

## The Dark Triad: Facilitating a Short-Term Mating Strategy in Men

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### Abstract

*This survey (N = 224) found that characteristics collectively known as the Dark Triad (i.e. narcissism, psychopathy and Machiavellianism) were correlated with various dimensions of short-term mating but not long-term mating. The link between the Dark Triad and short-term mating was stronger for men than for women. The Dark Triad partially mediated the sex difference in short-term mating behaviour. Findings are consistent with a view that the Dark Triad facilitates an exploitative, short-term mating strategy in men. Possible implications, including that Dark Triad traits represent a bundle of individual differences that promote a reproductively adaptive strategy are discussed. Findings are discussed in the broad context of how an evolutionary approach to personality psychology can enhance our understanding of individual differences. Copyright © 2008 John Wiley & Sons, Ltd.*

Key words: narcissism; Machiavellianism; psychopathy; Dark Triad; sex differences; short-term mating

### INTRODUCTION

Machiavellianism, narcissism and psychopathy—collectively known as ‘The Dark Triad’ (Paulhus & Williams, 2002)—are traits that are linked to negative personal and societal outcomes (e.g. Andershed, Gustafson, Kerr, & Stattin, 2002; Bushman & Baumeister, 1998; Hare, 1996; Morf & Rhodewalt, 2001), and are traditionally considered maladaptive (e.g. Kowalski, 2001). However, the persistence of these traits over time (Foster, Campbell, & Twenge, 2003) and across various societies, as well as linkages to positive traits, suggests that the Dark Triad can be advantageous in some ways (Bogart, Benotsch, & Pavlovic, 2004; Emmons, 1987; Paulhus, 1998; Paulhus & Williams, 2002; Rhodewalt &

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Morf, 1995). For instance, subclinical psychopathy is associated with a lack of neuroticism and anxiety, which may facilitate the pursuit of one's goals through adverse conditions (Taylor & Armor, 1996). Similarly, narcissism is associated with self-aggrandisement, and Machiavellianism is associated with being socially manipulative, both of which may aid in reaping benefits for oneself at the expense of others, especially in initial periods of acquaintance. In the current study, we examine the links between the Dark Triad traits and a short-term mating orientation, and suggest that the Dark Triad traits represent one end of a continuum of individual differences that may facilitate a particular mating strategy.

### **The Dark Triad traits: an exploitative social strategy**

The Dark Triad is composed of Machiavellianism, subclinical narcissism and subclinical psychopathy. Machiavellian individuals tend to be manipulative, while demonstrating a 'cool' or 'cold' approach to others (Christie & Geis, 1970; Hunter, Gerbing, & Boster, 1982). Subclinical narcissists, sometimes called 'normal narcissists' (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004), tend to have a sense of entitlement and seek admiration, attention, prestige and status (House & Howell, 1992; Morf & Rhodewalt, 2001; Raskin & Hall, 1979). Subclinical psychopaths are characterised by high impulsivity and thrill-seeking and tend to have low empathy (Paulhus, Hemphill, & Hare, in press). Associations among the three traits have been studied in both clinical (e.g. Hart & Hare, 1998) and nonclinical settings (e.g. Fehr, Samsom, & Paulhus, 1992; McHoskey, 1995; Vecchio, 2005). The three traits are moderately intercorrelated and each contains a degree of self-aggrandisement, aggression and duplicity (Paulhus & Williams, 2002). We contend that the three traits may be best viewed as one particular social orientation towards conspecifics.

Specifically, various lines of research suggest that the Dark Triad may facilitate a social style geared towards exploiting others in short-term social contexts. For instance, narcissists tend to be more agentic, with a desire for power and dominance (Bradlee & Emmons, 1992; Foster, Shrira, & Campbell, 2006), are less communally oriented (Campbell, Rudich, & Sedikides, 2002), and have a lower tendency to feel guilt or shame (Gramzov & Tagney, 1992). Those with high levels of Machiavellianism are described as charmers and as exploitative (Wilson, Near, & Miller, 1996), demonstrate less empathy (Barnett & Thompson, 1985), and are less willing to help others in need (Wolfson, 1981). Psychopaths have an exploitative nature (Mealey, 1995), with high levels of egocentrism, impulsivity and irresponsibility, and have low levels of empathy, shame and guilt (Larson & Buss, 2006).

