



The fundamental social motives that characterize dark personality traits

Peter K. Jonason^{a,*}, Virgil Zeigler-Hill^b

^a Western Sydney University, Australia

^b Oakland University, United States of America

ARTICLE INFO

Keywords:

Psychopathy
Narcissism
Machiavellianism
Sadism
Spitefulness
Motivations

ABSTRACT

A useful way of understanding personality traits is to examine the motivational nature of a trait because motives drive behaviors and influence attitudes. In two cross-sectional, self-report studies ($N = 942$), we examined the relationships between fundamental social motives and dark personality traits (i.e., narcissism, psychopathy, sadism, spitefulness, and Machiavellianism) and examined the role of childhood socio-ecological conditions (Study 2 only). For example, we found that Machiavellianism and psychopathy were negatively associated with motivations that involved developing and maintaining good relationships with others. Sex differences in the darker aspects of personality were a function of, at least in part, fundamental social motives such as the desire for status. Fundamental social motives mediated the associations that childhood socio-ecological conditions had with the darker aspects of personality. Our results showed how motivational tendencies in men and women may provide insights into alternative life history strategies reflected in dark personality traits.

1. Introduction

Personality traits reflect individual differences in how and why people interact with others in their social lives (Neel, Kenrick, White, & Neuberg, 2016). However, most research concerning the motivations associated with personality traits is characterized by limitations such as overemphasizing “lighter” aspects of personality such as the Big Five traits (Cooper, Agocha, & Sheldon, 2000); focusing mostly on the psychogenic motives of competence, power, and affiliation (Deci & Ryan, 2000); reporting relatively weak effects (Elliot & Thrash, 2001); and being based on a potentially shaky theoretical framework of motivational systems (e.g., Maslow's Hierarchy of Needs; Kenrick, Griskevicius, Neuberg, & Schaller, 2010). In this study, we attempt to understand the motivational priorities associated with the darker aspects of personality through an adaptationist lens.

As a highly social species, social groups and interactions will have acted as recurrent adaptive challenges that will have shaped motivational systems in people (Neel et al., 2016). The fundamental social motives that have been identified so far include: self-protection, disease avoidance, group affiliation, exclusion concern, independence, status, mate seeking, mate retention, and kin care. These motives reflect biases in motivational priorities that characterize the average person's (i.e., species-level) solution to problems related to finding and keeping a mate (Buss & Schmitt, 1993), the importance and benefits of group-living (Baumeister & Leary, 1995), and personal survival goals (Schaller, Park, & Mueller, 2003).

However, we should not assume that everyone has the same motivational priorities. There are individual differences in how people “choose” to solve adaptive tasks based on the (implicit) timeline they are working on or the nature of their life history tradeoffs. Those who are *now-focused* (i.e., likely to trade long-term survival for immediate sexual and social gains) may have a different motivational system than those who are *tomorrow-focused* (i.e., more interested in long-term outcomes than immediate sexual and social gains; Jonason, Sitnikova, & Oshio, 2018). Life history theory (Wilson, 1975) allows us to understand how organisms make tradeoffs of limited metabolic energy and time to solve their mating and survival goals which are often in conflict. Effort spent mating (including seeking mates and status) cannot be spent on somatic effort to protect one's kin and avoiding threats. When this theory is applied to people (Figueredo et al., 2006), it suggests that personality traits may reflect coordinated systems that allow individuals to solve adaptive problems in specific ways that include motivational biases (Jonason & Ferrell, 2016; Jonason & Fletcher, 2018). That is, personality traits may bias people towards investing more in mating effort or somatic effort. Most people prioritize motives that involve their safety and helping family over mating and status (Neel et al., 2016), but this may be diagnostic of the rather “slow” life history speed (i.e., *K*-selected) that characterizes the average *Homo sapiens* (Mace, 2000). In contrast, others, like those characterized by traits like psychopathy, may have different motivational priorities. To better understand the role of personality traits in defining alternative solutions to life history problems (which are often considered to be

* Corresponding author at: School of Social Sciences and Psychology, Western Sydney University, Milperra, NSW 2214, Australia.
E-mail address: p.jonason@westernsydney.edu.au (P.K. Jonason).

deviant), we examine individual differences in “dark side” personality traits.

Antisocial or “dark side” personality traits may reflect a distinct system of solutions to adaptive problems that are characterized by limited mutualistic motives (e.g., kin protection) and enhanced individualistic motives (e.g., status seeking). Specifically, we focus on Machiavellianism (i.e., manipulation and cynicism), narcissism (i.e., grandiosity and self-centeredness), psychopathy (i.e., callous social attitudes and impulsivity), sadism (i.e., enjoyment in the suffering of others), and spitefulness (i.e., punitive sentiments). These traits reflect individualistic behaviors such as intimate partner violence (Jones & Olderbak, 2014) and counterproductive workplace behavior (Spain, Harms, & LeBreton, 2014). Although traditionally viewed as indicators of psychopathology, we suggest these dark traits may simply reflect adaptive solutions to the sorts of recurring social problems faced by humans that differ from the species-typical solutions of mutualism and safety (Jonason, Koenig, & Tost, 2010). As such, we make two broad predictions. First, we expect dark personality traits to be negatively correlated with mutualistic and survival motives because investing in long-term relationships is costly and may not pay-off in the (perceived to be) shortened timeline, whereas sacrificing survival and taking risks are essential features of engaging in a *fast* (i.e., *r*-selected) life history strategy. Second, we expect dark traits to be related to individualistic motivations for mate seeking given their interest in casual sex (Jonason, Li, Webster, & Schmitt, 2009) and their limited interest in mate retention (Jonason, Li, & Buss, 2010). Further, dark traits are associated with status seeking (Semenya & Honey, 2015), perhaps, because status and power have repeatedly translated into better access to mates and food.

In addition to providing a unique way of understanding personality effects, life history theory also provides strong, *a priori* reasons to expect sex differences in both personality traits and fundamental social motives. It is already well established that men are more Machiavellian, narcissistic, psychopathic, sadistic, and spiteful than women are (e.g., Jonason, Zeigler-Hill, & Okan, 2017); men are more motivated by mate seeking and status seeking than women are (Jonason et al., 2009; Semanya & Honey, 2015); and women are more motivated to help kin, avoid threats, and help others than men are (Baumeister & Leary, 1995; Neel et al., 2016). These may reflect sex-related asymmetries in the costs and benefits for how ancestral men and women solved life history tradeoffs when taking their individual, physiological, and psychological characteristics into account. Because ancestral women paid more costs for engaging in fast approaches to life, natural selection would have shaped motivational biases to better protect women from threats and form stronger bonds with other members of the species. In contrast, ancestral men would have experienced more benefits from mating opportunities and the accrual of status than women (Buss & Schmitt, 1993) so natural selection would have shaped the motivational and behavioral biases of men to be more strongly oriented towards mate and status seeking compared with the motivational and behavioral biases of women. We suggest that natural selection has operated on deep motivational systems (Jonason & Ferrell, 2016; Neel et al., 2016), systems that humans are likely to share with other highly social species that have similar life history profiles (e.g., African bush elephant [*Loxodonta Africana*] and evolutionary histories (e.g., chimpanzee [*Pan troglodytes*])). Personality traits are – at least in part – phenotypic expressions of the underlying motivational systems in men and women (i.e., behavioral syndromes; Sih, Bell, Johnson, & Ziemba, 2004). Therefore, we expect sex differences in dark traits to be mediated by individual differences in the fundamental social motives.

