that, compared to the control vignette and the mate seeking vignette, the status vignette elicited a higher desire to compete and desire for status. Griskevicius and colleagues (2009) also found that the status vignette, compared with the mate seeking and control vignettes, did not elicit higher feelings of negative arousal and elicited some feelings of positive arousal.

Mate Seeking. The purpose of the mate seeking vignette was to elicit a desire and motivation to obtain a romantic partner. Participants were instructed to imagine meeting a desirable person of the opposite sex. Women read a vignette describing an interaction with a man, and men read a vignette describing an interaction with a woman. Aside from gender-specific pronouns, the vignettes were identical. Griskevicius and colleagues (2009) found that this vignette elicited a significantly higher desire to attract a romantic partner than the control vignette and the status vignette. Additionally, this vignette elicited similar levels of positive arousal compared to the status and control vignettes, and

there was no evidence that this vignette elicited feelings of negative arousal that could impact proneness to aggression.

Control. Participants assigned to the control condition read a vignette designed to elicit some arousal to match the mate seeking and status vignettes; however, the control vignette did not involve same-sex or opposite-sex others and did not include themes of competition, status, or courtship. Griskevicius and colleagues (2009) found that, compared to the mate seeking and status vignettes, the control vignette elicited similar levels of negative and positive arousal. Additionally, they found no evidence of heightened levels of desire to attain status, desire to compete, or desire to attract a mate.

Instruments

Demographic Questionnaire

A brief demographic questionnaire was included at the beginning of the study to ensure participants met the demographic requirements of the study (i.e., between the ages of 18 and 29, some opposite-sex attraction, not in a committed relationship). Participants' reported sex was used to assign them to the vignette that includes members of the same sex in the status vignette or members of the opposite sex in the mate seeking vignette. The following information was also collected: race, education level, employment status, and gender identity. Participants who indicated being employed were asked additional information about the type of employment and their overall job satisfaction. Additionally, participants' experience of the COVID-19 pandemic was assessed using questions adapted from the Pandemic Stress Index (Harkness, 2020).

Self-Report Psychopathy Scale-Short Form (SRP-SF)

To measure psychopathic personality traits, participants were given the SRP-SF (Paulhus et al., 2009), a shortened 28-item version of the 64-item Self-Report Psychopathy Scale-III (Paulhus et al., 2009). The SRP-III was designed as a measure of psychopathic personality in non-offender samples that closely reflects the Psychopathy Checklist-Revised (PCL-R; Hare, 1991), an assessment commonly referred to as the "gold standard" for assessment of psychopathic personality in offender populations (Lilienfeld & Fowler, 2006; Williams et al., 2007). The SRP-SF consists of 28 items rated on a 5-point scale from 1 ("strongly disagree") to 5 ("strongly agree") that provide a total score for an overall assessment of psychopathic personality traits and can also be broken down into four 7-item subscales: interpersonal manipulation (IPM), callous affect (CA), erratic lifestyle (ELS), and antisocial behavior (ASB). The IPM and CA subscales can be combined to measure primary psychopathic traits, and the ELS and ASB subscales can be combined to assess secondary psychopathic traits. Internal consistency for the total scale, the only score used in the present study, was adequate (α = .89). Evidence of concurrent validity includes positive relationships with the SRP-III (Gordts et al., 2017), the Psychopathy Checklist-Revised (Paulhus et al., 2009), and the Youth Psychopathic Inventory (Neumann & Pardini, 2014).

MACH-IV

To assess Machiavellian tendencies, participants completed the 20-item MACH-IV (Christie & Geis, 1970). Items are scored on a 7-point scale ranging from 1 ("strongly agree") to 7 ("strongly disagree"). The MACH-IV provides a total score and three subscale scores: Machiavellian Tactics (9 items), Machiavellian Morality (2 items), and

Machiavellian Views (9 items). Internal consistency for the total score used in the present study was adequate (α = .76). Kaestner and colleagues (1977) reported a one-week test-retest reliability of .82, and evidence for concurrent validity includes significant positive correlations with the two other measures of Machiavellianism (Rauthmann, 2013). Additionally, positive correlations between the MACH-IV and common manipulation tactics among Machiavellians provide convergent validity (Rauthmann, 2013).

Narcissistic Personality Inventory-16 (NPI-16)

The Narcissistic Personality Inventory-16 (NPI-16) is a 16-item short version of the Narcissistic Personality Inventory (NPI) designed to measure non-pathological narcissistic personality traits. The NPI was originally developed by Raskin and Hall (1979) and included 54 items. It was shortened to a 40-item measure that strongly correlated with the original (r = .98; Raskin & Novacek, 1989; Raskin & Terry, 1988). Ames and colleagues (2006) drew from these 40 items to create a shortened version of the NPI. Consistent with the NPI, the items on the NPI-16 are presented in a forced-choice format where participants are presented with two statements and are instructed to choose the most relevant statement. In each pair, one statement is narcissistic while the other statement is not (e.g., “I am no better or worse than most people” vs. “I think I am a special person”). Evidence of validity includes a correlation of r = .90 between the NPI-16 and the 40-item version of the NPI, as well as positive relationships with related variables (e.g., openness, extraversion, self-esteem, and self-monitoring; Ames et al., 2006). The internal consistency for the NPI-16 total score was .60 in this study. Comparatively, across five studies using the NPI-16, Ames and colleagues (2006) reported internal consistencies ranging from .65 to .72 for the total score. Although this is

lower than ideal, Mathieu and St-Jean (2013) and Mathieu (2013) argued that a lower internal consistency is acceptable for the NPI-16 because the NPI-16 and the NPI-40 were similar in their relation to other personality measures and dependent variables, even with the NPI-16 demonstrating internal consistency as low as .65 (Ames et al., 2006). In their study, Mathieu and St-Jean (2013) reported Cronbach's alphas of .66, .69, and .69 across their three samples; however, other studies typically report internal consistencies in the .70s and .80s (Brewer, Erickson, et al., 2020; Brewer, Hunt, et al., 2015; Brewer, Lyons, et al., 2021; Gentile et al., 2013; Venema & Pfattheicher, 2021; Winter et al., 2014).

Comprehensive Assessment of Sadistic Tendencies (CAST)

The CAST (Buckels & Paulhus, 2013b) is an 18-item measure of sadistic tendencies that is composed of three subscales: direct physical sadism (e.g., "I enjoy tormenting people;" five items), direct verbal sadism (e.g., "I was purposefully mean to some people in high school;" six items), and vicarious sadism (e.g., "I love to watch YouTube clips of people fighting;" seven items). Items on the CAST are rated on a 5-point scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Internal consistencies were .79 for the direct verbal sadism subscale, .75 for the direct physical sadism subscale, .79 for the vicarious sadism subscale, and .89 for the total scale. Evidence of construct validity has been established through positive relationships with related constructs, such as trait aggression, violent video game preference, psychopathy, Machiavellianism, and narcissism (Greitemeyer, 2015; Greitemeyer & Sagioglou, 2017). For this study, only the total score of the CAST was used.

Fundamental Social Motives Inventory (FSMI)

The FSMI (Neel et al., 2016) is a 66-item measure of chronically activated fundamental social motives composed of eleven, six-item subscales. The subscales correspond with the eleven fundamental social motives identified by Neel and colleagues (2016). The FSMI was included as a backup measure of chronically activated status and mating motives in case the vignettes did not elicit the expected effects. Therefore, only the status (e.g., "I want to be in a position of leadership;" α = .75) and mate seeking (e.g., "I am interested in finding a new romantic/sexual partner;" α = .91) subscales were included in the analysis. Evidence of construct validity has been established through relationships with related constructs (Neel et al., 2016). Items on the FSMI can be rated on a 7-point scale where 1 indicates "strongly disagree," and 7 indicates "strongly agree."

Manipulation Check

To measure the effectiveness of the vignettes at eliciting the intended motivational states, participants responded to 10 face-valid items presented in random order originally used by Griskevicius and colleagues (2009). Because negative arousal can influence one's likelihood to act aggressively, the vignettes were designed to not elicit feelings of frustration, anger, or other feelings of negative arousal. Additionally, to control for the potential influence of positive arousal on aggressive responses, the vignettes were designed to elicit similar levels of positive arousal. Because of this, positive and negative arousal were assessed to ensure the intended levels of positive and negative arousal have or have not been elicited. Specifically, the items assess desire for status (i.e., "To what extent are you motivated to have higher prestige?" "To what extent do you desire to have higher social status?"), desire to compete (i.e., "To what extent do

you feel competitive?" "To what extent are you motivated to compete?"), desire to attract a mate (i.e., "To what extent do you feel romantically aroused?" "To what extent are you motivated to attract a romantic partner?"), positive arousal (i.e., "To what extent do you feel enthusiastic?" "To what extent do you feel excited?"), and negative arousal (i.e., "To what extent do you feel frustrated?" "To what extent do you feel angry?"). Respondents rated each item on a 9-point scale from 1 ("not at all") to 9 ("very much"). Items were examined individually.

Aggression-Provoking Situation (APS)

To understand how activated mate seeking and status motives influence aggressive responses, we instructed participants to imagine a scenario developed by Griskevicius and colleagues (2009) in which a same-sex other was publicly rude to them (i.e., they were at a party, and a man/woman carelessly spilled a drink on them and does not apologize). Griskevicius and colleagues (2009) found that 76.3% of men and 76.2% of women reported experiencing a similar situation in real life. Over half of those who had experienced a similar situation responded with direct or indirect aggression. Participants were instructed to indicate their desire to respond with ten different behaviors using a 9-point scale from 1 ("not at all") to 9 ("very much"). Eight of these items were developed by Griskevicius and colleagues (2009) to assess types of aggression. Four items measured direct aggression (α = .91) and included how likely the participant was to hit this person, insult this person to their face, push this person, or get in this person's face. Four items measured indirect aggression (α = .76) and included how likely the participant was to talk behind this person's back, tell a friend an embarrassing secret they have heard about this person, try to exclude this person from a social group,

and make up a lie about this person. We added two items measuring non-aggressive responses (i.e., “walk away from the situation” and “ignore the situation;” $\alpha = .76$). Consistent with Griskevicius and colleagues (2009), these items were presented randomly.

CHAPTER III - RESULTS

Preliminary Analyses

The data file was downloaded from Qualtrics and converted into an SPSS file for data cleaning. Data from 247 participants were removed for the following reasons: 9 were outside the 18-29 age range (5 men, 4 women), 104 indicated being in a monogamous relationship (56 women, 48 men), 10 denied any opposite-sex attraction(7 women, 3 men), 37 failed either of the directed response items (26 women, 11 men), 9 were missing more than 25% of their data (8 women, 1 man), 6 had notable gaps in time between reading the vignette and responding to the APS (6 men), 2 provided the same response to every item other than directed response items (2 women), and 62 spent less than 20 seconds reading the vignette (51 women, 11 men). Because gender was included as a categorical independent variable in the primary analyses, participants who indicated their gender as "transgender" (n = 3) or "other" (n = 5) were also removed due to insufficient group sizes. Thus, data from 237 participants were included in the analyses (see Table 1).

Table 1

Sample Demographics

Condition	Mate seeking		Status		Control		Total	
N	83		68		86		237	
Age (years)								
M (*SD*)	19.52 (1.90)		19.65 (1.74)		19.67 (2.27)		19.61 (1.99)	
	n	%	*n*	%	*n*	%	*n*	%
Gender identity								
Male	20	24.1	17	25.0	27	31.4	64	27
Female	63	75.9	51	75.0	59	68.6	173	73
Race								
Black/African American	21	25.3	21	30.9	21	24.4	63	26.6

Table 1 Continued

White	59	71.1	43	63.2	59	68.6	161	67.9
Asian	0	0	0	0	1	1.2	1	.4
American Indian/Alaska Native	0	0	0	0	1	1.2	1	.4
Native Hawaiian/Other Pacific Islander	0	0	0	0	1	1..2	1	.4
Other	2	2.4	4	5.9	3	3.5	9	3.8
Unknown/Prefer not to answer	1	1.2	0	0	0	0	1	.4
Year								
Freshman	38	45.8	30	44.1	43	50.0	111	46.8
Sophomore	22	26.5	14	20.6	18	20.9	54	22.8
Junior	12	14.5	16	23.5	12	14.0	40	16.9
Senior	11	13.3	8	11.8	13	15.1	32	13.5
Attraction								
Only attracted to opposite sex	52	62.7	40	54.9	57	66.3	149	62.9
Mostly attracted to opposite sex	14	16.7	15	22.1	15	17.4	44	18.6
Equally attracted to both sexes	7	8.4	9	13.2	9	10.5	25	10.5
Mostly attracted to same sex	5	6.0	4	5.9	3	3.5	12	5.1
Questioning/Unsure	3	3.6	0	0	1	1.2	4	1.7
Other	2	2.4	0	0	1	1.2	3	1.3
Effect of COVID-19								
Not at all affected	3	3.6	0	0	4	4.7	7	3.0
A little affected	0	24.1	17	25.0	28	32.6	65	27.4
Much affected	25	30.1	22	32.4	21	24.4	68	28.7
Very much affected	27	32.5	23	33.8	20	23.3	70	29.5
Extremely affected	8	9.6	6	8.8	13	15.1	27	11 .4

The variables were formed using SPSS syntax, and frequency distributions were used to identify potential coding errors. Alpha coefficients, as well as means and standard deviations by gender, are reported in Table 2. Measures of all variables demonstrated adequate reliability except for the NPI-16. Based on the recommendations in the literature for this measure (e.g., Ames et al., 2006; Mathieu, 2013), we chose to include

but acknowledge its low reliability as a limitation. All variables were examined for normality. As expected, the SRP-SF, NPI-16, and CAST were positively skewed, and a log transformation was used to correct this. Next, bivariate correlations for personality variables and responses to the APS were examined (see Table 3).