If personality traits and social motives are adaptive responses, then they should be sensitive to stressful and unpredictable childhood conditions (Brumbach, Figueredo, & Ellis, 2009). Indeed, social motives

and dark personality traits are sensitive to variability in the quality of childhood conditions (Jonason, Icho, & Ireland, 2016; Neel et al., 2016). We explore the possibility that childhood conditions might play a role in the associations between the fundamental social motives and the dark personality traits. For example, an indirect association between sex and psychopathy, that operates through the status seeking motive, may be especially strong when the individual has experienced a harsh or unpredictable childhood (e.g., men raised in harsh or unpredictable environments may prioritize the status seeking motive which, in turn, may predict high levels of psychopathic personality traits). It is not that all people will turn to antagonistic solutions to problems. Instead, those with a fast orientation who experience a harsh/unpredictable environment will “press the gas” whereas those with a slow orientation in the same contexts will “push the breaks”.

We contend that a powerful way to understand and organize personality traits is to understand the motivational biases that characterize each trait (Jonason & Ferrell, 2016; Jonason & Fletcher, 2018). In two studies, we examine how individual differences in fundamental social motives are related to darker aspects of personality. As alternative social strategies, darker aspects of personality are easily ignored when researchers are more concerned with documenting species-level traits. In contrast, we take an individual differences (i.e., within-species) approach to understand the social nature of darker aspects of human psychology.

2. Study 1

We began by assessing the relationships between five dark traits (i.e., narcissisms, Machiavellianism, psychopathy, sadism, and spitefulness) and individual differences in fundamental social motives. We tested whether these correlations differed in men and women. And last, we tested whether the fundamental social motives mediated the associations that sex had with the traits.

2.1. Method

2.1.1. Participants and procedure

A sample of 300 (154 women) community members from the United States of America were paid US\$3 to participate in an online study through MTurk. The average age of the participants was 33.15 years ($SD = 10.48$), with a range of 18–65 years. Most of the sample was of a “white” ethnicity (76%), had a college degree (34%), were married (34%), and were heterosexual (91%). Participants were informed about the nature of the study before completing several self-report measures. The minimum sample size was determined based on power analysis (> 0.80) for the average effect size in social and personality psychology ($r \approx 0.20$; Richard, Bond Jr., & Stokes-Zoota, 2003) and guidelines ($N \approx 250$) set for reducing estimation error in personality psychology (Schönbrodt & Perugini, 2013).

2.1.2. Measures

Machiavellianism was measured using the MACH-IV (Christie & Geis, 1970) which consists of 20 items that capture manipulative and deceitful tendencies as well as cynical and immoral beliefs (e.g., “It is wise to flatter important people” [$\alpha = 0.72$]). Participants rated their level of agreement with each item on the MACH-IV using scales that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses to these items were averaged to create an overall index of Machiavellianism.

Narcissism was assessed with the 40-item version of the Narcissistic Personality Inventory (Raskin & Hall, 1979). Items for the NPI are presented in a forced-choice format such that participants must choose between a narcissistic and a non-narcissistic statement for each item (e.g., “I really like to be the center of attention” vs. “It makes me

uncomfortable to be the center of attention” [$\alpha = 0.91$]). The score for the NPI was calculated by summing the items for which participants selected the narcissistic option.

Psychopathy was measured with the Self-Report Psychopathy Scale-III (Paulhus, Neumann, & Hare, 2009) which consists of 34 items that capture psychopathic features in the general population (e.g., “Rules are made to be broken” [$\alpha = 0.90$]). Participants rated their level of agreement with each item using scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses to these items were averaged to create an overall index of psychopathy.

Sadism was measured with the Comprehensive Assessment of Sadistic Tendencies (Buckels & Paulhus, 2013) which consists of 18 items that capture everyday sadism (e.g., “I enjoy physically hurting people” [$\alpha = 0.91$]). Participants rated their level of agreement with each item using scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses to these items were averaged to create an overall index of sadism.

Spitefulness was measured with the Spitefulness Scale (Marcus, Zeigler-Hill, Mercer, & Norris, 2014) which consists of 17 items that capture individual differences in spitefulness (e.g., “I would be willing to take a punch if it meant that someone I did not like would receive two punches” [$\alpha = 0.94$]). Participants rated their level of agreement with each item using scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses to these items were averaged to create an overall index of spitefulness.

The Fundamental Social Motives Inventory (Neel et al., 2016) was used which is a 66-item instrument assessing the following fundamental motives: *self-protection* (6 items; e.g., “I think a lot about how to stay away from dangerous people” [$\alpha = 0.85$]), *disease avoidance* (6 items; e.g., “I avoid places and people that might carry diseases” [$\alpha = 0.84$]), *group affiliation* (6 items; e.g., “Being part of a group is important to me” [$\alpha = 0.79$]), *exclusion concern* (6 items; e.g., “I worry about being rejected” [$\alpha = 0.88$]), *independence* (6 items; e.g., “Having time alone is extremely important to me” [$\alpha = 0.81$]), *status* (6 items; e.g., “It’s important to me that others respect my rank or position” [$\alpha = 0.80$]), *mate seeking* (6 items; e.g., “I spend a lot of time thinking about ways to meet possible dating partners” [$\alpha = 0.87$]), and *kin care* (6 items; e.g., “Caring for family members is important to me” [$\alpha = 0.88$]). We excluded the care towards children subscale and the mate retention subscale because these items are primarily intended for respondents who have children or are currently involved in a committed romantic relationship. Participants were asked to rate their level of agreement with each statement using scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Responses to these items were averaged to create scores for each fundamental social motive. We report the intercorrelations between these in Appendix A.

2.2. Results and discussion

Table 1 contains a summary of sex differences in each trait and motive. Men scored higher than women for each of the dark personality traits. Further, men had higher scores than women did for the fundamental motives concerning status, mate seeking, and breakup concern. In contrast, women had higher scores than men did for fundamental social motives concerning self-protection, disease avoidance, mate retention, and kin care. More details are available upon request.

The zero-order correlations between dark personality traits and the fundamental social motives and the percent of variance accounted for by all five dark personality traits are reported in Table 2 (Top Panel). The dark personality traits were consistently motivated by exclusion concerns, status, and mate seeking. It is important to note that each of the dark personality traits also had negative associations with social motives concerning self-protection and kin care. This pattern is broadly consistent with the contention that these dark personality traits are part

Table 1
Summary of sex differences and effects sizes (i.e., Cohen’s *d*) in dark traits and individual differences in fundamental social motives.

	<i>t</i> (<i>d</i>)	
	Study 1	Study 2
1. Machiavellianism	−3.55 (−0.41)	4.34** (0.34)
2. Narcissism	−4.42** (−0.51)	0.94 (0.09)
3. Psychopathy	−7.19** (−0.83)	4.87** (0.39)
4. Sadism	−7.57** (−0.88)	10.45** (0.83)
5. Spitefulness	−5.84** (−0.68)	5.39** (0.43)
6. Self-protection	2.14* (0.25)	−5.78** (−0.46)
7. Disease avoidance	2.20* (0.25)	−0.31 (−0.02)
8. Group affiliation	−0.97 (−0.11)	−0.50 (−0.04)
9. Exclusion concern	−1.49 (−0.17)	−2.71* (−0.21)
10. Independence	0.40 (0.05)	−2.30* (−0.18)
11. Status	−5.43** (−0.63)	−0.76 (−0.06)
12. Mate seeking	−6.89** (−0.80)	3.08** (0.24)
13. Kin care	4.55 (0.53)	−6.19** (−0.49)

Note. In Study, 1 sex is coded −1 for “female” and 1 for “male”. In Study 2, sex is coded 1 for “female”, 2 for “male”.

* $p < 0.05$.

** $p < 0.01$.

Table 2
Zero-order correlations and total variance accounted for by the dark personality traits had with the fundamental social motives across two studies.

Fundamental social motives	M	N	P	S	Sp	R ²
Study 1						
Self-protection	−0.13*	−0.13*	−0.25**	−0.16**	−0.18**	0.07**
Disease avoidance	0.02	0.00	−0.15*	−0.10	−0.03	0.05**
Group affiliation	−0.35**	0.15**	−0.13*	−0.07	−0.16**	0.20**
Exclusion concern	0.15**	0.13*	0.17**	0.15**	0.16**	0.04*
Independence	0.09	−0.28**	−0.11	−0.11*	−0.24**	0.18**
Status	0.21**	0.56**	0.34**	0.35**	0.34**	0.34**
Mate seeking	0.29**	0.32**	0.49**	0.44**	0.49**	0.29**
Kin care	−0.46**	−0.20**	−0.48**	−0.40**	−0.46**	0.36**
Study 2						
Self-protection	0.01	0.09*	−0.17**	−0.24**	−0.17**	0.09**
Disease avoidance	0.14**	0.09*	−0.05	−0.03	0.03	0.05**
Group affiliation	−0.14**	0.22**	−0.20**	−0.27**	−0.22**	0.17**
Exclusion concern	0.07	0.04	−0.03	−0.10**	−0.06	0.03*
Independence	0.06	0.02	0.06	0.01	−0.02	0.01
Status	0.27**	0.50**	0.18**	0.02	0.05	0.28**
Mate seeking	0.15*	0.05	0.21**	0.17**	0.22**	0.06**
Kin care	−0.22**	0.02	−0.41**	−0.45**	−0.47**	0.29**

Note. M = Machiavellianism; N = Narcissism; P = Psychopathy; S = Sadism; Sp = Spitefulness. Sadism and spitefulness were not included in Study. The addition of sadism and spitefulness accounted for an additional 0%–7% of variance beyond what was explained by the Dark Triad traits alone in Study 1 and 0%–13% of additional variance in Study 2.

* $p < 0.05$.

** $p < 0.01$.

of a fast life history strategy (Jonason, Koenig, & Tost, 2010).

To control for shared variance among the dark personality traits (Appendix C) and to test for incremental validity of sadism and spitefulness above the Dark Triad traits, we conducted a series of hierarchical multiple regressions that regressed the fundamental social motives onto the dark personality traits. Sadism ($\beta = -0.40$, $p < 0.01$) and psychopathy ($\beta = -0.41$, $p < 0.01$) had negative residual associations with the self-protection motive. Machiavellianism ($\beta = -0.37$, $p < 0.01$) had a negative residual association with the group affiliation motive, whereas narcissism ($\beta = 0.29$, $p < 0.01$) had

a positive residual association with this motive. Machiavellianism ($\beta = 0.30, p < 0.01$) had a positive residual association with the independence motive, whereas narcissism ($\beta = -0.26, p < 0.01$) and spitefulness ($\beta = -0.39, p < 0.01$) had negative residual associations with this motive. Narcissism ($\beta = 0.51, p < 0.01$) and sadism ($\beta = 0.18, p < 0.06$) had positive residual associations with the status motive. Psychopathy ($\beta = 0.31, p < 0.01$) and spitefulness ($\beta = 0.30, p < 0.01$) had positive residual associations with the mate seeking motive. Machiavellianism ($\beta = -0.22, p < 0.01$), psychopathy ($\beta = -0.27, p < 0.01$), and spitefulness ($\beta = -0.24, p < 0.01$) had negative residual associations with the kin care motive, whereas narcissism had a marginally significant positive residual association with this motive ($\beta = 0.10, p < 0.07$). None of the dark personality traits had residual associations with exclusion concerns or disease avoidance motives which suggests that their zero-order correlations with these motives was largely caused by their shared variance.

There was some evidence that sex moderated the associations that the dark personality traits had with the fundamental social motives. The correlation between Machiavellianism and the group affiliation motive was larger (Fisher's $z = 2.13, p < 0.05$) in men ($r = -0.49$) than in women ($r = -0.28$). The correlation between Machiavellianism and the status motive was larger ($z = -3.26, p < 0.01$) and present in women ($r = 0.31$) but it was not significant for men ($r = -0.06$). The correlation between Machiavellianism and the mate seeking motive was larger ($z = -4.24, p < 0.01$) and present in women ($r = 0.45$) but it was not significant for men ($r = -0.01$). The correlation between psychopathy and the mate seeking motive was larger ($z = -3.05, p < 0.01$) in women ($r = 0.56$) than in men ($r = 0.27$). The correlation between sadism and the mate seeking motive was larger ($z = -2.45, p < 0.01$) in women ($r = 0.47$) than in men ($r = 0.22$). The correlation between spitefulness and the mate seeking motive was larger ($z = -2.34, p < 0.01$) in women ($r = 0.54$) than in men ($r = 0.32$). Interestingly, it appears that these associations tend to be stronger in women than they are in men.

2.2.1. Mediation tests

Our hypotheses were consistent with an indirect effects model such that the associations that sex had with the Dark Triad personality traits were believed to be a function, at least in part, of the fundamental social motives. Direct and indirect effects were examined using model four of the PROCESS macro developed by Hayes (2013), which uses a bootstrap resampling process that was repeated 5000 times to generate a 95% bias-corrected confidence interval (CI). Indirect effects are considered significant if the CIs do not contain zero (Fig. 1 and Table 3 [Top Panel]). Sex had indirect associations with Machiavellianism through the status motive and the kin care motive. The status motive and the kin care motive were found to mediate the association that sex had with narcissism. Sex had indirect associations with psychopathy through the status motive, the mate seeking motive, and the kin care motive. The status motive, the mate seeking motive, and the kin care motive were found to mediate the association that sex had with sadism. Sex had indirect associations with spitefulness through the status motive, the mate seeking motive, and the kin care motive. In sum, the status motive and the kin care motive were the only fundamental social motives to (partially) mediate the associations that sex had with each of the dark personality traits we examined. In addition, motivations concerning self-protection, group affiliation, exclusion concerns, independence, and mate seeking mediated the associations that sex had with some – but not all – of the dark personality traits.

3. Study 2

We had two main goals in Study 2. First, we wanted to replicate the associations between individual differences in dark personality traits and fundamental social motives. Second, we wanted to consider the role of childhood conditions in understanding the relationships between the fundamental social motives and dark traits. In addition, Study 1 relied on a community sample, and, to add some sampling heterogeneity, we used two college-student samples, one from the United States of America and one from Australia.

3.1. Method

3.1.1. Participants and procedure

A sample of 642 undergraduates (515 women) from American ($n = 364, 304$ women) and Australian ($n = 278, 211$ women) universities participated, online, in exchange for partial course credit in their introductory psychology classes. The average age of the participants was 20.83 years ($SD = 4.41$), with a range of 18–50 years. The sample was predominantly heterosexual (92%) and 50% were in a committed relationship (including marriage). Participants were informed about the nature of the study before completing several self-report measures. The minimum sample size at each site was determined using the same strategy as Study 1.