Table 2

Scale Reliabilities, Means, and Standard Deviations by Gender

Variable	α	Men *M (SD)*	Women *M (SD)*	Total Sample *M (SD)*
SRP-SF	.89	2.03 (.50)	1.79 (.52)	1.86 (.52)
MACH-IV	.76	3.66 (.75)	3.5 (.61)	3.54 (.65)
NPI-16	.60	.24 (.14)	.23 (.16)	.23 (.16)
CAST	.79	2.75 (.91)	2.07 (.80)	2.25 (.88)
Direct aggression	.91	2.14 (1.22)	2.44 (1.65)	2.36 (1.55)
Indirect aggression	.76	2.4 (1.19)	2.53 (1.24)	2.49 (1.23)
Non-aggression	.76	5.23 (1.54)	5.01 (1.60)	5.07 (1.59)

Note. SRP-SF = Self-Report of Psychopathy Scale-Short Form, MACH-IV = measure of Machiavellian traits, NPI-16 = Narcissistic Personality Inventory- 16, CAST = Comprehensive Assessment of Sadistic Tendencies

Table 3

Correlations Among Variables

	1	2	3	4	5	6
1. SRP-SF	-					
2. MACH-IV	.55** [.45, .63]	-				
3. NPI-16	.20* [.08, .32]	.14* [.01, .26]	-			
4. CAST	.74** [.67, .79]	.49** [.38, .58]	.22** [.09, .33]	_		
5. Direct aggression	.39** [.28, .50]	.21** [.09, .33]	.20* [.07, .32]	.33** [.21, .44]	-	
6. Indirect aggression	.26** [.14, .37]	.24** [.12, .36]	.11 [-.02, .23]	.25** [.13, .37]	.42** [.31, .52]	_
7. No aggression	.24** [-.35, -.11]	.17* [-.29, -.04]	.25** [-.37, -.13]	.19** [-.31, -.07]	.50** [-.59, -.40]	.23** [-.35, -.10]

Note. SRP-SF = Self-Report of Psychopathy Scale-Short Form, MACH-IIV = measure of Machiavellian traits, NPI-16 = Narcissistic Personality Inventory- 16, CAST = Comprehensive Assessment of Sadistic Tendencies. $^{**}p < .001$, $^{*}p < .05$ based on the 95% CIs.

Manipulation Check

To determine whether the vignettes elicited the desired motivational and affective states, a 2 (gender) by 3 (condition) factorial MANOVA was conducted with desire to compete, desire for status, desire to attract a mate, positive arousal, and negative arousal as the dependent variables. Instances in which assumptions of homogeneity of variance were violated, as evidenced through Levene's homogeneity tests, resulted in using Games-Howell tests for post hoc tests. In instances when homogeneity was assumed, Tukey post hoc tests were used. See Table 4 for means and standard deviations for each motivational and affective state in each condition.

Table 4

Feelings and Motives Elicited by Each Vignette

	Condition								
	Mate seeking			Status			Control		
Elicited feeling	Total M (SD)	Men M (SD)	Women M (SD)	Total M (SD)	Men M (SD)	Women M (SD)	Total M (SD)	Men M (SD)	Women M (SD)
Competition	9.87 (4.90)	12.30 (4.19)	9.29 (4.87)	14.03 (3.95)	12.94 (4.38)	14.39 (3.90)	11.60 (5.08)	11.67 (5.38)	11.54 (5.03)
Status	10.58 (4.17)	12.20 (3.71)	10.24 (4.16)	13.74 (3.75)	12.12 (4.27)	14.29 (3.56)	11.16 (4.40)	9.70 (4.83)	11.83 (4.09)
Mate seeking	12.33 (3.78)	14.05 (3.41)	11.78 (3.81)	7.18 (4.73)	9.06 (4.80)	6.86 (4.69)	9.92 (4.62)	10.70 (4.51)	9.49 (4.67)
Positive affect	12.36 (3.88)	13.40 (4.03)	11.97 (3.84)	13.63 (3.43)	14.00 (2.74)	13.57 (3.77)	12.52 (3.99)	12.48 (4.15)	12.53 (3.98)
Negative affect	6.39 (4.19)	7.90 (4.73)	5.98 (3.97)	7.82 (4.38)	7.12 (4.87)	7.75 (4.30)	7.36 (3.71)	6.56 ()3.76	7.75 (3.68)

Note. Means are on a 1–9 scale, whereby higher numbers indicate a more intense state.

Multivariate tests revealed significant main effects for condition and gender and a condition by gender interaction (see Table 5). Tests of between-subjects effects specified

a main effect of condition on desire to compete, desire to obtain status, and desire to attract a mate; a main effect of gender on desire to attract a mate; and a condition by gender interaction effect on desire to compete and desire to obtain status.

Table 5

Multivariate Tests and Tests of Between Subjects Effects

Effect	df1	df2	F	Sig.	ηp2
Condition (multivariate effect)	10	456	6.52**	<.001	.13
Desire to compete	2	231	5.45*	.01	.05
Desire to obtain status	2	231	5.77*	<.01	.05
Desire to attract a romantic partner	2	231	18.27**	<.001	.14
Positive affect	2	231	1.83	.16	.02
Negative affect	2	231	.20	.82	<.01
Gender (multivariate effect)	5	227	3.05*	.01	.06
Desire to compete	1	231	.65	.42	<.01
Desire to obtain status	1	231	1.66	.20	.01
Desire to attract a romantic partner	1	231	8.57*	<.01	.04
Positive affect	1	231	1.13	.29	.01
Negative affect	1	231	<.01	.96	.00
Condition by Gender (multivariate effect)	10	456	1.97*	.04	.04
Desire to compete	2	231	3.32*	.04	.03
Desire to obtain status	2	231	5.19*	<.01	.04
Desire to attract a romantic partner	2	231	.31	.73	<.01
Positive affect	2	231	.62	.54	.01
Negative affect	2	231	2.60	.08	.02

*Note. **p < .001, *p* < .05 based on the 95% Cis.

Competition and Status

The status vignette was designed to elicit a motivation to compete for status and a desire to achieve status. A main effect of condition on desire to compete emerged (see Table 5). Participants in the Status condition reported a greater desire to compete than those in the Mate Seeking condition (md = 2.87, p < .001) and Control conditions (md = .81, p < .01). There was no main effect of gender on desire to complete; however, there was a condition by gender interaction. Pairwise comparisons indicated that for men, desire to compete did not differ according to condition (ps = .68, .65, .38). For women,

those in the Status condition reported a greater desire to compete than those in the Mate Seeking (md = 5.11, p <.001), and Control conditions (md = 2.86, p < .01). Additionally, women in the Control condition reported higher desire to compete than women in the Mate Seeking condition (md = 2.26, p = .01).

A significant main effect of condition on desire for status emerged such that participants in the Status condition reported greater desire for status compared to the Mate Seeking (md = 1.99, p = .01) and Control conditions (md = 2.44, p = .001). There was no significant difference between the Mate Seeking condition and the Control condition regarding the desire for status (md = .45, p = .52). There was no main effect of gender on the desire for status; however, there was a significant condition by gender interaction. Pairwise comparisons indicated that, for men, there was no significant difference in reported desire for status between the Mate Seeking and Status condition (md = 1.35, p = .95). Men in the Mate Seeking condition reported a significantly stronger desire for status compared to men in the Control condition (md = 2.50, p = .04). The difference in desire for status for men in the Status condition compared to the Control condition was nearly significant (md = 2.41, p = .057), with men in the Status condition reporting a stronger desire for status. Women in the Status condition reported a significantly stronger desire for status compared to women in the Mate Seeking (md = 4.06, p <.001) and Control conditions (md = 2.46, p < .01), and women in the Control condition reported significantly stronger desire for status compared to women in the Mate Seeking condition (md = 1.59, p = .03). Given that the status vignette was designed to elicit a motivation to compete for status and a desire to achieve status, it can be

concluded that the vignette successfully achieved this with women but failed to achieve this with men.

Mate Seeking

The purpose of the mate seeking vignette was to elicit a desire and motivation to obtain a romantic partner. A main effect of condition on the desire to attract a romantic partner emerged. Participants in the Mate Seeking condition reported greater desire to attract a romantic partner compared to participants in the Status (md = 4.95, $p < .001$) and Control conditions (md = 2.82, $p < .001$). A main effect of gender emerged, and pairwise comparisons revealed that men espoused a higher desire to attract a romantic partner than women (md= 1.89, $p < .01$). As such, it appears the mate seeking vignette successfully elicited the desire to attract a romantic partner in both men and women. It should be noted, however, that men who read the mate seeking vignette also reported a higher desire to achieve status compared to men who read the control vignette (md = 2.50, $p = .04$). This was an unintentional effect and may have impacted the results involving men in the Mate Seeking condition.

Positive and Negative Affect

The vignettes were designed to elicit similar levels of positive arousal across conditions. There were no significant main effects for condition or gender and no interaction effect on positive or negative affect. Therefore, differences in aggressive responses between conditions were unlikely to be attributable to differences in positive or negative affect between conditions.

Summary of Priming Effects

Taken together, the vignettes used in the present study only elicited the desired motivational and affective states in women. The status vignette successfully elicited the desire to compete for status and achieve status for women. Men in the Status condition did not differ from men in the Mate Seeking and Control conditions regarding the desire to compete for status. Further, there was no difference between men who read the mate seeking vignette and men who read the status vignette in terms of desire to achieve status. Only men who read the mate seeking vignette, and not men who read the status vignette, could be differentiated from men who read the control vignette in terms of desire to achieve status. Of note, only about 27 percent of the sample was male, and the sample of men in each condition ranged from 17 in the Status condition to 27 in the Control condition. Because of this, the number men in the sample was potentially insufficient to detect effects or particularly susceptible to the influence of outliers. Given the limited number of men, the variation in group sizes (17-27), and the failure to elicit intended affective and motivational states, data from men were excluded from the primary analysis but examined through exploratory analyses using measures of chronically activated mate seeking and status motives measured using the FSMI.

Primary Analysis

We originally planned to run a 2 (gender) by 3 (condition) MANCOVA with indirect, direct, and no aggression as dependent variables. We planned for the covariates for the MANCOVA to include the four dark personality variables with interaction terms for each personality variable by gender, by condition, and by both gender and condition. This approach would have allowed us to measure the interactions between continuous

personality variables, conditions, and gender while reducing familywise error. Given the decision to limit the analysis to women, only condition was included as a predictor, and interaction terms involving gender were not included as covariates. For male participants, we used the FSMI's mate seeking and status scales to examine relationships between these motives, dark personality traits, and aggression on an exploratory basis.

We hypothesized that participants in the Status and Mate Seeking conditions would respond with higher levels of direct and indirect aggression than those in the Control condition. Condition was not a significant predictor of women's responses to the APS (see Table 6), so this hypothesis was not supported.

Table 6 *Multivariate Tests and Tests of Between Subjects Effects*

Multivariate Tests and Tests of Between Subjects Effects

Multivariate Effect (women only)	df1	df2	F	Sig.	ηp2
Condition	6	330	1.5	.18	.03
SRP-SF	3	160	1.48	.22	.03
NPI-16	3	160	.59	.65	.01
CAST	3	160	.01	>.99	>.001
MACH-IV	3	160	2.06	.11	.04
SRP-SF x Condition	3	160	.72	.54	.01
NPI-16 x Condition	3	160	1.01	.39	.02
CAST x Condition	3	160	.10	.96	>.01
MACH-IV x Condition	3	160	1.90	.13	.03

Note. SRP-SF = Self-Report of Psychopathy Scale-Short Form, MACH-IV = measure of Machiavellian traits, NPI-16 = Narcissistic Personality Inventory- 16, CAST = Comprehensive Assessment of Sadistic Tendencies.

We also hypothesized that all dark personality traits would predict participants' responses to the APS. With the sample split by gender, no main effects for any of the dark personality traits emerged for women (see Table 6). However, bivariate correlations using the full sample (see Table 3) revealed that responding with direct aggression was positively correlated with all four dark personality variables; responding with indirect

aggression was positively correlated with psychopathic personality traits, Machiavellian traits, and sadistic traits; and responding with no aggression was negatively correlated with all four dark personality variables. Narcissistic traits were not related to indirect aggression. The same pattern emerged when bivariate correlations were examined for only women (see Table 3). Although dark personality traits did not predict aggression as expected, correlations indicated relationships between the dark personality variables and responding with aggression.