3.1.2. Measures

The 27-item Short Dark Triad (Jones & Paulhus, 2014) was used to measure individual differences in Machiavellianism (9 items; e.g., “Most people are suckers” [Cronbach's $\alpha = 0.77$]), narcissism (9 items; e.g., “I am an average person” [$\alpha = 0.68$]), and psychopathy (9 items; e.g., “I like to pick on losers” [$\alpha = 0.78$]). Participants provided their level of agreement with each statement using scales that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses to these items were averaged to create indices of Machiavellianism, narcissism, and psychopathy.

We replicated three measures here used in Study 1. Sadism was assessed using the Comprehensive Assessment of Sadistic Tendencies ($\alpha = 0.90$; Buckels & Paulhus, 2013). Spitefulness was measured using the Spitefulness Scale ($\alpha = 0.91$; Marcus et al., 2014). The fundamental social motives were measured using the Fundamental Social Motives Inventory ($\alpha = 0.74$ to 0.87 ; Neel et al., 2016).

We measured childhood socio-ecological conditions with a two-dimensional measure that captures self-reported, recalled aspects of childhood unpredictability (3 items; e.g., “Things were often chaotic in my house” [$\alpha = 0.76$]) and childhood resource availability (8 items; e.g., “familial support for food” [$\alpha = 0.92$]; Griskevicius, Delton, Robertson, & Tybur, 2011). Items were averaged to create indices of each.

3.2. Results and discussion

We tested a 2 (sex) \times 2 (location) MANOVA with the five dark traits as dependent variables. There was a multivariate main effect of participant's sex (Pillai's trace = 0.15, $p < 0.01$) and study site (Pillai's trace = 0.13, $p < 0.01$), but no interaction of the two. Men had higher levels than did women for each of the dark personality traits except for narcissism (see Table 1). Australian participants were more Machiavellian, sadistic, and spiteful ($t_s = 3.20$ to $7.28, p < 0.01, d_s = 0.25$ to 0.56) than those from the United States, but participants from the United States were more narcissistic than those from Australia ($t = -3.92, p < 0.01, d = -0.31$), but because these were not

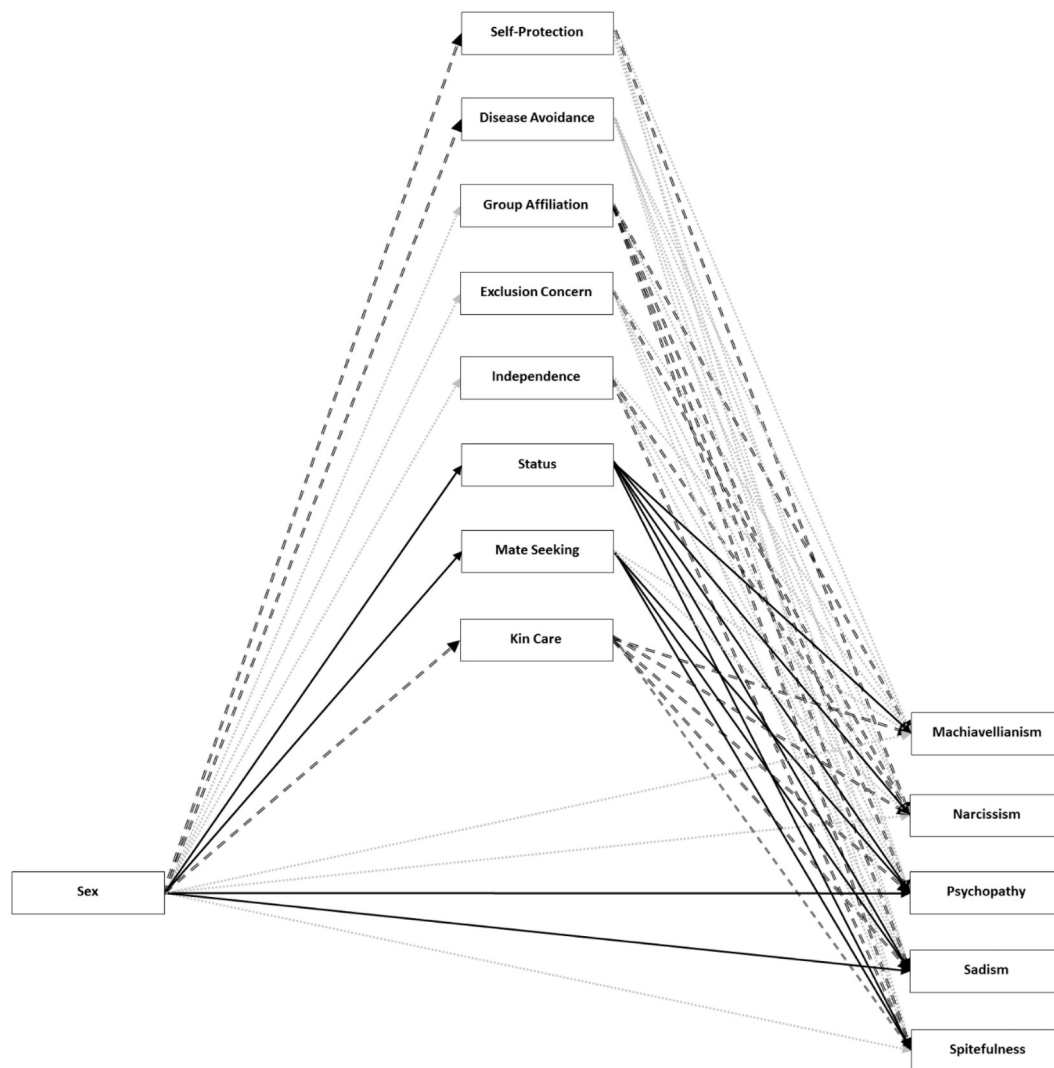


Fig. 1. Study 1: The results of the multiple mediation analysis with the fundamental social motives mediating the associations that sex had with the dark personality traits. Note. The significant positive associations are indicated by solid black arrows. The significant negative associations are indicated by dashed black arrows. The dotted grey lines represent nonsignificant associations.

predicted and noncentral to our study, we report them here in the spirit of disclosure. Because most of the fundamental social motives were correlated (Appendix D) we ran another MANOVA with all of them as the dependent variables. We found multivariate main effects for participant's sex (Pillai's trace = 0.11, $p < 0.01$) and study site (Pillai's trace = 0.25, $p < 0.01$), but no interaction of the two. When looking at sex differences, women scored higher than men did for motives concerning self-protection, kin care, exclusion concerns, and independence whereas men scored higher on mate seeking (see Table 1). In the case of differences by study site, participants from the United States scored higher than those from Australia did on all the motives ($t_s = -6.44$ to 11.90 , $p_s < 0.01$, $d_s = -0.51$ to -0.94) except disease avoidance where they were equal ($t = 1.09$) and mate seeking where the Australian participants scored higher than the participants from the United States did ($t = 3.88$, $p < 0.01$, $d = 0.31$). More details are available upon request.

In Table 2 (Bottom Panel) we report the correlations between dark personality traits and fundamental social motives. Machiavellianism was positively associated with disease avoidance, status, and mate

seeking, whereas it was negatively associated with group affiliation and kin care. Narcissism was positively associated with self-protection, disease avoidance, group affiliation, and status. Psychopathy was positively associated with status and mate seeking, whereas it was negatively associated with self-protection, group affiliation, and kin care. Sadism had a similar motivational profile as psychopathy with the exceptions of not being associated with the status motive and having a negative association with exclusion concerns. Spitefulness had a similar motivational profile as psychopathy apart from not being associated with the status motive. Importantly, no one motivational priority seemed to link these dark traits together but if we exclude narcissism from consideration – because it has been characterized as the “lightest” of these traits – then the “darker” traits appear linked by heightened levels of motivations concerning mate seeking as well as low levels of motivations concerning group affiliation and kin care—which may reflect their *fast* life history strategies.

To control for shared variance among the dark personality traits (Appendix C) and to test for the incremental validity of sadism and spitefulness above the Dark Triad traits, we conducted a series of

Table 3
Results of the multiple mediation analysis concerning whether fundamental social motives mediated the associations between sex and dark personality traits across two studies.

Fundamental social motives	Machiavellianism		Narcissism		Psychopathy		Sadism		Spitefulness	
	<i>ab</i>	<i>CI_L,CI_U</i>	<i>ab</i>	<i>CI_L,CI_U</i>	<i>ab</i>	<i>CI_L,CI_U</i>	<i>ab</i>	<i>CI_L,CI_U</i>	<i>ab</i>	<i>CI_L,CI_U</i>
Study 1										
Self-protection	0.03	0.00,0.09	0.04	0.00,0.10	0.04	0.00,0.11	0.02	0.00,0.07	0.03	0.00,0.08
Disease avoidance	-0.03	-0.08,0.00	-0.02	-0.07,0.00	0.00	-0.02,0.04	0.00	-0.04,0.03	-0.07	-0.07,0.00
Group affiliation	-0.04	-0.13,0.04	-0.01	-0.05,0.01	-0.01	-0.06,0.01	-0.01	-0.05,0.01	-0.02	-0.08,0.02
Exclusion concern	0.01	-0.01,0.07	-0.03	-0.09,0.00	-0.02	-0.07,0.00	-0.03	-0.09,0.00	-0.02	-0.07,0.00
Independence	0.00	-0.04,0.01	0.01	-0.03,0.05	0.00	-0.01,0.02	0.00	-0.01,0.02	0.01	-0.03,0.05
Status	0.19**	0.10,0.31	0.37**	0.24,0.53	0.18**	0.10,0.28	0.17**	0.10,0.28	0.19**	0.11,0.29
Mate seeking	0.04	-0.10,0.18	-0.01	-0.09,0.08	0.07	0.00,0.15	0.02	-0.06,0.10	0.07	-0.01,0.17
Kin care	0.12**	0.05,0.22	0.07	0.00,0.14	0.08*	0.03,0.16	0.06	0.01,0.13	0.08*	0.03,0.15
Study 2										
Self-protection	0.00	-0.04,0.04	0.01	-0.02,0.04	0.01	-0.01,0.04	0.02	-0.01,0.04	-0.01	-0.04,0.02
Disease avoidance	0.00	-0.01,0.02	0.00	0.00,0.01	0.00	-0.02,0.01	0.00	-0.01,0.00	0.00	0.00,0.01
Group affiliation	0.01	-0.03,0.05	0.00	-0.03,0.01	0.01	-0.01,0.03	0.01	-0.02,0.03	0.00	-0.01,0.02
Exclusion concern	-0.01	-0.04,0.00	0.04*	0.01,0.08	0.00	-0.01,0.02	0.00	-0.02,0.01	0.00	-0.01,0.01
Independence	0.00	-0.02,0.01	0.00	0.00,0.02	-0.01	-0.03,0.04	-0.01	-0.02,0.00	0.00	-0.01,0.01
Status	0.00	-0.05,0.05	0.00	-0.06,0.07	0.00	-0.04,0.04	0.00	-0.02,0.02	0.00	-0.02,0.02
Mate seeking	0.03*	0.01,0.06	0.02	0.00,0.04	0.03**	0.01,0.06	0.02*	0.01,0.04	0.03**	0.01,0.06
Kin care	0.06**	0.02,0.10	0.01	-0.01,0.04	0.12**	0.08,0.18	0.11**	0.07,0.17	0.15**	0.10,0.22

Note. *ab* = coefficient for the indirect effect; *CI_L* = Lower-bound of the 95% confidence interval; *CI_U* = Upper-bound of the 95% confidence interval.

* *p* < 0.05.

** *p* < 0.01.

hierarchical multiple regressions that regressed the fundamental social motives onto the dark personality traits. Machiavellianism ($\beta = 0.12, p < 0.01$) and narcissism ($\beta = 0.14, p < 0.01$) had positive residual associations with the self-protection motives, whereas psychopathy ($\beta = -0.15, p < 0.01$), and sadism ($\beta = -0.22, p < 0.01$) had negative residual associations with this motive. Machiavellianism ($\beta = 0.20, p < 0.01$), narcissism ($\beta = 0.10, p < 0.05$), and spitefulness ($\beta = 0.11, p < 0.05$) had positive residual associations with the disease avoidance motive, whereas psychopathy ($\beta = -0.23, p < 0.01$) had a negative residual association with this motive. Narcissism had a positive residual association with the group affiliation motive ($\beta = 0.34, p < 0.01$), whereas psychopathy ($\beta = -0.16, p < 0.01$) and sadism ($\beta = -0.15, p < 0.01$) had negative residual associations with this motive. Machiavellianism had a positive residual association with exclusion concerns ($\beta = 0.12, p < 0.01$), whereas sadism had a negative residual association with exclusion concerns ($\beta = -0.14, p < 0.05$). Spitefulness had a negative residual association with the independence motive ($\beta = -0.11, p < 0.05$). Machiavellianism ($\beta = 0.18, p < 0.01$) and narcissism ($\beta = 0.48, p < 0.01$) had positive residual associations with the status motive, whereas spitefulness had a negative residual association with this motive ($\beta = -0.10, p < 0.05$). Psychopathy ($\beta = 0.12, p < 0.05$) and spitefulness ($\beta = 0.15, p < 0.05$) had positive residual associations with the mate seeking motive. Narcissism had a positive residual association with the kin care motive ($\beta = 0.17, p < 0.01$), whereas psychopathy ($\beta = -0.19, p < 0.01$), sadism ($\beta = -0.19, p < 0.01$), and spitefulness ($\beta = -0.27, p < 0.01$) had negative residual associations with this motive.

3.3. Moderation and mediation

We examined whether participant's country or sex moderated the associations that the dark personality traits had with the fundamental social motives. The correlation between Machiavellianism and the independence motive was larger (Fisher's $z = -2.47, p < 0.01$) in the United States sample ($r = 0.28$) than the Australian sample ($r = 0.09$). The correlation between narcissism and the exclusion concern motive was larger ($z = -2.64, p < 0.01$) and negative in the Australian

sample ($r = -0.14$) than the United States sample ($r = 0.07$). However, we found little evidence of little systematic moderation by site which suggests between-country uniformity in how dark personality traits relate to fundamental motives.

We followed these analyses with a multiple mediation analysis that examined whether the fundamental social motives mediated the associations that sex had with each dark personality trait (Fig. 2 and Table 3[Bottom Panel]). Sex had indirect associations with Machiavellianism through the mate seeking motive and the kin care motive. The exclusion concern motive mediated the association that sex had with narcissism. Sex had indirect associations with psychopathy through the mate seeking motive and the kin care motive. The mate seeking motive, and the kin care motive mediated the association that sex had with sadism. Sex had indirect associations with spitefulness through the mate seeking motive, and the kin care motive. In sum, the mate seeking and kin care motives (partially) mediated the associations that sex had with each of the dark personality traits, except for narcissism. In addition, motivations concerning exclusion concerns mediated the association that sex had with narcissism.