Table 7

Correlations Among Dark Personality Variables and Responses to the APS

(Women only)	Direct Aggression	Indirect Aggression	No Aggression
SRP-SF	.45**	.28**	-.31**
	[.33, .56]	[.13, .41]	[-.44, -.17]
NPI-16	.22*	.11	-.23*
	[.07, .36]	[-.05, .25]	[-.37, -.09]
MACH-IV	.26**	.30**	-.21*
	[.12, .39]	[.16, .43]	[-.35, -.06]
CAST	.43**	.32**	-.27**
	[.31, .55]	[.17, .44]	[-.41, -.13]
(Full sample)	Direct Aggression	Indirect Aggression	No Aggression
SRP-SF	.39**	.26**	-.24**
	[.28, .50]	[.14, .37]	[-.35, -.11]
NPI-16	.20*	.11	-.25**
	[.07, .32]	[-.02, .23]	[-.37, -.13]
MACH-IV	.21**	.24**	-.17*
	[.09, .33]	[.12, .36]	[-.29, -.04]
CAST	.33**	.26**	-.19*
	[.21, .44]	[.13, .37]	[-.31, -.07]

Note. APS = Aggression-Provoking Situation, SRP-SF = Self-Report of Psychopathy Scale-Short Form, MACH-IIV = measure of Machiavellian traits, NPI-16 = Narcissistic Personality Inventory- 16, CAST = Comprehensive Assessment of Sadistic Tendencies. $^{**}p < .001$, $^{*}p < .05$ based on the 95% CIs.

We expected that, regardless of condition, women would be more likely to respond with indirect aggression than direct aggression, and men would be more likely to

respond with direct aggression than indirect aggression. Table 2 includes means and standard deviations for men and women's reported likelihood of responding with direct, indirect, and no aggression. Paired samples two-sided t-tests indicated no difference between direct and indirect aggression for men t (63) = -1.43, p = .16 or women t (172) = -.57, p = .57. Additionally, both men and women were responded with higher likelihood of no aggression than direct aggression (men: t (63) = -10.57, p < .001; women: t (172) = -.11.39, p < .001) and indirect aggression (men: t (63) = -10.66, p < .001; women: t (172) = -14.04, p < .001). These findings do not support the hypothesis that women would be more likely to respond with indirect aggression than direct aggression, and men would be more likely to respond with direct aggression than indirect aggression.

We expected the relationship between sadism and aggression to differ by gender such that sadism would predict indirect aggression for women and both direct and indirect aggression for men. With the data split by gender, there was no main effect for sadism on response to the APS for women (see Table 6). Thus, this hypothesis was not supported.

We expected that, in both the Status and Mate Seeking conditions, psychopathic traits would be associated with higher levels of aggression compared to individuals with psychopathic traits in the Control condition. We also expected narcissism to predict direct and indirect aggression in the Status condition, and Machiavellian traits would predict indirect aggression in the Status and Mate Seeking conditions. There were no interaction effects for psychopathy, narcissism, or Machiavellianism by condition for women (see Table 6), so these hypotheses were not supported.

Exploratory Analyses

Because the vignettes appeared to have elicited the desired affective and motivational states for women, but condition did not emerge as a significant predictor of responses to the APS, bivariate correlations exploring the relationships between the FSMI-mate seeking and status scales and responses to the APS were examined for the full sample and with the file split by gender. In the full sample, motivation to achieve status was positively correlated with indirect aggression. With the file split by gender, the same effects emerged for women. For men, motivation to achieve status was positively correlated with indirect aggression, and motivation to attract a mate was positively correlated with direct and indirect aggression. No other correlations emerged as significant (see Table 9).

Table 8

Correlations Among Elicited Affective/Motivational States and Responses to the APS

		Direct Aggression	Indirect Aggression	No Aggression
Full sample				
	FSMI- status	.01	.23**	-.06
		[-.12, .13]	[.11, .35]	[-.19, .07]
	FSMI- mate seeking	-.03	.09	>.01
		[-.16, .10]	[-.04, .21]	[-.13, .13]
Men only				
	FSMI- status	.01	.30*	-.13
		[-.23, .26	[.06, .51]	[-.36, .12]
	FSMI- mate seeking	.30*	.25*	-.23
		[.06, .51]	[.01, .47]	[-.45, .02]
Women only				
	FSMI- status	> -.01	.20*	-.03
		[-.15, .15]	[.06, .34]	[-.18, .12]
	FSMI- mate seeking	-.12	.04	.08
		[-.26, .03]	[-.11, .18]	[-.07, .23]

Note. FSMI = Fundamental Social Motives Inventory, **$p < .001$, *$p < .05$ based on the 95% CIs.

Using the data from men, the relationships between the dark personality variables, FSMI-mate seeking and status subscales, and responses to the APS were initially examined using bivariate correlations. As seen in Table 10, the FSMI- status subscale was positively related to narcissistic traits. Psychopathic personality traits were positively related to both direct aggression and indirect aggression, and narcissistic personality traits were negatively related to choosing a response that was not aggressive. Among the personality variables, psychopathic traits were positively related to Machiavellian traits and sadistic traits, and sadistic traits were positively related to Machiavellian traits.

Table 9

Correlations Among Variables

Responses to APS	SRP-SF	MACH-IV	NPI-16	CAST
Direct Aggression	.33*	.15	.12	.21
	[.09, .53]	[-.10, .38]	[-.13, .36]	[-.03, .44]
Indirect Aggression	.29*	.13	.13	.23
	[.04, .50]	[.12, .37]	[-.12, .37]	[-.02, .45]
No Aggression	-.10	-.11	-.33*	-.11
	[-.34, .15]	[-.35, .14]	[-.53, -.09]	[-.34, .14]
FSMI subscales	SRP-SF	MACH-IV	NPI-16	CAST
FSMI- mate seeking	.12	.12	14	.07
	[-.13, .35]	[-.13, .35]	[-.11, .38]	[-.18, .31]
FSMI- status	-.11	-.04	.48**	-.09
	[-.35, .14]	[-.29, .21]	[.27, .65]	[-.33, .16]
Personality variables	SRP-SF	MACH-IV	NPI-16	CAST
MACH-IV	.61**	_		
	[.43, .74]			
NPI-16	.13	.15	_	
	[-.12, .36]	[-.10, .38]		
CAST	.81**	.48**	.18	_
	[.70, .88]	[.26, .65]	[-.07, .41]	

Note. SRP-SF = Self-Report of Psychopathy Scale-Short Form, MACH-IIV = measure of Machiavellian traits, NPI-16 = Narcissistic Personality Inventory- 16, CAST = Comprehensive Assessment of Sadistic Tendencies. **$p < .001$, *$p < .05$ based on the 95% CIs.

Based on the observed relationships, a series of hierarchical multiple regressions were conducted using the PROCESS macro for SPSS (Hayes, 2013). Using model one (i.e., simple moderation), the first two regression analyses included the FSMI- status as a predictor variable and indirect aggression as an outcome variable. One analysis included narcissistic traits as a moderator, and the other included psychopathic traits as a moderator. Neither produced significant interaction effects, suggesting the relationship between the FSMI- status subscale and indirect aggression was not moderated by psychopathic or narcissistic traits. Next, a regression analysis with FSMI-status as a predictor, no aggression as an outcome, and narcissism as a moderator was examined. This also did not produce a significant interaction effect, suggesting narcissism did not act as a moderator of the relationship between the FSMI-status subscale and the no aggression responses to the APS. Finally, two regression analyses with FSMI- mate seeking as a predictor variable and psychopathic traits as a moderator were run. One included direct aggression as the outcome variable, and the other included indirect aggression as the outcome variable. Neither produced significant interaction effects, suggesting psychopathic traits did not moderate the relationship between the FSMI- mate seeking subscale and direct aggression or indirect aggression.

Possible Influence of the COVID-19 Pandemic

The potential effects of the COVID-19 pandemic and the resulting social and cultural effects are still being investigated. In the demographic questionnaire, we asked participants to rate the degree to which their lives had been affected by the COVID-19 pandemic on a 5-point scale (1 = “not at all” to 5 = “extremely”). Using responses to this question, we examined bivariate correlations to assess potential relationships between the

impact of the pandemic and the variables involved in this study. We found a positive relationship between gender and the impact of the COVID-19 pandemic (gender coded as man = 1 and woman = 2; $r_{pb} = .21$, $p < .001$), suggesting women reported being more affected by the COVID-19 pandemic. In the full sample, the impact of the COVID-19 pandemic was inversely related to sadistic traits, $r = -.16$, $p = .01$. Despite this, the strength of this relationship was weak. No other significant relationships emerged.

Considering the relationship between the effect of the COVID-19 pandemic and gender, we also examined the correlations with the file split by gender. The relationship between the impact of the pandemic and choosing a non-aggressive response to the APS produced a higher correlation coefficient for men ($r = .22$) compared to the full sample ($r = .12$) but did not reach significance ($p = .09$). This relationship produced a similar correlation coefficient for women ($r = .12$) and was also not significant ($p = .13$). There was no relationship between the impact of the COVID-19 pandemic and sadistic traits for men ($r = -.18$, $p = .16$) or women ($r = -.08$, $p = .32$). For women, a negative relationship between the impact of the COVID-19 pandemic and direct aggression emerged ($r = -.16$, $p = .03$), although the strength of this relationship was weak. No other significant relationships emerged

CHAPTER IV – DISCUSSION

This study examined the role of dark personality variables in contexts associated with the adaptive use of aggression for survival and reproduction purposes. Considering the potential physical, social, emotional, and societal costs associated with aggressive behavior, its use should be limited to situations where the potential benefits outweigh the potential costs. While previous research has identified situations where this might be the case (e.g., when one is attempting to demonstrate mate value), there is limited information on individual differences in how one might weigh potential costs versus potential benefits. Dark personality variables such as psychopathy, narcissism, Machiavellianism, and sadism are often associated with aggressive behavior. Thus, we aimed to examine whether these traits play a role in the cost-benefit analysis for individuals motivated to attract a romantic partner or acquire status who are faced with an opportunity to act aggressively.

Due to the limited number of men in the sample, the uneven distribution of men in each condition, and the failure to confirm the vignettes elicited the intended affective and motivational states, potential gender effects could not be meaningfully analyzed in the full sample, and conditional effects could not be examined for men as planned. Thus, men's data were examined on an exploratory basis, and only women's data were included in the primary analysis.

Overall, the results did not support our hypotheses. After dropping men from the primary analysis, we found no evidence that women in the Status and Mate Seeking conditions indicated that they would respond more aggressively to the aggression-provoking situation (APS). These findings were not consistent with previous studies on

fundamental social motives and aggression. Specifically, using nearly identical vignettes and APS, Griskevicius and colleagues (2009) found that women primed with status and courtship vignettes acted more aggressively and specifically acted with indirect aggression. Bivariate correlations using data from the full sample revealed a positive relationship between the FSMI- status scale and indirect aggression but no other significant relationships between the FSMI- status or mate seeking scales and any of the responses to the APS. With the sample split by gender, the same relationships emerged for women. For men, a positive relationship emerged between the FSMI- mate seeking scale and both direct and indirect aggression, and a positive relationship emerged between the FSMI- status scale and indirect aggression. The relationship between status and indirect aggression was the only relationship between FSMI scales and responses to the APS that was consistent across genders. However, the relationships between FSMI scales and responses to the APS that emerged for men but not women suggest that gender differences in cost-benefit analyses may be present. Considering this is correlational data done on an exploratory basis, the implications of these findings are limited but may help inform future research.

The personality variables also did not perform as hypothesized. We expected all dark personality traits to emerge as predictors of aggression; however, none predicted aggression among women. Bivariate correlations using the full sample revealed positive relationships between all dark personality traits and direct aggression, positive relationships between indirect aggression and psychopathic traits, Machiavellian traits, and sadistic traits, and negative relationships between all personality traits and using no aggression. There was no relationship between narcissistic traits and indirect aggression.

When examined separately by gender, the same relationships emerged for women. Fewer relationships emerged for men, as only psychopathic traits were positively related to direct and indirect aggression, and only narcissistic traits were negatively associated with no aggression. This suggests that although there appears to be some relationship between dark personality and aggression for women, no one variable explains unique variance beyond the overlapping traits of the four dark tetrad personalities. Although this was unexpected, it is not necessarily surprising given the high theoretical overlap among the four dark personality variables. For men, the lack of relationships was surprising because, although it has been acknowledged that Machiavellian aggression tends to present inconsistently (Jones & Paulhus, 2009; Paulhus & Jones, 2017), the opposite has generally been the case for sadistic traits (Baumeister & Campbell, 1999; Fedoroff, 2008; Reidy et al., 2011). Thus, while a lack of a relationship between Machiavellian traits and responses to the APS could be attributed to nuanced factors involving context for men, this is unlikely to be the case for sadistic traits. Given that men tend to report more aggressive behavior overall, the role of personality could be less impactful for men.

We expected gender differences in responses to the APS, as previous research found that men report engaging in indirect aggression at similar or higher rates than women over specified periods. However, when presented with an opportunity to respond with aggression, men tend to respond in directly aggressive ways, and women tend to respond in indirectly aggressive ways. Our results suggest that men and women are most likely to choose a non-aggressive response, and there were no meaningful gender differences in one's likelihood of choosing direct or indirect aggression. Although the reason for this finding is unknown, it could be attributed to many factors. Of note, the

APS was designed so that the individual depicted as being rude to participants is of the same sex. This is because aggression associated with mate seeking is thought to be a function of intrasexual competition and because the status vignette was designed to induce a motive to compete for status among same-sex individuals. Additionally, previous research on women's use of direct aggression indicates that women engage in violence against men at higher frequencies than they engage in violence against women. In contrast, men tend to engage in violence toward other men more often than they engage in violence toward women (Richardson & Green, 1999). This effect is moderated by the presence of women such that man-on-man aggression tends to reduce when a woman is present (Griskevicious et al., 2009). Thus, the sex of the individual in the APS is important to understanding the general patterns of responding.

In the current study, all participants were directed to an APS in which they were told a "man/woman" was publicly rude to them. This was a survey design error, as participants assigned male at birth should have been directed to an APS in which the other person was referred to as a man, and participants assigned female at birth should have been directed to an APS in which the other person was referred to as a woman. Thus, it is possible that the responses to the APS were impacted by how each participant perceived the gender of the other person in the APS. Because we do not know what each participant assumed the individual in the APS's gender to be, it is impossible to determine how the gender of the individual in the APS influenced responses. Considering the sample was drawn from a predominately female subject pool, male participants possibly assumed the individual in the APS was female, thereby reducing men's overall aggression. On the other hand, female participants who assumed the individual in the

APS was male may have indicated a higher likelihood of responding with aggression than they would have had they assumed the individual was female. In addition to this, it is possible that previous studies using the same APS (where participants are told a same-sex person was publicly rude to them) found that men are generally more aggressive because men were reacting to individuals toward whom they tend to be more likely to be aggressive, and women were reacting to individuals toward whom they are less likely to be aggressive. Additionally, the data were collected during the COVID-19 pandemic, a time that saw a stark increase in rates of male violence against women (Sánchez et al., 2020). Because of this, female participants' responses possibly reflected a somewhat more salient concern for protection from others, particularly for female participants who imagined the person in the APS to be male.

We also expected that, aside from sadism, the effects of personality variables would differ by condition. Specifically, we expected psychopathic and Machiavellian traits to predict aggression for individuals in the Mate Seeking and Status conditions and narcissism to predict aggression for individuals in the Status condition. We found, however, that for women, there were no personality by condition interaction effects for any of the personality variables. For men, interaction effects were only examined on an exploratory basis and were limited to variables that presented with significant correlational relationships. Follow-up regression analyses examined the following potential interaction effects, none of which presented significant results: a psychopathy by status interaction effect on indirect aggression, a narcissism by status interaction effect on indirect aggression, a narcissism by status interaction effect on no aggression, a

psychopathy by mate seeking interaction effect on direct aggression, and a psychopathy by mate seeking interaction effect on indirect aggression.

Potential reasons for the lack of expected findings for both men and women throughout the study are unclear but could be attributed to various factors, such as survey length, order effects, or effects of the COVID-19 pandemic. Considering the variables included in this study are relational in nature, the decrease in social contact due to the COVID-19 pandemic could play a role. Because the potential effects of COVID-19 and the resulting social and cultural adjustments on the variables involved in this study are not yet well understood, we ran bivariate correlation analyses to inform whether potential relationships exist between the impact of the COVID-19 pandemic and the variables involved in this study. In the full sample, the only significant relationships that emerged were a positive relationship between gender and the perceived impact of the COVID-19 pandemic and a negative relationship between sadistic traits and the perceived impact of the COVID-19 pandemic. Since sadism involves the enjoyment of the suffering of others, it would make sense that a negative relationship exists between a construct such as sadism and a person's perception of a pandemic. These results, however, do not necessarily clarify the role the effects of the COVID-19 pandemic and the resulting social and cultural adjustments played on the variables involved in this study.

Finally, it is important to note the vignettes' effectiveness in eliciting the desired affective and motivational states. For women, the vignettes worked as intended. For men, however, the vignettes did not clearly produce the intended affective and motivational states. Specifically, the status vignette did not successfully differentiate men in the Status condition from men in the Mate Seeking and Control conditions regarding the desire to

compete and achieve status. Further, only men who read the mate seeking vignette, and not men who read the status vignette, could clearly be differentiated from men who read the control vignette regarding the desire to achieve status. This unintentional effect may have impacted the results involving men in the Mate Seeking condition such that effects for men in the Mate Seeking condition could be attributable to the desire to achieve status. The results of the manipulation check could have been influenced by the smaller proportion of men in the sample and the relatively inconsistent distribution of men across conditions. Regardless, men's data were not included in the primary analysis due to insufficient sample sizes and lack of successful priming.

The vignettes also produced some unexpected findings. Specifically, women in the Control condition reported a higher desire to compete than those in the Mate Seeking condition. It is possible that the mate-seeking vignette inadvertently decreased women's desire to compete, as the vignette described a situation in which the reader established a relationship with a desirable other, thereby decreasing the need to compete for the desirable other. Additionally, women in the Control condition reported a significantly stronger desire for status than those in the Mate Seeking condition. Similarly, the Mate Seeking condition may have inadvertently decreased women's concern for status, as acquiring a romantic partner can potentially provide greater access to resources and group affiliation, two of the benefits of achieving status.

Regarding clinical implications, we hoped results would provide information relevant to both the prediction of aggression and suggest intervention targets. Specifically, understanding the ways in which these personality variables and motivations such as the motivation to maintain status interact with one another to predict aggression

could present new opportunities for intervention. Considering the findings in the current study yielded no interaction effects, the roles of these variables warrant further investigation to determine if interactions do exist under different circumstances, and if so, how these interactions inform traditional treatment approaches.

Limitations and Future Directions

This study includes several limitations that should be considered. First, the sample consisted entirely of students at a Southeastern, mid-sized university. Given some evidence of regional differences in aggression among college students (Czar, 2012), the present findings may not accurately represent college students in general. Future research with more geographically diverse samples may be helpful. Additionally, the primary analyses could only be conducted with data from women because the manipulation check was unsuccessful with men. Further, it is likely the sample size for men was insufficient to detect potential effects. This prevented us from incorporating gender into this analysis as planned. Future studies with large enough samples to permit analyses by gender would inform this research. Our reliance on self-report data was another important limitation, as this may limit participants' willingness to disclose potentially negative information, such as indicators of dark personality traits or aggressive behaviors. While self-report data are commonly used in assessing these constructs, adding data from informants would have strengthened the rigor of the methodology. It should also be noted that data for the present study were collected during the COVID-19 pandemic, and it is impossible to know how this might have affected the results. As previously mentioned, the variables included in this study are social in nature and likely to be impacted by limits on social interactions resulting from public health measures.

Finally, the measure of narcissism used in this study (the NPI-16) demonstrated lower reliability than expected based on previous research using the same measure. Given the specificity of our sample, (i.e., young adult, single or non-monogamous, some opposite sex attraction, college students in the southeast), there are a variety of sample-specific factors that may have influenced internal consistency. Regardless, internal consistency may not be of critical importance for the NPI-16, as it was designed to span a range of characteristics associated with narcissism rather than focusing on specific dimensions. Further, previous research suggests that, when used as a predictor variable, the NPI-16 and other measures of narcissism with higher internal consistencies are similar in how they relate to a variety of dependent variables, even when the NPI-16 demonstrates low internal consistency.

In considering future directions for research in this area, beyond overcoming some of the limitations of this study, gender may be the most obvious area requiring additional exploration. The vignettes used in the present study effectively activated the desired motivational states for women but not for men. Was this a study-specific effect resulting from a combination of methodological errors in how the vignettes were presented and too few men in the sample to provide adequate statistical power to detect gender-specific effects, or does it reflect meaningful gender differences? This will require additional research. Using the FSMI could be one way of working around some of the problems resulting from the vignettes, although that approach would be limited in that the motives assessed would not necessarily be active.

Given the additional relationships between FSMI scales and responses to the APS that emerged for men but not women, it could be of use for future research to expand

upon the gender differences in cost-benefit analyses through additional studies on fundamental social motives and aggression. To further explore the gender differences in cost-benefit analysis, journal-based methods in which participants are asked to list risks and benefits of responding in specific ways could provide insight into common factors considered between and within genders. Measuring participants' perceived likelihood of responding with those same behaviors following the journal exercise could have clinical applications as well.

Additionally, exploring similar variables in settings in which the variables are expected to be more prevalent and relevant could yield informative results. Specifically, there tend to be a higher concentration of individuals in correctional settings with "dark" personality traits (Flórez, 2019; Sanz-García et al., 2021) and the salience of social status and respect tend to be greater in these settings (Michalski, 2015). As such, understanding the ways in which these personality variables and motivations (e.g., status) interact with one another to predict aggression could present new opportunities for intervention, especially in correctional settings, where violence tends to be more prevalent (Byrne & Hummer, 2007).

Finally, future research using other methods of measuring aggressive behavior with similar predictor variables could expand upon our understanding of the relationships between these predictor variables and aggression. Other methods could include lab-based paradigms such as the hot sauce paradigm that would allow for measurement of actual behavior rather than perceived likelihood of responding with certain behaviors. Additionally, using a lab-based aggression paradigm could provide insight into individuals' accuracy in predicting their own behavior, as well as the role of personality

variables associated with poor insight (e.g., narcissism) in the accuracy of participants' predictions.

Conclusion

Vignettes used to activate mate seeking and status motives were effective with women but not men, limiting our ability to test gender effects as planned. In summary, motivation to attract a mate, motivation to achieve status, psychopathic traits, narcissistic traits, Machiavellian traits, and sadistic traits did not predict women's responses to an aggression-provoking situation in this sample. Additionally, there were no interaction effects between motivational states and personality variables in predicting aggressive responses. Exploratory analyses involved correlational data, limiting their implications but suggesting some areas to consider in future research.

APPENDIX A – IRB Approval letter

Office *of*
Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

118 COLLEGE DRIVE #5125 • HATTIESBURG, MS | 601.266.6576 | USM.EDU/ORI

Modification Institutional Review Board Approval

The University of Southern Mississippi's Office of Research Integrity has received the notice of your modification for your submission The role of social motives and personality in predicting social behavior (IRB #: IRB-20-341).

Your modification has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

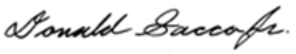
- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.
- Face-to-Face data collection may not commence without prior approval of the Vice President for Research's Office.

PROTOCOL NUMBER: IRB-20-341
PROJECT TITLE: The role of social motives and personality in predicting social behavior
SCHOOL/PROGRAM: School of Psychology, Psychology

RESEARCHER(S): Savannah Merold ,Eric Dahlen

IRB COMMITTEE ACTION: Approved
7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: August 19, 2020



Donald Sacco, Ph.D.
Institutional Review Board Chairpers

APPENDIX B – Consent Form

PROJECT INFORMATION

Project Title: The role of social motives and personality in predicting social behavior
Principle Investigator: Savannah Merold Email: savannah.merold@usm.edu
College: Education and Human Sciences
School: Psychology

RESEARCH DESCRIPTION

1. **Purpose:** The purpose of this study is to examine relationships between aspects of your personality, social motives, and social behavior.

2. **Description of Study:** Participants will be asked to read a brief description of a social interaction and complete online questionnaires about various aspects of their personality and social behavior. The study is completely online and will take no more than 60 minutes to complete. Participants who complete the study will receive 1 research credit. Quality assurance checks will be used to make sure that participants are reading each question carefully and answering thoughtfully. Participants who do not pass these checks will NOT receive credit for completing the study.

3. **Benefits:** Participants who complete the study and pass all quality assurance checks will earn 1 research credit; those who do not complete the study or do not pass all quality assurance checks will not receive research credit. Participants will receive no other direct benefits; however, the results of this study will enable researchers to better understand the role of personality and social motives in social behavior, contributing to the general knowledge in the field.

4. **Risks:** There are no foreseeable risks associated with participating in this study. If you feel that participation has resulted in emotional distress, please stop and notify the researcher (Savannah Merold; savannah.merold@usm.edu). If you should continue to be troubled by participation in this study, please contact the research supervisor, Dr. Eric Dahlen (Eric.Dahlen@usm.edu). Alternatively, you may contact one of several local agencies, such as:

Student Counseling Services
601.266.4829
Pine Belt Mental Healthcare Resources
601.544.4641

5. **Confidentiality:** The online questionnaires are intended to be anonymous, and the information you provide will be kept strictly confidential. Any potentially identifying information will not be retained with your responses.

6. **Alternative Procedures:** Students who do not wish to participate in this study may sign up for another study instead or talk with their instructor(s) about non-research options.

7. **Participant's Assurance:** This project and this consent form has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations.

Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-00001, 601-266-5997.

Any questions about this research project should be directed to the Principal Investigator using the contact information provided above.

Consent to Participate in Research

I understand that participation in this project is completely voluntary, and I may withdraw at any time without penalty, prejudice, or loss of benefits. Unless described above, all personal information will be kept strictly confidential, including my name and other identifying information. All procedures to be followed and their purposes were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected. Any new information that develops during the project will be provided to me if that information may affect my willingness to continue participation in the project.

APPENDIX C – Materials

Status vignette (female)

Instructions: Please carefully read the following scenario. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that they are feeling. After you have read the scenario, you will be asked a few brief questions about it.

****

Imagine you recently graduated from college. You were offered several jobs and decided to go work for a well-known and powerful company. Besides paying well, this job offers you the greatest chance of moving up—assuming you can prove that you have what it takes.

As you pull into the parking lot on your first day of work, you immediately notice that the lot is full of expensive new cars. Walking to your building, you eye these impressive vehicles and think about the kind of car you should get now that you've graduated, perhaps an upscale luxury sedan or a new sports car. You imagine yourself driving through town in a sparkling new car and you feel yourself becoming more motivated. Entering the lobby, you're impressed by how upscale everything looks—the antique furniture, the artistic decorations, the designer clothing. You're thrilled to be working at such a prestigious company and you feel that this is exactly the kind of job you deserve.