Using model eight of the PROCESS macro developed by Hayes (2013), we found no evidence for moderated mediation by childhood conditions of these mediation effects. However, both childhood unpredictability and childhood resource availability had their own indirect associations with the dark personality traits through the fundamental social motives.¹ Childhood unpredictability had indirect associations with each of the dark personality traits through the status motive: Machiavellianism ($B = 0.04, SE = 0.02, 95\% CI [0.01, 0.07]$), Sobel's $z = 2.42, p = 0.02$), narcissism ($B = 0.07, SE = 0.03, 95\% CI [0.01, 0.13], z = 2.51, p = 0.01$), psychopathy ($B = 0.03, SE = 0.01, 95\%bCI [0.01, 0.06], z = 2.39, p = 0.02$), sadism ($B = 0.03, SE = 0.01, 95\% CI [0.01, 0.06], z = 2.46, p = 0.01$), and spitefulness ($B = 0.02, SE = 0.01, 95\% CI [0.01, 0.04], z = 1.96, p = 0.05$). In addition, childhood unpredictability had indirect associations with psychopathy

¹ For thoroughness, we also tested the 2×2 model as an ANOVA for childhood socio-ecological conditions. Women reported more childhood resources than men did ($F = 9.77, p < 0.01, \eta_p^2 = 0.02$) and participants from the United States reported more childhood resources than the Australian participants ($F = 8.23, p < 0.01, \eta_p^2 = 0.01$).

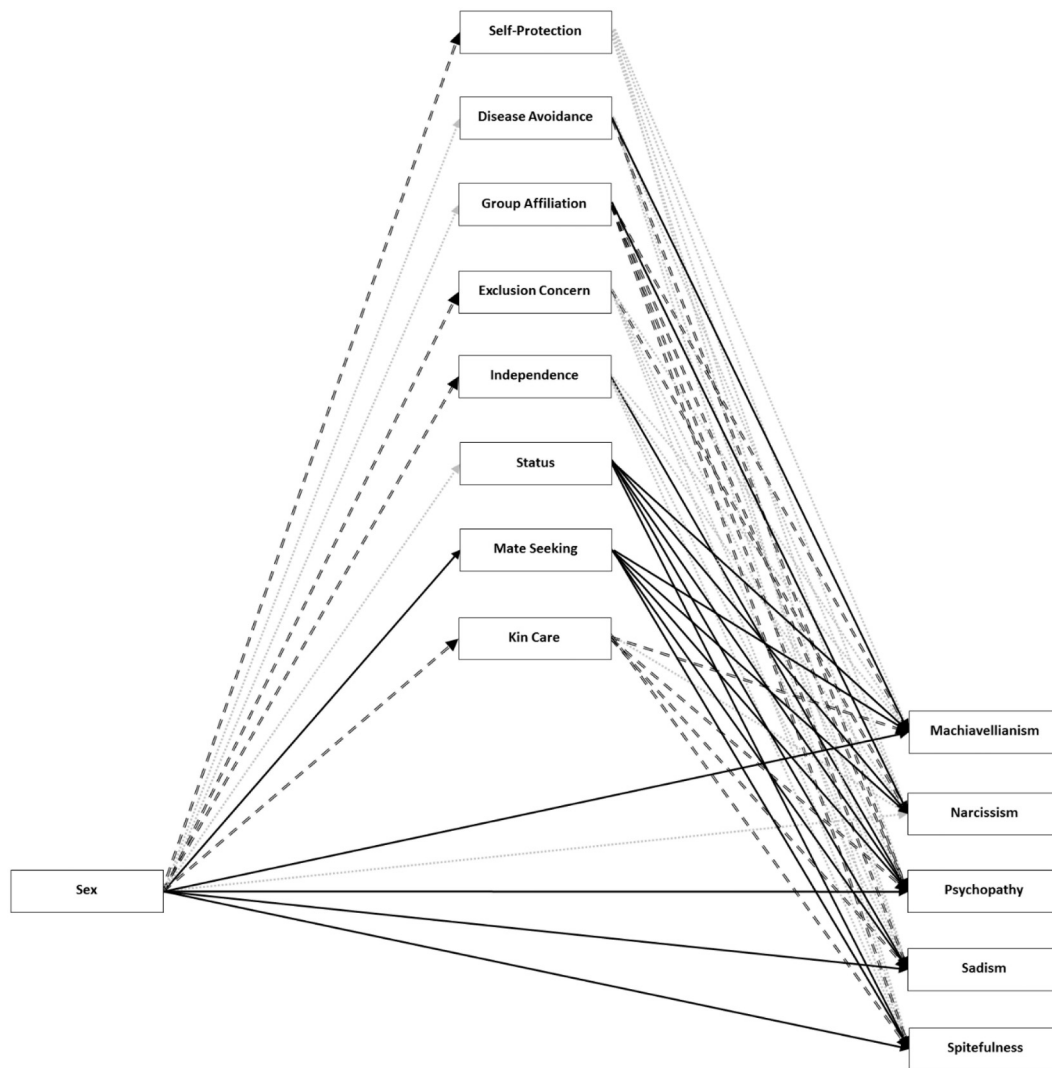


Fig. 2. Study 2: The results of the multiple mediation analysis with the fundamental social motives mediating the associations that sex had with the dark personality traits. *Note.* The significant positive associations are indicated by solid black arrows. The significant negative associations are indicated by dashed black arrows. The dotted grey lines represent nonsignificant associations.

($B = 0.04$, $SE = 0.01$, 95% CI [0.02, 0.07], $z = 3.40$, $p < 0.001$), sadism ($B = 0.05$, $SE = 0.01$, 95% CI [0.02, 0.08], $z = 3.51$, $p < 0.001$), and spitefulness ($B = 0.06$, $SE = 0.02$, 95% CI [0.03, 0.10], $z = 3.71$, $p < 0.001$) through the kin care motive. In contrast, childhood resource availability had indirect associations with each of the dark personality traits through the group affiliation motive: Machiavellianism ($B = -0.06$, $SE = 0.02$, 95% CI [-0.10, -0.03], $z = -3.54$, $p < 0.001$), narcissism ($B = 0.03$, $SE = 0.01$, 95% CI [0.01, 0.06], $z = 2.64$, $p = 0.01$), psychopathy ($B = -0.04$, $SE = 0.01$, 95% CI [-0.07, -0.02], $z = -3.00$, $p = 0.002$), sadism ($B = -0.05$, $SE = 0.01$, 95% CI [-0.08, -0.02], $z = -3.31$, $p < 0.001$), and spitefulness ($B = -0.03$, $SE = 0.01$, 95% CI [-0.06, -0.01], $z = -2.52$, $p = 0.01$). Childhood resource availability also had indirect associations with Machiavellianism ($B = 0.04$, $SE = 0.02$, 95% CI [0.01, 0.08], $z = 2.23$, $p = 0.03$), narcissism ($B = 0.07$, $SE = 0.03$, 95% CI [0.01, 0.13], $z = 2.31$, $p = 0.02$), and psychopathy ($B = 0.03$, $SE = 0.01$, 95% CI [0.01, 0.06], $z = 2.21$, $p = 0.03$) through the status motive as well as

indirect associations with psychopathy ($B = -0.09$, $SE = 0.02$, 95% CI [-0.13, -0.05], $z = -4.62$, $p < 0.001$), sadism ($B = -0.09$, $SE = 0.02$, 95% CI [-0.14, -0.06], $z = -4.92$, $p < 0.001$), and spitefulness ($B = -0.12$, $SE = 0.02$, 95% CI [-0.17, -0.07], $z = -5.47$, $p < 0.001$) through the kin care motive. Finally, childhood resource availability had an indirect association with narcissism through the exclusion concern motive ($B = -0.03$, $SE = 0.01$, 95% CI [-0.06, -0.01], $z = -2.14$, $p = 0.02$).