As you wait, another woman sits down next to you. A minute later a third woman also takes a seat. The two are dressed in brand new business suits, and they're about the same age as you. Each one briefly looks at you, smiles slightly, and says hello. Both of them look a little nervous and you sense that these are probably your new colleagues. Looking at them out of the corner of your eye, you feel both excited and a little anxious. You imagine how much fun it would be to have colleagues with whom you can talk about the new job. But looking at their facial expressions and their body posture, you feel a sense of competition in the air. You realize this job isn't a game. You're not in school in anymore.

Your new boss finally comes out and greets everyone. As all three of you walk into the large corner office, everyone sits down. "You're all very fortunate to be here. The company hires only a few people out of thousands of applicants each year." Hearing that you beat out thousands of people to get here sends a rush of pride through your body. "In the next few months, all three of you will both work independently and work together. You're going to get to know each other pretty well." As the atmosphere seems to relax a little, you look around the room and everyone smiles.

But the boss continues: "Starting today each one of you will get a small cubicle. But we don't expect you to stay there. After 6 months, one of you will be fired." Hearing this news sends a shiver down your spine. You quickly scan the room. The other two women are trying to suppress any look of concern and show a confident side to the new boss. You remind yourself that you were hired for a good reason and that you deserve a spot at the top. You sit up straighter and put on a confident expression.

"Although one of you will be fired," the boss goes on, "the person who does the best will not only get a promotion, but they will get a large bonus and will be put on the fast track to the top." Pointing to the grand window offices down the hall, the boss finishes: "I see a lot of potential in all of you, but only one of you will make it into one of those big offices. You have 6 months to show everyone what you're made of."

You know there will come a day in 6 months when your boss will again call all three of you into the office. Feeling your heart beating faster, you're anxious and excited. As your boss finishes up the speech, you're so eager to get started that you can't even pay attention anymore. Finally, your boss stops and points at each of you in turn, "Go out there and show us what you've got!" Your eyes open wide and a rush of adrenaline pumps through your body. You feel like letting out a yell and running out the door to get started. Seeing your two colleagues in the background, you walk out of the office with a rush of anticipation in hopes of achieving something that few people ever have the chance to do.

Status vignette (male)

Instructions: Please carefully read the following scenario. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that they are feeling. After you have read the scenario, you will be asked a few brief questions about it.

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Imagine you recently graduated from college. You were offered several jobs and decided to go work for a well-known and powerful company. Besides paying well, this job offers you the greatest chance of moving up—assuming you can prove that you have what it takes.

As you pull into the parking lot on your first day of work, you immediately notice that the lot is full of expensive new cars. Walking to your building, you eye these impressive vehicles and think about the kind of car you should get now that you've graduated, perhaps an upscale luxury sedan or a new sports car. You imagine yourself driving through town in a sparkling new car and you feel yourself becoming more motivated. Entering the lobby, you're impressed by how upscale everything looks—the antique furniture, the artistic decorations, the designer clothing. You're thrilled to be working at such a prestigious company and you feel that this is exactly the kind of job you deserve.

As you wait, another man sits down next to you. A minute later a third man also takes a seat. The two are dressed in brand new business suits, and they're about the same age as you. Each one briefly looks at you, smiles slightly, and says hello. Both of them look a little nervous and you sense that these are probably your new colleagues. Looking at them out of the corner of your eye, you feel both excited and a little anxious. You imagine how much fun it would be to have colleagues with whom you can talk about the new job. But looking at their facial expressions and their body posture, you feel a sense of competition in the air. You realize this job isn't a game. You're not in school in anymore.

Your new boss finally comes out and greets everyone. As all three of you walk into the large corner office, everyone sits down. “You’re all very fortunate to be here. The company hires only a few people out of thousands of applicants each year.” Hearing that you beat out thousands of people to get here sends a rush of pride through your body. “In the next few months, all three of you will both work independently and work together. You’re going to get to know each other pretty well.” As the atmosphere seems to relax a little, you look around the room and everyone smiles.

But the boss continues: “Starting today each one of you will get a small cubicle. But we don’t expect you to stay there. After 6 months, one of you will be fired.” Hearing this news sends a shiver down your spine. You quickly scan the room. The other two men are trying to suppress any look of concern and show a confident side to the new boss. You remind yourself that you were hired for a good reason and that you deserve a spot at the top. You sit up straighter and put on a confident expression.

“Although one of you will be fired,” the boss goes on, “the person who does the best will not only get a promotion, but they will get a large bonus and will be put on the fast track to the top.” Pointing to the grand window offices down the hall, the boss finishes: “I see a lot of potential in all of you, but only one of you will make it into one of those big offices. You have 6 months to show everyone what you’re made of.”

You know there will come a day in 6 months when your boss will again call all three of you into the office. Feeling your heart beating faster, you’re anxious and excited. As your boss finishes up the speech, you’re so eager to get started that you can’t even pay attention anymore. Finally, your boss stops and points at each of you in turn, “Go out there and show us what you’ve got!” Your eyes open wide and a rush of adrenaline pumps through your body. You feel like letting out a yell and running out the door to get started. Seeing your two colleagues in the background, you walk out of the office with a rush of anticipation in hopes of achieving something that few people ever have the chance to do.

Mate seeking vignette (male)

Instructions: Please carefully read the following scenario. As you’re reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that they are feeling. After you have read the scenario, you will be asked a few brief questions about it.

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Imagine that you are on vacation with your friends on a tropical island. It’s late in the afternoon and you are sitting on the beach on a pleasant summer afternoon, sipping an exotic drink. The air is warm and pleasant, and you watch the waves as the sun begins to set. You have a book open, but you’re not really reading it. Instead, you look around, relaxed and daydreaming. As you watch the people strolling by on the soft sand, you notice that everyone seems to be in a particularly good mood. From behind you, you hear a voice say: “Wow, isn’t that the most beautiful sunset you have ever seen?”

When you turn around, you are surprised to see that it's coming from a particularly attractive woman whom you have seen before. You remember noticing her a few days earlier at the hotel, when your eyes locked across the lobby. Since that time, you've seen her several times, but you have never had a convenient opportunity to talk with her. Now she is standing right in front of you and smiling warmly. "Mind if I join you for a few minutes?" she says.

At first you feel a bit awkward, but as you begin to talk, you realize that you feel incredibly comfortable with her. You share your thoughts about your week on the island, and you are both a little sad that your time in paradise hasn't been as exciting as you had hoped. Up close, she is even more attractive and charming than you remember. And she is wonderful to talk to. You find that everything she says is somehow fascinating, and you notice that when you talk, she listens carefully to everything you say.

An hour passes very rapidly, and she notices that she's late for dinner with her friends. She suggests that maybe she'll just skip dinner with them and stay here with you, if you still want company. After all, she sees them all the time, but right now she's having a really nice time with you. You are only too glad to prolong the conversation. It is clear that she is enjoying your company immensely.

She suggests that the two of you go grab something to eat. Walking together, you notice that she's walking close to you and comfortably touching you on the arm when you say something that makes her laugh. When she's around you, your senses become heightened. Even when her hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at her eyes, waiting for her to look at yours. When she does, both of you smile and look away.

You end up in a little restaurant near the beach, and the two of you sit in a dark romantic corner in the back. By the candlelight, you notice the pleasant and soothing aromas from the kitchen. As the evening goes on, you realize you are having an absolutely wonderful time with this person, and that she is feeling the same way. The two of you order a dessert together and decide to share it. She suggests that after dinner both of you should go for a walk on the beach. You have been dreaming about someone asking you that very question all week.

As you stroll out onto the sand, she reaches for your hand. You softly squeeze her hand in yours and your eyes meet once again. It's a little windy and you get closer to her. Her body feels warm, and she puts her head on your bare arm.

You can feel that your heart is beating faster, and you feel excited. The sand feels cool and soft against your feet. A wave comes crashing on the beach and you both lightly trip and fall as you try to run away. Sitting in the sand and still holding her hand, you feel the coldness of the water on your feet. Both of your eyes lock again and your heart feels like it's about to stop. As your look at her beautiful face, her hand moves up to caress the back of your neck. You can feel your hairs begin to tingle. You lean in and the tip of her nose slowly touches yours as you continue to wander in each other's gaze. Finally, you close your eyes and her soft lips slowly touch yours for the first time. The kiss is filled with passion. Your embrace is flowing with the kind of desire that you have never felt. You squeeze her body tighter, and you can feel yourself getting excited as you begin to think that this might be one of the most memorable nights of your entire life.

Mate seeking vignette (female)

Instructions: Please carefully read the following scenario. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that they are feeling. After you have read the scenario, you will be asked a few brief questions about it.

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Imagine that you are on vacation with your friends on a tropical island. It's late in the afternoon and you are sitting on the beach on a pleasant summer afternoon, sipping an exotic drink. The air is warm and pleasant, and you watch the waves as the sun begins to set. You have a book open, but you're not really reading it. Instead, you look around, relaxed and daydreaming. As you watch the people strolling by on the soft sand, you notice that everyone seems to be in a particularly good mood. From behind you, you hear a voice say: "Wow, isn't that the most beautiful sunset you have ever seen?"

When you turn around, you are surprised to see that it's coming from a particularly handsome man whom you have seen before. You remember noticing him a few days earlier at the hotel, when your eyes locked across the lobby. Since that time, you've seen him several times, but you have never had a convenient opportunity to talk with him. Now he is standing right in front of you and smiling warmly. "Mind if I join you for a few minutes?" he says.

At first you feel a bit awkward, but as you begin to talk, you realize that you feel incredibly comfortable with him. You share your thoughts about your week on the island, and you are both a little sad that your time in paradise hasn't been as exciting as you had hoped. Up close, he is even more attractive and charming than you remember. And he is wonderful to talk to. You find that everything he says is somehow fascinating, and you notice that when you talk, he listens carefully to everything you say.

An hour passes very rapidly, and he notices that he's late for dinner with his friends. He suggests that maybe he'll just skip dinner with them and stay here with you, if you still want company. After all, he sees them all the time, but right now he's having a really nice time with you. You are only too glad to prolong the conversation. It is clear that he is enjoying your company immensely.

He suggests that the two of you go grab something to eat. Walking together, you notice that he's walking close to you and comfortably touching you on the arm when you say something that makes him laugh. When he's around you, your senses become heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away.

You end up in a little restaurant near the beach, and the two of you sit in a dark romantic corner in the back. By the candlelight, you notice the pleasant and soothing aromas from the kitchen. As the evening goes on, you realize you are having an absolutely wonderful time with this person, and that he is feeling the same way. The two of you order a dessert together and decide to share it. He suggests that after dinner, both

of you should go for a walk on the beach. You have been dreaming about someone asking you that very question all week.

As you stroll out onto the sand, he reaches for your hand. You softly squeeze his hand in yours and your eyes meet once again. It's a little windy and you get closer to him. His body feels warm, and you put your head on his bare arm.

You can feel that your heart is beating faster, and you feel excited. The sand feels cool and soft against your feet. A wave comes crashing on the beach and you both lightly trip and fall as you try to run away. Sitting in the sand and still holding his hand, you feel the coldness of the water on your feet. Both of your eyes lock again and your heart feels like it's about to stop. As your look at his beautiful face, his hand moves up to caress the back of your neck. You can feel your hairs begin to tingle. He leans in and the tip of his nose slowly touches yours as you continue to wander in each other's gaze. Finally, you close your eyes and his soft lips slowly touch yours for the first time. The kiss is filled with passion. Your embrace is flowing with the kind of desire that you have never felt. You squeeze his body tighter, and you can feel yourself getting excited as you begin to think that this might be one of the most memorable nights of your entire life

Control vignette

Instructions: Please carefully read the following scenario. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that they are feeling. After you have read the scenario, you will be asked a few brief questions about it.

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Imagine that it's Friday afternoon during the semester. You've been working hard all week and you've been looking forward to this weekend for quite a while. You and one of your friends have two tickets for a sold-out concert that's happening tonight. Both of you have been looking forward to this show for a long time. In fact, you had to bend over backwards to get the tickets. Your friend has been talking about the concert every day for weeks now, so you know she's excited. And although it's still several hours away, you can already feel your heart beating a little faster than normal.

As you're getting ready for the show at home, your friend calls to tell you that she's coming over in about an hour. Just so you don't forget later, you decide to get the tickets from your drawer. You open your top drawer where you remember leaving them, but they're not there. You search a little deeper in the drawer, but they're not there either.

You stop to take a breath and tell yourself to calm down. You know you put the tickets in a good place, but where? You start searching through your backpack. Books, folders, pens, but no tickets. You turn the bag upside down and shake it. Nothing but junk. Now you start getting worried. What if you lost the tickets? What's your friend going to think?

In a hurry, you look through the laundry. Maybe they're in a pocket somewhere? You find some pieces of paper, but no tickets. You go into your closet and start throwing

things to the floor—no tickets. You're feeling upset at this point. Your hands start to shake a little. You think back to when you had the tickets and try to retrace your steps. You clearly remember putting them in your top drawer, so you search again. You inspect everything, but there are no tickets in this drawer. You look through your whole room, but they're nowhere to be found.

You run to the kitchen and start looking on the counters. You open all the cupboards and drawers. You have no idea why the tickets would be there, but you need to look somewhere. In fifteen minutes, your kitchen looks like a disaster area. But still no tickets! You run out into the driveway. Maybe the tickets fell out somewhere? You look in the grass, the bushes, underneath cars. But even if they did fall out, they probably wouldn't even be there by now. As you walk back inside in complete frustration, you feel as though you're ready to pull your hair out. You lost the tickets. And you obviously can't go to the show without them.

Suddenly, you hear a knock on the door. Your friend is early, probably because she's eager to get going. You can hear her humming outside. What are you going to tell her? She'll be crushed. Is there anything you can do? Maybe you should lie? But that probably won't solve anything. As you walk toward the door, you get ready to fess up, take the blame, and hope that everything will be okay. You open the door, ready for the worst.

As you are about to start telling her what happened, she yells "Are you ready?" and pulls out the two tickets from her back pocket. Your eyes get wide. You grab the tickets from her hand and fall to your knees. Your friend has the tickets! She's had them the whole time. You think back and remember that she wanted to show the tickets to another person, so she took them the other week. You can't believe you forgot. You don't think you've ever felt so relieved in your life. You sit down, shake your head, and put your hand on your chest. You begin to laugh, wiping the sweat from your forehead. You and your friend will get to go to the show after all. Things are going to be just fine.

As you try to forget what happened, you're actually even more thrilled about the concert than before. Your relief turns into elation. You want to shout to everyone just how great you feel. It's as though you just found the winning lottery ticket. You can appreciate going to the concert even more now, knowing that you were very close to not going at all. Your friend is dying to get to the show, and her euphoria is contagious. Both of you run out the door, turn up the stereo, and head off to the most thrilling show of your lives.

REFERENCES

Ackerman, J., Shapiro, J., Neuberg, S., Kenrick, D., Becker, D., & Griskevicius, V. et al. (2006). They all look the same to me (unless they're angry). *Psychological Science*, *17*(10), 836-840. https://doi.org/10.1111/j.1467-9280.2006.01790.x

Ames, D. R., Rose, P., & Anderson, C. P. (2006). The NPI-16 as a short measure of narcissism. *Journal of Research in Personality*, *40*(4), 440-450. https://doi.org/10.1016/j.jrp.2005.03.002

Anderson, C., Hildreth, J. A. D., & Howland, L. (2015). Is the desire for status a fundamental human motive? A review of the empirical literature. *Psychological Bulletin*, *141*(3), 574. https://doi.org/10.1037/a0038781

Anderson, C., Willer, R., Kilduff, G., & Brown, C. (2012). The origins of deference: When do people prefer lower status? *Journal of Personality and Social Psychology*, *102*(5), 1077-1088. http://doi.org/10.1037/a0027409

Ansel, L., Barry, C., Gillen, C., & Herrington, L. (2014). An analysis of four self-report measures of adolescent callous-unemotional traits: Exploring unique prediction of delinquency, aggression, and conduct problems. *Journal of Psychopathology and Behavioral Assessment*, *37*(2), 207-216. https://doi.org/10.1007/s10862-014-9460-z

Archer, J. (2001). A strategic approach to aggression. *Social Development*, *10*(2), 267-271. https://doi.org/10.1111/1467-9507.00163

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology*, *8*(4), 291-322. https://doi.org/10.1037/1089-2680.8.4.291

Archer, J., Birring, S., & Wu, F. (1998). The association between testosterone and aggression among young men: Empirical findings and a meta-analysis. *Aggressive Behavior*, *24*(6), 411-420. https://doi.org/10.1002/1098-2337

Archer, J., & Coyne, S. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, *9*(3), 212-230. https://doi.org/10.1207/s15327957pspr0903_2

Arnett, J., Žukauskienė, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18–29 years: implications for mental health. *The Lancet Psychiatry*, *1*(7), 569-576. https://doi.org/10.1016/s2215-0366(14)00080-7

Bagner, D. M., Storch, E. A., & Preston, A. S. (2007). Romantic relational aggression: What about gender? *Journal of Family Violence*, *22*(1), 19-24. https://doi.org/10.1007/s10896-006-9055-x

Bagozzi, R. P., Verbeke, W. J., Dietvorst, R. C., Belschak, F. D., van den Berg, W. E., & Rietdijk, W. J. (2013). Theory of mind and empathic explanations of Machiavellianism: A neuroscience perspective. *Journal of Management*, *39*(7), 1760-1798. https://doi.org/10.1177/0149206312471393

Barkow, J., Akiwowo, A., Barua, T., Chance, M., Chapple, E., & Chattopadhyay, G. et al. (1975). Prestige and Culture: A Biosocial Interpretation [and Comments and Replies]. *Current Anthropology*, *16*(4), 553-572. https://doi.org/10.1086/201619

Baron, R. A., & Richardson, D. R. (1994). *Human aggression*. Plenum Press.

Barry, C. T., Chaplin, W. F., & Grafeman, S. J. (2006). Aggression following performance feedback: The influences of narcissism, feedback valence, and

comparative standard. *Personality and Individual Differences*, *41*(1), 177-187. https://doi.org/10.1016/j.paid.2006.01.008

Baughman, H. M., Dearing, S., Giammarco, E., & Vernon, P. A. (2012). Relationships between bullying behaviours and the dark triad: A study with adults. *Personality and Individual Differences*, *52*(5), 571-575. https://doi.org/10.1016/j.paid.2011.11.020

Baumeister, R. F., & Campbell, W. K. (1999). The intrinsic appeal of evil: Sadism, sensational thrills, and threatened egotism. *Personality and Social Psychology Review*, *3*(3), 210-221. https://doi.org/10.1207/s15327957pspr0303_4

Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review*, *103*(1), 5. https://doi.org/10.1037/0033-295X.103.1.5

Becker, D. V., Kenrick, D. T., Guerin, S., & Maner, J. K. (2005). Concentrating on beauty: Sexual selection and sociospatial memory. *Personality and Social Psychology Bulletin*, *31*(12), 1643-1652. https://doi.org/10.1177/0146167205279583

Benoit-Smullyan, E. (1944). Status, status types, and status interrelations. *American Sociological Review, 9,* 151-161. https://doi.org/10.2307/2086307

Berger, J., Cohen, B. P., & Zelditch, M., (1972). Status characteristics and social interaction. *American Sociological Review, 37,* 241-255. https://doi.org/10.2307/2093465

Betzig, L. L. (1986). *Despotism and differential reproduction: A Darwinian view of history*. Aldine Publishing Co.

Björkqvist, K., Lagerspetz, K., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18*(2), 117-127. https://doi.org/10.1002/1098-2337

Bjorkqvist, K., Niemela, P., & Richardson, D. (1994). Of mice and women: Aspects of female aggression. *Aggressive Behavior, 20*(5), 399-400. https://doi.org/10.1002/1098-2337

Blair, J., Mitchell, D., & Blair, K. (2005). *The psychopath: Emotion and the brain*. Blackwell Publishing.

Blau, P. M., (1964). *Exchange and power in social life.* Wiley.

Blau, P. M., & Scott, W.R. (1962). *Formal organizations: A Comparative approach.* Chandler.

Brewer, G., Erickson, E., Whitaker, L., & Lyons, M. (2020). Dark Triad traits and perceived quality of alternative partners. *Personality and Individual Differences, 154,* 109633. http://doi.org/10.1016/j.paid.2019.109633

Brewer, G., Hunt, D., James, G., & Abell, L. (2015). Dark Triad traits, infidelity and romantic revenge. *Personality and Individual Differences, 83,* 122-127. http://doi.org/10.1016/j.paid.2015.04.007

Brewer, G., Lyons, M., Perry, A., & O'Brien, F. (2021). Dark triad traits and perceptions of sexual harassment. *Journal of Interpersonal Violence, 36*(13-14), NP7373-NP7387. http://doi.org/10.1177/0886260519827666

Brown, M., & Sacco, D. (2018). Put a (limbal) ring on it: Women perceive men's limbal rings as a health cue in short-term mating domains. *Personality and Social Psychology Bulletin*, *44*(1), 80-91. https://doi.org/10.1177/0146167217733072

Brown, M., Sacco, D., & Medlin, M. (2019). Women's short-term mating goals elicit avoidance of faces whose eyes lack limbal rings. *Evolutionary Behavioral Sciences, 13*(3), 278-285. https://doi.org/10.1037/ebs0000135

Buckels, E. E., Jones, D. N., & Paulhus, D. L. (2013). Behavioral confirmation of everyday sadism. *Psychological Science*, *24*(11), 2201-2209. https://doi.org/10.1016/j.paid.2014.10.049

Buckels, E. E., & Paulhus, D. L. (2013). Comprehensive assessment of sadistic tendencies (CAST). *Unpublished measure, University of British Columbia*.

Buckels, E. E., Trapnell, P. D., Andjelovic, T., & Paulhus, D. L. (2019). Internet trolling and everyday sadism: Parallel effects on pain perception and moral judgment. *Journal of Personality*, *87*(2), 328-340. https://doi.org/10.1111/jopy.12393

Buckels, E. E., Trapnell. P. D., & Paulhus, D. L. (2014). Trolls just want to have fun. *Personality and Individual Differences, 67,* 97-102. https://doi.org/10.1016/j.paid.2014.01.016

Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking websites. *Personality and Social Psychology Bulletin*, *34*(10), 1303-1314. https://doi.org/10.1177/0146167208320061

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to

violence? *Journal of Personality and Social Psychology*, *75*(1), 219. https://doi.org/10.1037/0022-3514.75.1.219

Buss, D. M. (1989). Toward an evolutionary psychology of human mating. *Behavioral and Brain Sciences*, *12*(1), 39-49. https://doi.org/ 10.1017/s0140525x00024274

Buss, D. M. (2005). Sex differences in the design features of socially contingent mating adaptations. *Behavioral and Brain Sciences, 28*(2), 278-279. https://doi.org/10.1017/S0140525X05260053

Buss, D. M., & Dedden, L. A. (1990). Derogation of competitors. *Journal of Social and Personal Relationships*, *7*(3), 395-422. https://doi.org/10.1177/0265407590073006

Buss, D. M., & Duntley, J. D. (2006). The evolution of aggression. In M. Schaller, J. A. Simpson, & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 263-285). Psychosocial Press

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*(2), 204. https://doi.org/ 10.1037/0033-295X.100.2.204

Buss, D. M., & Shackelford, T. K. (1997). From vigilance to violence: Mate retention tactics in married couples. *Journal of Personality and Social Psychology*, *72*(2), 346. https://doi.org/ 10.1037/0022-3514.72.2.346

Byrne, J., & Hummer, D. (2007). Myths and realities of prison violence: A review of the evidence. *Victims and Offenders*, *2*(1), 77-90. http://doi.org/10.1080/15564880601087241

Cale, E. M., & Lilienfeld, S. O. (2006). Psychopathy factors and risk for aggressive behavior: A test of the "threatened egotism" hypothesis. *Law and Human Behavior, 30*(1), 51-74. https://doi.org/ 10.1007/s10979-006-9004-5

Campbell, A. (1999). Staying alive: Evolution, culture, and women's intrasexual aggression. *Behavioral and Brain Sciences,* 22(2), 203-214. https://doi.org/10.1017/S0140525X99001818

Campbell, A. (2005). Aggression. In D. Buss (Ed.), *Handbook of Evolutionary Psychology* (pp. 628-652). John Wiley & Sons, Inc.

Center for Disease Control (2019). *Violence Prevention: A Public Health Issue.* Retrieved from www.cdc.gov/violenceprevention/publichealthissue/index.html

Chester, D. S., DeWall, C. N., & Enjaian, B. (2019). Sadism and aggressive behavior: Inflicting pain to feel pleasure. *Personality and Social Psychology Bulletin*, *45*(8), 1252-1268. https://doi.org/10.1177/0146167218816327

Christie, R., & Geis, F. (1970). Scale construction. *Studies in Machiavellianism, 34*(4), 10-34.

Coyne, S. M., Archer, J., & Eslea, M. (2006). "We're not friends anymore! Unless…": The frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behavior, 32*(4), 294-307. https://doi.org/10.1002/ab.20126

Craig, W. (1998). The relationship among bullying, victimization, depression, anxiety, and aggression in elementary school children. *Personality and Individual Differences*, *24*(1), 123-130. https://doi.org/ 10.1016/s0191-8869(97)00145-1

Crick, N. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67*(5), 2317. https://doi.org/10.2307/1131625

Crick, N. R., & Bigbee, M. A. (1998). Relational and overt forms of peer victimization: a multi-informant approach. *Journal of Consulting and Clinical Psychology, 66*(2), 337. https://doi.org/10.1037/0022-006X.66.2.337

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*(3), 710-722. https://doi.org/10.1111/j.1467-8624.1995.tb0 0900.x

Cuomo, C., Sarchiapone, M., Giannantonio, M. D., Mancini, M., & Roy, A. (2008). Aggression, impulsivity, personality traits, and childhood trauma of prisoners with substance abuse and addiction. *American Journal of Drug and Alcohol Abuse, 34*(3), 339-345.

Czar, K. (2012). *Regional differences in relational aggression: The role of culture*. University of Southern Mississippi.

Czar, K., Dahlen, E., Bullock, E., & Nicholson, B. (2011). Psychopathic personality traits in relational aggression among young adults. *Aggressive Behavior, 37*(2), 207-214. https://doi.org/10.1002/ab.20381

Dahlen, E., Czar, K., Prather, E., & Dyess, C. (2013). Relational aggression and victimization in college students. *Journal of College Student Development, 54*(2), 140-154. https://doi.org/10.1353/csd.2013.0021

Daly, M., & Wilson, M. (1983). *Sex, evolution, and behavior*. Willard Grant Press.