4. General discussion

Recent attempts have been made to (re)organize motivational psychology around fundamental social problems that are directly relevant to evolution such as mate acquisition, status seeking, and affiliation (Kenrick et al., 2010; Neel et al., 2016). This emerging motivational framework provides researchers with a way to conceptualize individual differences in motivations that are tied to selection pressures that would

have shaped motivational systems over the course of human evolution. However, work on this framework of fundamental social motives is only in its nascent stages. In two studies, we tested the connections between the fundamental social motives and five aversive personality traits.

Dark personality traits may represent alternative life history strategies that orient people towards operating on a shorter timeline which includes sacrificing goals concerning personal safety and providing benefits for kin to prioritize the pursuit goals concerning mating and status (Figueredo et al., 2006). Although the average person may engage in slow life history strategies (Mace, 2000), individuals differ in the degree to which they adopt a specific strategy given dispositional biases and childhood conditions (Jonason et al., 2016). From this perspective, personality traits reflect behavioral syndromes (Sih et al., 2004) or outputs of cognitive, affective, and motivational biases (Jonason & Ferrell, 2016). Those individuals who are characterized by dark personality traits appear to be particularly motivated by two fast life history motives: mate seeking and status seeking. Importantly, men characterized by these motives were especially likely to report high levels of these dark personality traits. Further, individuals characterized by dark personality traits – especially psychopathy and Machiavellianism – were likely to deprioritize kin care and affiliative motives. These results are consistent with the idea that these traits lead to tradeoffs such that fast life history strategies are prioritized over slow life history strategies. Motives such as kin care and affiliation were negatively associated with Machiavellianism and psychopathy which suggests the intriguing possibility that these motives may “disable” certain dark personality traits. Finally, we draw attention to the fact that the results for sadism and spitefulness were quite like those observed for psychopathy (especially) and Machiavellianism which suggests the latter two traits did relatively little to expand our understanding of the connections between the fundamental social motives and the darker aspects of personality. This is certainly not to say that sadism and spitefulness should be abandoned, but rather, that more concerted work is required to determine the situations where a broader range of dark personality traits are useful.

Additionally, we attempted to understand whether childhood socio-ecological conditions moderated or mediated these associations. Although the role of childhood conditions is a common factor in accounting for socially undesirable behavior, life history models provide an exceptionally clear means for understanding how motivational states and personality traits may be viewed as adaptive solutions to socio-ecological conditions (Brumbach et al., 2009). Indeed, life history motives and traits are correlated with individual differences in childhood conditions (Jonason et al., 2016; Neel et al., 2016). Although we did not find evidence that childhood conditions moderated the associations that sex had with the dark personality traits through the fundamental social motives, we did find that fundamental social motives mediated the associations that childhood socio-ecological conditions had with the darker aspects of personality. For example, childhood unpredictability had positive indirect associations with each of the dark personality traits through the status seeking motive, whereas childhood resource availability had negative indirect associations with each of the dark personality traits through the affiliation motive. These results suggest that early environmental experiences may contribute to the development of dark personality traits by shaping motivational priorities (e.g., unpredictable environments during early childhood may lead individuals to focus on gaining status which, in turn, may contribute to the emergence of dark personality traits).

Although not central to our super-ordinate goals of understanding the dark side of human nature, we found some interesting “country-level” differences in traits and motives. We offer only tentative analyses

here given that we did not predict these effects and we would not want to conflate comparisons of two different university populations with the countries at-large. First, the sites were equivalent in their motivations to avoid diseases. This may reflect a universal need in humans to avoid diseases (Neel et al., 2016). Second, when compared to Americans, Australians were more Machiavellian, sadistic, and spiteful and were more motivated by mate seeking. This suggests that Australians (at least from where sampled) may be characterized by faster, antagonistic social strategies. And third, those from the America were more narcissistic, scored higher on all motives except for disease avoidance and mate seeking than those from Australia, and reported more resources when growing up. This is consistent with potential entitlement effects in America driven by financial affluence and, if Australian children have limited access to resources, this might explain why they socially antagonistic than Americans. Again, these are tentative findings at best, but they encourage work that more robustly adopts cross-cultural methods.

4.1. Limitations and conclusions

Although the present studies used large samples drawn from different populations and different measures of dark traits, they have several potential limitations. First, our samples can be described as W.E.I.R.D. (i.e., Western, educated, industrialized, rich, and democratic; see Henrich, Heine, & Norenzayan, 2010). Second, all our assessments were self-report in nature. Although we found converging evidence with different measures of dark personality traits, our reliance on self-report methods could still be criticized as failing to capture any causal explanations and that our treatment of motives coming before traits (causally-speaking) is conjecture. Third, our results were not entirely consistent across studies which is to be expected given our multisample-multimeasure approach. Such an approach attempts to address the replication crisis in social-personality psychology, but introduces sampling and method error. Fourth, we only allowed participants who were currently involved in a romantic relationship or who had children to respond to items concerning the mate retention motive and the child care motive, respectively. This decision led to relatively few participants providing complete data from these motives. This was especially true for Study 2 which focused exclusively on college students. As a result, we decided to exclude these motives from our analyses. Although mate retention behaviors have already been studied in relation to the Dark Triad traits (Jonason, Li, & Buss, 2010) and the child care motive is similar to the general kin care motive, we encourage readers who are interested in the mate retention motive and the child care motive to contact the second author for additional information about these effects. Future research should attempt to gain a better understanding of the causal links between fundamental social motives and dark personality traits by using experimental designs or longitudinal studies.

We examined how personality traits associated with social manipulation, callousness, and interpersonal antagonism may have atypical motivational priorities that set them apart from most people. Although most people are motivated to avoid diseases and look after genetic relatives, individuals with dark personality traits appear to be especially motivated by status and mate seeking. We also found that sex differences in dark personality traits were partially mediated by motivational priorities. Together, we think our evidence is consistent with a life history model of dark personality traits suggesting that people – perhaps, especially men – who are characterized by dark personality traits may be that way, at least in part, because they have motivational priorities that are centered around fast life history outcomes.

Appendix A. Correlations among fundamental social motives (Study 1)

	Mean (SD)	1	2	3	4	5	6	7	8
1. Self-protection	4.40 (1.31)	–							
2. Disease avoidance	4.29 (1.34)	0.55**	–						
3. Group affiliation	4.27 (1.20)	0.17**	0.01	–					
4. Exclusion concern	3.73 (1.44)	0.34**	0.19**	0.30**	–				
5. Independence	4.62 (1.25)	0.07	–0.02	–0.31**	–0.06	–			
6. Status	3.63 (1.26)	0.13*	0.09	0.45**	0.47**	–0.18**	–		
7. Mate seeking	2.89 (1.51)	–0.13*	–0.01	0.10	0.31**	–0.24**	0.40**	–	
8. Kin care	4.73 (1.61)	0.35**	0.30**	0.33**	0.04	–0.03	0.07	–0.16**	–

* $p < 0.05$.
 ** $p < 0.01$.