Daly, M., & Wilson, M. (1988). Evolutionary social psychology and family homicide. *Science*, *242*(4878), 519-524. https://doi.org/10.1126/science.3175672

Darwin, C., Bonner, J., & May, R. (1981). *The descent of man and selection in relation to sex*. Princeton University Press.

Deason, D. L., Dahlen, E. R., Madson, M. B., & Bullock-Yowell, E. (2019). Five-factor model of personality, social anxiety, and relational aggression in college students. *Journal of College Student Development*, *60*(1), 110–114. http://doi.org/10.1353/csd.2019.0007

Dickinson, K. A., & Pincus, A. L. (2003). Interpersonal analysis of grandiose and vulnerable narcissism. *Journal of Personality Disorders*, *17*(3), 188-207. https://doi.org/10.1521/pedi.17. 3.188.22146

Drislane, L. E., Patrick, C. J., & Arsal, G. (2014). Clarifying the content coverage of differing psychopathy inventories through reference to the Triarchic Psychopathy Measure. *Psychological Assessment, 26*(2), 350-362. https://doi.org/10.1037/a0035152

Dussault, M., Hojjat, M., & Boone, R. T. (2013). Machiavellianism and dating: Deception and intimacy. *Social Behavior and Personality, 41*(2), 283-294. https://doi.org/10.2224/sbp.2013.41.2.283

Eslea, M., Menesini, E., Morita, Y., O'Moore, M., Mora-Merchán, J. A., Pereira, B., & Smith, P. K. (2004). Friendship and loneliness among bullies and victims: Data from seven countries. *Aggressive Behavior*, *30*(1), 71-83. https://doi.org/10.1002/ab.20006

Fajnzylber, P., Lederman, D., & Loayza, N. (2002). What causes violent crime? *European Economic Review*, *46*(7), 1323-1357. https://doi.org/ 10.1016/s0014-2921(01)00096-4

Fedoroff, J. P. (2008). Sadism, sadomasochism, sex, and violence. *The Canadian Journal of Psychiatry*, *53*(10), 637-646. https://doi.org/ 10.1177/070674370805301003

Felson, R. B. (1982). Impression management and the escalation of aggression and violence. *Social Psychology Quarterly*, 245-254. https://doi.org/10.2307/3033920

Flórez, G., Ferrer, V., García, L., Crespo, M., Pérez, M., & Saiz, P. (2019). Personality disorders, addictions and psychopathy as predictors of criminal behaviour in a prison sample. *Revista Española De Sanidad Penitenciaria*, *21*(2), 62-79. http://doi.org/10.4321/s1575-06202019000200002

Fournier, M. A. (2009). Adolescent hierarchy formation and the social competition theory of depression. *Journal of Social and Clinical Psychology, 28,* 1144-1172. https://doi.org/10.1521/jscp.2009.28.9.1144

Fox, E., Russo, R., Bowles, R., & Dutton, K. (2001). Do threatening stimuli draw or hold visual attention in subclinical anxiety? *Journal of Experimental Psychology: General*, *130*(4), 681. https://doi.org/10.1037//0096-3445.130.4.681

Furnham, A., Richards, S., & Paulhus, D. (2013). The dark triad of personality: A 10-year review. *Social and Personality Psychology Compass*, *7*(3), 199-216. https://doi.org/ 10.1111/spc3.12018

Gabbard, G. O. (1989). Two subtypes of narcissistic personality disorder. *Bulletin of the Menninger Clinic, 53,* 527-532.

Gangestad, S., & Simpson, J. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences, 23*(4), 573-587. https://doi.org/10.1017/s0140525x0000337x

Gentile, B., Miller, J., Hoffman, B., Reidy, D., Zeichner, A., & Campbell, W. (2013). A test of two brief measures of grandiose narcissism: The Narcissistic Personality Inventory–13 and the Narcissistic Personality Inventory-16. *Psychological Assessment, 25*(4), 1120-1136. http://doi.org/10.1037/a0033192

Goldhamer, H., & Shils, E.A. (1939). Types of power and status. *American Journal of Sociology, 45*, 171-182. https://doi.org/10.1086/218263

Goldstein, S., Chesir-Teran, D., & McFaul, A. (2008). Profiles and correlates of relational aggression in young adults' romantic relationships. *Journal of Youth and Adolescence*, *37*(3), 251-265. https://doi.org/ 10.1007/s10964-007-9255-6

Gordts, S., Uzieblo, K., Neumann, C., Van den Bussche, E., & Rossi, G. (2017). Validity of the Self-Report Psychopathy Scales (SRP-III full and short versions) in a community sample. *Assessment, 24*(3), 308-325. https://doi.org/10.1177/1073191115606205

Gore, W. L., & Widiger, T. A. (2016). Fluctuation between grandiose and vulnerable narcissism. *Personality Disorders: Theory, Research, and Treatment, 7*(4), 363. https://doi.org/10.1037/per0000181

Greitemeyer, T. (2015). Everyday sadism predicts violent video game preferences. *Personality and Individual Differences, 75*, 19-23. https://doi.org/ 10.1016/j.paid.2014.10.049

Greitemeyer, T., & Sagioglou, C. (2017). The longitudinal relationship between everyday sadism and the amount of violent video game play. *Personality and Individual Differences, 104,* 238-242. https://doi.org/10.1016/j.paid.2016.08.021

Griskevicius, V., Tybur, J., Gangestad, S., Perea, E., Shapiro, J., & Kenrick, D. (2009). Aggress to impress: Hostility as an evolved context-dependent strategy. *Journal of Personality and Social Psychology, 96*(5), 980-994. https://doi.org/10.1037/a0013907

Griskevicius, V., Tybur, J., Sundie, J., Cialdini, R., Miller, G., & Kenrick, D. (2007). Blatant benevolence and conspicuous consumption: When romantic motives elicit strategic costly signals. *Journal of Personality and Social Psychology, 93*(1), 85-102. https://doi.org/ 10.1037/0022-3514.93.1.85

Griskevicius, V., Tybur, J., & Van den Bergh, B. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology*, *98*(3), 392-404. https://doi.org/10.1037/a0017346

Hare, R. D. (1981). Psychopathy and violence. In J. R. Hayes, T. K. Roberts, & K. S. Solway (Eds.), *Violence and the violent individual* (pp. 53-74). Spectrum

Hare, R. D. (1991). *The Hare psychopathy checklist-revised: Manual*. Multi-Health Systems, Incorporated.

Hare, R. D., & McPherson, L. M. (1984). Violent and aggressive behavior by criminal psychopaths. *International Journal of Law and Psychiatry*. https://doi.org/10.1016/0160-2527(84)90005-0

Hare, R. D., & Neumann, C. S. (2005). Structural models of psychopathy. *Current Psychiatry Reports*, *7*(1), 57-64. https://doi.org/10.1007/s11920-005-0026-3

Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology. 4*, 217-246. https://doi.org/10.1146/annurev.clinpsy.3.022806.091452

Hare, R. D., & Neumann, C. S. (2009). Psychopathy: Assessment and forensic implications. *The Canadian Journal of Psychiatry*, *54*(12), 791-802. https://doi.org/10.1177/070674370905401202

Harkness, A., Behar-Zusman, V., & Safren, S. (2020). Understanding the impact of COVID-19 on Latino sexual minority men in a US HIV hot spot. *AIDS And Behavior*, *24*(7), 2017-2023. http://doi.org/10.1007/s10461-020-02862-w

Harrel, W. A. (1980). Retaliatory aggression by high and low Machiavellians against remorseful and non-remorseful wrongdoers. *Social Behavior and Personality*, *8*(2), 217-220. https://doi.org/10.2224/sbp.1980.8.2.217

Hawley, P. H. (1999). The ontogenesis of social dominance: A strategy-based evolutionary perspective. *Developmental Review*, *19*(1), 97-132. https://doi.org/10.1006/drev.1998.0470

Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* Guilford Press.

Heilbrun Jr, A. B., & Loftus, M. P. (1986). The role of sadism and peer pressure in the sexual aggression of male college students. *Journal of Sex Research*, *22*(3), 320-332. https://doi.org/10.1080/00224498609551312

Heilbrun, K., Hart, S. D., Hare, R. D., Gustafson, D., Nunez, C., & White, A. J. (1998). Inpatient and postdischarge aggression in mentally disordered offenders: The role

of psychopathy. *Journal of Interpersonal Violence, 13*(4), 514-527. https://doi.org/10.1177/088626098 013004007

Helfritz, L. E., & Stanford, M. S. (2006). Personality and psychopathology in an impulsive aggressive college sample. *Aggressive Behavior, 32*(1), 28-37. https://doi.org/10.1002/ab.20103

Henrich, J., & Gil-White, F. J. (2001). The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior, 22,* 165-196. https://doi.org/10.1016/S1090-5138(00)00071-4

Hess, N. H., & Hagen, E. H. (2006). Sex differences in indirect aggression: Psychological evidence from young adults. *Evolution and Human Behavior, 27*(3), 231-245. https://doi.org/10.1016/j.evolhumbehav.2005.11.001

Huo, Y. J., Molina, L. E., Binning, K. R., & Funge, S. P. (2010). Subgroup respect, social engagement, and well-being: A field study of an ethnically diverse high school. *Cultural Diversity and Ethnic Minority Psychology, 16,* 427-436. https://doi.org/10.1037/a0019886

Jonason, P. K., & Zeigler-Hill, V. (2018). The fundamental social motives that characterize dark personality traits. *Personality and Individual Differences, 132,* 98-107. https://doi.org/ doi.org/10.1016/j.paid.2018.05.031

Jones, D. N., & Paulhus, D. L. (2009). Machiavellianism. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 93-108). Guilford Press.

Jones, D. N., & Paulhus, D. L. (2010). Different provocations trigger aggression in narcissists and psychopaths. *Social Psychological and Personality Science, 1*(1), 12-18. https://doi.org/10.1177/1948550609347591

Jones, D. N., & Paulhus, D. L. (2011). Differentiating the dark triad within the interpersonal circumplex. In L. M. Horowitz & S. Strack, *Handbook of interpersonal psychology: Theory, research, assessment, and therapeutic interventions* (pp. 249-269). John Wiley & Sons.

Kaestner, E., Rosen, L., Appel, P., & Sofer, S. (1977). Manipulativeness among drug abusers: Reliability and validity of the MACH-IV scale. *Addiction, 72*(3), 245-249. https://doi.org/ 10.1111/j.1360-0443.1977.tb00685.x

Keashly, L., & Harvey, S. (2005). Emotional Abuse in the Workplace. In S. Fox & P. E. Spector (Eds.), *Counterproductive work behavior: Investigations of actors and targets* (pp. 201-235). American Psychological Association. https://doi.org/10.1037/10893-009

Kemper, T. D. (1990) *Social structure and testosterone: Explorations of the socio-bio-social chain.* Rutgers University Press.

Kemper, T. D., & Collins, R. (1990) Dimensions of microinteraction. *American Journal of Sociology, 96,* 32-68. https://doi.org/10.1086/229492

Kenrick, D. (2012). Evolutionary theory and human social behavior. In P. Van Lange, A. Kruglanski & E. Higgins, *Handbook of Theories of Social Psychology*. Sage.

Kernberg, O. F. (1974). Further contributions to the treatment of narcissistic personalities. *International Journal of Psycho-Analysis, 55*, 215-240.

Knight, N. M., Dahlen, E. R., Bullock-Yowell, E., & Madson, M. B. (2018). The HEXACO model of personality and Dark Triad in relational aggression. *Personality and Individual Differences*, *122*, 109–114. http://doi.org/10.1016/j.paid.2017.10.016

Kokko, H., Brooks, R., Jennions, M. D., & Morley, J. (2003). The evolution of mate choice and mating biases. *Proceedings of the Royal Society of London. Series B: Biological Sciences*, *270*(1515), 653-664. https://doi.org/10.1098/rspb.2002.2235

Krahé, B. (2013). *The social psychology of aggression*. London: Psychology Press.

Lagerspetz, K. M., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11-to 12-year-old children. *Aggressive Behavior*, *14*(6), 403-414. https://doi.org/10.1002/1098-2337(1988)14:6<403::AID-AB2480140602>3.0.CO;2-D

Lau, K. S., "Exploring Narcissism, Psychopathy, and Machiavellianism in Youth: An Examination of Associations with Antisocial Behavior and Aggression" (2010). *University of New Orleans Theses and Dissertations*.

Lau, K. S., & Marsee, M. A. (2013). Exploring narcissism, psychopathy, and Machiavellianism in youth: Examination of associations with antisocial behavior and aggression. *Journal of Child and Family Studies*, *22*(3), 355-367. https://doi.org/10.1007/s10826-012-9586-0

Lau, K. S., Marsee, M. A., Kunimatsu, M. M., & Fassnacht, G. M. (2011). Examining associations between narcissism, behavior problems, and anxiety in non-referred adolescents. In *Child & Youth Care Forum* (Vol. 40, No. 3, pp. 163-176). Springer US.

Leary, M. R., Jongman-Sereno, K. P., & Diebels, K. J. (2014). The pursuit of status: A self-presentational perspective on the quest for social value. In J. T. Cheng, J. L. Tracy, & C. Anderson (Eds.), *The psychology of social status* (pp. 159-178). Springer. https://doi.org/10.1007/978-1-4939-0867-7_8

LeBreton, J. M., Binning, J. F., & Adorno, A. J. (2006). *Subclinical Psychopaths.* In J. C. Thomas, D. L. Segal, & M. Hersen (Eds.), *Comprehensive handbook of personality and psychopathology* (Vol. 1, p. 388–411). John Wiley & Sons

Lento-Zwolinski, J. (2007). College students' self-report of psychosocial factors in reactive forms of relational and physical aggression. *Journal of Social and Personal Relationships, 24*, 407-421. https://doi.org/10.1177/0265407507077229

Lilienfeld, S. O., & Fowler, K. A. (2006). The Self-Report Assessment of Psychopathy: Problems, pitfalls, and promises. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 107–132). Guilford Press.

Linder, J., Crick, N., & Collins, W. (2002). Relational aggression and victimization in young adults' romantic relationships: Associations with perceptions of parent, peer, and romantic relationship quality. *Social Development, 11*(1), 69-86. https://doi.org/10.1111/1467-9507.00187

Lobbestael, J., Baumeister, R., Fiebig, T., & Eckel, L. (2014). The role of grandiose and vulnerable narcissism in self-reported and laboratory aggression and testosterone reactivity. *Personality and Individual Differences*, *69*, 22-27. https://doi.org/10.1016/j.paid.2014.05.007

Lynam, D. R., & Derefinko, K. J. (2006). Psychopathy and personality. In C. Patrick (Ed.), *Handbook of psychopathy* (pp.133-155). Guilford Press.

Maner, J. K., Kenrick, D. T., Becker, D. V., Robertson, T. E., Hofer, B., Neuberg, S. L., Delton, A. W., Butner, J., & Schaller, M. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, *88*(1), 63. https://doi.org/10.1037/0022-3514.88.1.63

Marsee, M. A., Silverthorn, P., & Frick, P. J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys and girls. *Behavioral Sciences & the Law*, *23*(6), 803-817. https://doi.org/10.1002/bsl.662

Mathieu, C. (2013). Personality and job satisfaction: The role of narcissism. *Personality and Individual Differences*, *55*(6), 650-654. https://doi.org/10.1016/j.paid.2013.05.012

Mathieu, C., & St-Jean, É. (2013). Entrepreneurial personality: The role of narcissism. *Personality and Individual Differences*, *55*(5), 527-531. https://doi.org/10.1016/j.paid.2013.04.026

Meade, A. W., & Craig, S. B. (2012) Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437. https://doi.org/10.1037/a0028085

Michalski, J. (2015). Status hierarchies and hegemonic masculinity: A general theory of prison violence. *British Journal of Criminology*, *57*(1), 40-60. http://doi.org/10.1093/bjc/azv098

Miller, J. D., Hoffman, B. J., Gaughan, E. T., Gentile, B., Maples, J., & Keith Campbell, W. (2011). Grandiose and vulnerable narcissism: A nomological network analysis. *Journal of Personality, 79*(5), 1013-1042. https://doi.org/10.1111/j.1467-6494.2010.00711.x

Miller, J. D., & Lynam, D. R. (2003). Psychopathy and the five-factor model of personality: A replication and extension. *Journal of Personality Assessment*, *81*(2), 168-178. https://doi.org/10.1207 /S15327752JPA8102_08

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, *12*(4), 177-196. https://doi.org/10.1207/S1532 7965PLI1204_1

Neel, R., Kenrick, D., White, A., & Neuberg, S. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology*, *110*(6), 887-907. https://doi.org/10.1037/pspp0000068

Neumann, G. C. (1987). Past and present thinking on aggression In G. C. Neuman (Ed.), *Origins of human aggression* (pp. 17-18). Human Sciences Press, Inc.

Neumann, C. S., & Hare, R. D. (2008). Psychopathic traits in a large community sample: links to violence, alcohol use, and intelligence. *Journal of Consulting and Clinical Psychology*, *76*(5), 893. https://doi.org/10.1037/0022-006X.76.5.893

Neumann, C. S., & Pardini, D. (2014). Factor structure and construct validity of the Self-Report Psychopathy (SRP) Scale and the Youth Psychopathic Traits Inventory (YPI) in young men. *Journal of Personality Disorders, 28*(3), 419-433. https://doi.org/10.1521/pedi_2012_26_063

Ojanen, T., Findley, D., & Fuller, S. (2012). Physical and relational aggression in early adolescence: Associations with narcissism, temperament, and social goals. *Aggressive Behavior*, *38*(2), 99-107. https://doi.org/10.1002/ab.21413

Olafsen, R., & Viemero, V. (2000). Bully/victim problems and coping with stress in school among 10- to 12-year-old pupils in Aland, Finland. *Aggressive*

Behavior, *26*(1), 57-65. https://doi,org/10.1002/(sici)1098-2337(2000)26:1<57::aid-ab5>3.0.co;2-i

Pailing, A., Boon, J., & Egan, V. (2014). Personality, the dark triad and violence. *Personality and Individual Differences*, *67*, 81-86. https://doi.org/10.1016/j.paid.2013.11.018

Paulhus, D. L., & Jones, D. N. (2017). Individual differences in aggression. In B. Bushman (Eds.) *Aggression and violence: A social psychological perspective* (pp. 105-118). Routledge

Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2009). *Manual for the self-report psychopathy scale*. Multi-health systems.

Pellegrini, A. D., & Archer, J. (2005). Sex differences in competitive and aggressive behavior. In B. Ellis & D. Bjorklund (Eds.) *Origins of the social mind* (pp. 219-244). Guilford Press.

Peterson, C., Kearns, M. C., McIntosh, W. L., Estefan, L. F., Nicolaidis, C., McCollister, K. E., Gordon, A., & Florence, C. (2018). Lifetime economic burden of intimate partner violence among US adults. *American Journal of Preventive Medicine*, *55*(4), 433-444. https://doi.org/10.1016/j.amepre.2018.04.049

Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G. C., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment, 21*(3), 365-379. https://doi.org/10.1037/a0016530

Porcerelli, J. H., Cogan, R., West, P. P., Rose, E. A., Lambrecht, D., Wilson, K. E., Severson, R. K., & Karana, D. (2003). Violent victimization of women and men:

physical and psychiatric symptoms. *Journal of the American Board of Family Practice, 16*(1), 32-39. https://doi.org/10.3122/jabfm.16.1.32

Porter, S., & Woodworth, M. (2006). Psychopathy and aggression. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 481-494). Guilford Press.

Raskin, R., & Hall, C. (1979). A Narcissistic Personality Inventory. *Psychological Reports, 45*(2), 590-590. https://doi.org/10.2466/pr0.1979.45.2.590

Raskin, R., & Novacek, J. (1989). An MMPI description of the narcissistic personality. *Journal of Personality Assessment, 53*(1), 66-80. https://doi.org/10.1207/s15327752jpa5301_8

Raskin, R., & Terry, H. (1988). A Principle-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*(5), 890-902. https://doi.org/10.1037/0022-3514.54.5.890

Rauthmann, J. (2013). Investigating the MACH–IV with item response theory and proposing the trimmed MACH*. *Journal of Personality Assessment, 95*(4), 388-397. https://doi.org/10.1080/00223891.2012.742905

Reidy, D. E., Zeichner, A., & Seibert, L. A. (2011). Unprovoked aggression: Effects of psychopathic traits and sadism. *Journal of Personality, 79*(1), 75-100. https://doi.org/10.1111/j.1467-6494.2010.00691.x

Richardson, D., & Green, L. (1999). Social sanction and threat explanations of gender effects on direct and indirect aggression. *Aggressive Behavior, 25*(6), 425-434. http://doi.org/10.1002/(sici)1098-2337(1999)25:6<425::aid-ab3>3.0.co;2-w

Richardson, D., & Green, L. (2006). Direct and indirect aggression: Relationships as social context. *Journal of Applied Social Psychology, 36*(10), 2492-2508. https://doi.org/10.1111/j.0021-9029.2006.00114.x

Richman, J. A., Flaherty, J. A., & Rospenda, K. M. (1996). Perceived workplace harassment experiences and problem drinking among physicians: Broadening the stress/alienation paradigm. *Addiction, 91*(3), 391-403. https://doi.org/10.1046/j.1360-0443.1996.9133918.x

Richman, J. A., Rospenda, K. M., Nawyn, S. J., Flaherty, J. A., Fendrich, M., Drum, M. L., & Johnson, T. P. (1999). Sexual harassment and generalized workplace abuse among university employees: prevalence and mental health correlates. *American Journal of Public Health, 89*(3), 358-363. https://doi.org/10.2105/AJPH.89.3.358

Ridgeway, C. L. (1984). Dominnce, performance, and status in groups: A theoretical analysis. In E.J. Lawlers (Ed.), *Advances in group processes* (Vol. 1, pp. 59-93). JAI Press.

Ronningstam, E. (2009). Narcissistic personality disorder: Facing DSM-V. *Psychiatric Annals, 39*(3). https://doi.org/10.3928/00485713-20090301-09

Sánchez, O., Vale, D., Rodrigues, L., & Surita, F. (2020). Violence against women during the COVID-19 pandemic: An integrative review. *International Journal of Gynecology and Obstetrics, 151*(2), 180-187. https://doi.org/10.1002/ijgo.13365

Sanz-García, A., Gesteira, C., Sanz, J., & García-Vera, M. (2021). Prevalence of psychopathy in the general adult population: A systematic review and meta-analysis. *Frontiers in Psychology, 12*. http://doi.org/10.3389/fpsyg.2021.661044

Schaller, M., Park, J., & Faulkner, J. (2003). Prehistoric dangers and contemporary prejudices. *European Review of Social Psychology*, *14*(1), 105-137. https://doi.org/10.1080/1046328 0340000036

Schmeelk, K. M., Sylvers, P., & Lilienfeld, S. O. (2008). Trait correlates of relational aggression in a nonclinical sample: DSM-IV personality disorders and psychopathy. *Journal of Personality Disorders*, *22*(3), 269-283. https://doi.org/10.1521/pedi.2008.22.3.269

Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: tend-and-befriend, not fight-or-flight. *Psychological Review*, *107*(3), 411. https://doi.org/10.1037//0033-295X.107.3.411

Teicher, M. H., Samson, J. A., Sheu, Y. S., Polcari, A., & McGreenery, C. E. (2010). Hurtful words: Exposure to peer verbal aggression is associated with elevated psychiatric symptom scores and corpus callosum abnormalities. *The American Journal of Psychiatry*, *167*(12), 1464. https://doi.org/10.1176/appi.ajp.2010.10010030

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups.* Wiley.

Trinkaus, E., & Zimmerman, M. (1982). Trauma among the Shanidar Neandertals. *American Journal of Physical Anthropology*, *57*(1), 61-76. https://doi.org/10.1002/ajpa.1330570108

Trivers, R. (1972). Parental investment and sexual selection. In B. Campbell (Eds.) *Sexual selection and the descent of man* (pp. 136–179). Aldine Publishing Company

Twenge, J. M., Campbell, W. K., & Foster, C. A. (2003). Parenthood and marital satisfaction: a meta-analytic review. *Journal of Marriage and Family*, *65*(3), 574-583. https://doi.org/10.1111/ j.1741-3737.2003.00574.x

Venema, T., & Pfattheicher, S. (2021). Perceived susceptibility to COVID-19 infection and narcissistic traits. *Personality and Individual Differences*, *175*, 110696. https://doi.org/ 10.1016/j.paid.2021.110696

Weisfeld, G. E., Bloch, S. A., & Bloch, S. A. (1984). Possible determinants of social dominance among adolescent girls. *The Journal of Genetic Psychology: Research and Theory on Human Development*, *144*, 115-129. https://doi.org/10.1080/00221325.1984.10532456

Werner, N. E., & Crick, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology*, *108*(4), 615-623. https://doi.org/10.1037/002 1-843X.108.4.615

Westhead, J., & Egan, V. (2015). Untangling the concurrent influences of the dark triad, personality and mating effort on violence. *Personality and Individual Differences*, *86*, 222-226. https://doi.org/10.1016/j.paid.2015.05.031

Williams, K., Paulhus, D., & Hare, R. (2007). Capturing the four-factor structure of psychopathy in college students via self-report. *Journal of Personality Assessment*, *88*(2), 205-219. https://doi.org/10.1080/00223890701268074

Williamson, S., Hare, R. D., & Wong, S. (1987). Violence: Criminal psychopaths and their victims. *Canadian Journal of Behavioural Science*, *19*(4), 454-462. https://doi.org/10.1037/h0080003

Winter, S., Neubaum, G., Eimler, S., Gordon, V., Theil, J., & Herrmann, J. et al. (2014). Another brick in the Facebook wall – How personality traits relate to the content of status updates. *Computers In Human Behavior*, *34*, 194-202. http://doi.org/10.1016/j.chb.2014.01.048

Wyckoff, J., Asao, K., & Buss, D. (2019). Gossip as an intrasexual competition strategy: Predicting information sharing from potential mate versus competitor mating strategies. *Evolution and Human Behavior*, *40*(1), 96-104. https://doi.org/10.1016/j.evolhumbehav. 2018.08.006

Xie, H., Cairns, R., & Cairns, B. (2002). The development of social aggression and physical aggression: A narrative analysis of interpersonal conflicts. *Aggressive Behavior*, *28*(5), 341-355. https://doi.org/10.1002/ab.80008

Zollikofer, C., Ponce de Leon, M., Vandermeersch, B., & Leveque, F. (2002). Evidence for interpersonal violence in the St. Cesaire Neanderthal. *Proceedings of The National Academy of Sciences*, *99*(9), 6444-6448. https://doi.org/10.1073/pnas.082111899