Appendix B. Correlations among dark personality traits (Study 1)

	Mean (SD)	1	2	3	4	5
1. Narcissism	8.26 (5.89)	–				
2. Psychopathy	2.03 (0.65)	0.50**	–			
3. Machiavellianism	2.73 (0.51)	0.26**	0.55**	–		
4. Sadism	1.88 (0.70)	0.42**	0.86**	0.44**	–	
5. Spitefulness	2.04 (0.81)*	0.40**	0.69**	0.53**	0.68**	–

* $p < 0.05$.
 ** $p < 0.01$.

Appendix C. Correlations between dark personality traits and childhood conditions (Study 2)

	Mean (SD)	1	2	3	4	5	6	7
1. Machiavellianism	2.93 (0.72)	–						
2. Narcissism	2.80 (0.58)	0.31**	–					
3. Psychopathy	2.04 (0.65)	0.50**	0.38**	–				
4. Sadism	1.82 (0.62)	0.40**	0.15**	0.61**	–			
5. Spitefulness	1.79 (0.65)	0.41**	0.23**	0.66**	0.66**	–		
6. Resource Availability	4.05 (0.89)	–0.13**	0.08	–0.21**	–0.19**	–0.21**	–	
7. Childhood Unpredictability	2.01 (1.17)	0.18**	0.09*	0.36**	0.28**	0.33**	–0.39**	–

* $p < 0.05$.
 ** $p < 0.01$.

Appendix D. Correlations between childhood conditions and fundamental motives (Study 2)

	Mean (SD)	1	2	3	4	5	6	7	8	9	10
1. Resource availability	4.05 (0.89)	–									
2. Childhood unpredictability	2.01 (1.17)	–0.39**	–								
3. Self-protection	4.42 (1.10)	0.27**	–0.03	–							
4. Disease avoidance	4.15 (1.08)	0.08*	0.02	0.36**	–						
5. Group affiliation	4.35 (1.01)	0.26**	–0.11**	0.28**	0.00	–					
6. Exclusion concern	3.97 (1.16)	0.13**	0.00	0.31**	–0.01	0.48**	–				
7. Independence	3.92 (1.11)	0.03	0.12*	0.27**	0.06	–0.10*	0.08*	–			
8. Status	3.89 (0.93)	0.10*	0.07	0.31**	0.13**	0.39**	0.42**	0.18**	–		
9. Mate seeking	3.35 (1.41)	–0.06	0.06	–0.16**	–0.00	0.01	0.13**	–0.18**	–0.04		
10. Kin care	2.21 (1.09)	0.45**	–0.33**	0.39**	0.00	0.41**	0.21**	0.11	0.13**	–0.20**	–

* $p < 0.05$.
 ** $p < 0.01$.

References

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529.
- Brumbach, B. H., Figueredo, A. J., & Ellis, B. J. (2009). Effects of harsh and unpredictable environments in adolescence on development of life history strategies: A longitudinal test of an evolutionary model. *Human Nature*, *20*, 25–51.
- Buckels, E. E., & Paulhus, D. L. (2013). *Comprehensive Assessment of Sadistic Tendencies (CAST)*. Unpublished measure. University of British Columbia.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual Strategies Theory: An evolutionary perspective on human mating. *Psychological Review*, *100*, 204–232.
- Christie, R. C., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York, NY: Academic press.
- Cooper, M. L., Agocha, V. B., & Sheldon, M. S. (2000). A motivational perspective on risky behaviors: The role of personality and affect regulatory processes. *Journal of Personality*, *68*, 1059–1088.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268.
- Elliot, A. J., & Thrash, T. M. (2001). Narcissism and motivation. *Psychological Inquiry*, *12*, 216–219.
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., Schneider, S. M., Sefcek, J. A., Tal, I. R., ... Jacobs, W. J. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review*, *26*, 243–275.
- Griskevicius, V., Delton, A. W., Robertson, T. E., & Tybur, J. M. (2011). The environmental contingency of life history strategies: Influences of mortality and socio-economic status on reproductive timing. *Journal of Personality and Social Psychology*, *100*, 241–254.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*, 61–83.
- Jonason, P. K., & Ferrell, J. D. (2016). Looking under the hood: The psychogenic motivational foundations of the Dark Triad. *Personality and Individual Differences*, *94*, 324–333.
- Jonason, P. K., & Fletcher, S. A. (2018). Agentic and communal behavioral biases in the Dark Triad traits. *Personality and Individual Differences*, *130*, 76–82.
- Jonason, P. K., Icho, A., & Ireland, K. (2016). Resources, harshness, and unpredictability: The socioeconomic conditions associated with the Dark Triad traits. *Evolutionary Psychology*, *14*, 1–11.
- Jonason, P. K., Koenig, B., & Tost, J. (2010). Living a fast life: The Dark Triad and Life History Theory. *Human Nature*, *21*, 428–442.
- Jonason, P. K., Li, N. P., & Buss, D. M. (2010). The costs and benefits of the Dark Triad: Implications for mate poaching and mate retention tactics. *Personality and Individual Differences*, *48*, 373–378.
- Jonason, P. K., Li, N. P., Webster, G. W., & Schmitt, D. P. (2009). The Dark Triad: Facilitating short-term mating in men. *European Journal of Personality*, *23*, 5–18.
- Jonason, P. K., Sitnikova, M., & Oshio, A. (2018). The Dark Triad traits and views of time in three countries. *Personality and Individual Differences*, *120*, 107–111.
- Jonason, P. K., Zeigler-Hill, V., & Okan, C. (2017). Good v. evil: Predicting sinning with dark personality traits and moral foundations. *Personality and Individual Differences*, *104*, 180–185.
- Jones, D. N., & Olderbak, S. (2014). The associations among dark personalities and sexual tactics across different scenarios. *Journal of Interpersonal Violence*, *29*, 1050–1070.
- Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment*, *21*, 28–41.
- Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. *Perspectives on Psychological Science*, *5*, 292–314.
- Mace, R. (2000). Evolutionary ecology of human life history. *Animal Behavior*, *59*, 1–10.
- Marcus, D. K., Zeigler-Hill, V., Mercer, S., & Norris, A. L. (2014). The psychology of spite and the measurement of spitefulness. *Psychological Assessment*, *26*, 563–574.
- Neel, R., Kenrick, D. T., White, A. E., & Neuberg, S. L. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology*, *110*, 887–897.
- Paulhus, D. L., Neumann, J., & Hare, R. (2009). *Manual for the Self-Report Psychopathy Scale (SRP-III)*. Toronto, Canada: Multi-Health Systems.
- Raskin, R. N., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological Reports*, *45*, 590.
- Richard, F. D., Bond, C. F., Jr., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, *7*, 331–363.
- Schaller, M., Park, J. H., & Mueller, A. (2003). Fear of the dark: Interactive effects of beliefs about danger and ambient darkness on ethnic stereotypes. *Personality and Social Psychology Bulletin*, *29*, 637–649.
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, *47*, 609–612.
- Semenya, S. W., & Honey, P. L. (2015). Dominance styles mediate sex differences in Dark Triad traits. *Personality and Individual Differences*, *83*, 37–43.
- Sih, A., Bell, A. M., Johnson, J. C., & Ziemba, R. E. (2004). Behavioral syndromes: An integrative overview. *Quarterly Review of Biology*, *79*, 241–277.
- Spain, S. M., Harms, P., & LeBreton, J. M. (2014). The dark side of personality at work. *Journal of Organizational Behavior*, *53*, S41–S60.
- Wilson, E. O. (1975). *Sociobiology: The new synthesis*. Cambridge, MA: Harvard University Press.