Clearly the three traits are associated with both high levels of self-interest and low levels of empathic qualities. As such, individuals who score high on the Dark Triad traits are not well suited for or interested in maintaining long-term relationships, where continued reciprocity is integral (Bradlee & Emmons, 1992; Campbell & Foster, 2002; Foster et al., 2006). Likewise, once their qualities are evident to others, excessively self-serving individuals should be viewed as undesirable, and thus, to be avoided by potential long-term partners. To the extent that this occurs, a self-serving, exploitative nature should be better suited to transacting with others in shorter-term durations (i.e. a 'hit and run' strategy).

### **An exploitative short-term mating strategy**

In a mating context, those high on the Dark Triad traits may be especially well suited for an exploitative, short-term approach. For example, all three traits are correlated with low

agreeableness (Bradlee & Emmons, 1992; Paulhus, 2001; Paulhus & Williams, 2002), which is associated with conflict in long-term relationships (Buss, 1991b) and marital dissatisfaction (Botwin, Buss, & Shackelford, 1997). Machiavellianism is associated with promiscuous, as well as, sexually coercive behaviour (McHoskey, 2001). Narcissists tend to have an unrestricted sociosexuality (Foster et al., 2006) and higher levels of infidelity (Campbell, Foster, Finkel, 2002a). Narcissists find it easy to start new relationships (Bradlee & Emmons, 1992), but are less committed to and interested in staying in existing relationships (Campbell & Foster, 2002; Foster et al., 2006), hence, they may pursue exploitative short-term matings to improve their own reproductive interests at the expense of their partners (Rowe, 1995). We predicted that the three individual measures associated with the Dark Triad—narcissism, psychopathy and Machiavellianism—would be positively associated with behavioural and attitudinal measures of short-term mating.

Pursuing an exploitative short-term mating strategy may be more advantageous for men than women. First, short-term mating may, on average, provide more reproductive benefits to men. That is, women—but not men—are physiologically required to undertake pregnancy and nursing. Because pregnancy was always a possible outcome of sexual intercourse in the ancestral past, casual sex resulted in higher potential costs for ancestral women than men. As such, women may have evolved to be less open than men towards casual sexual opportunities (Trivers, 1972). Indeed, men tend to favour short-term sexual relationships much more than women do (e.g. Buss & Schmitt, 1993; Clark & Hatfield, 1989; Li & Kenrick, 2006) and narcissistic men—but not women—have more illegitimate children (Rowe, 1995). Second, men tend to score higher on the Dark Triad personality traits than women (e.g. Allsopp, Eysenck, & Eysenck, 1991; Mealey, 1995; Watson & Biderman, 1994). Therefore, we would expect the facilitation of a short-term mating strategy from having high level of the Dark Triad traits to be more applicable to men than women. Thus, we predicted that the sex of the participant will moderate the positive correlations between scores on the Dark Triad, such that the correlation will be stronger in men than women.

This moderation prediction is informed by the pervasive fact that sex differences persist in mating behaviour. Men's greater interest in short-term sexual relationships compared to women is one of the most consistent and strongest sex differences in the field (Schmitt, 2005). However, personality traits like the Dark Triad may facilitate the pursuit of short-term mating in men. Thus, we conducted mediation analyses on the relationship between the sex of the participant and rates of short-term mating. Therefore, we predicted that when the Dark Triad is treated as a unit, it will partially mediate the relationship between the sex of the participant and rates of short-term mating behaviour.

However, only partial mediation is expected because numerous other individual differences, including extraversion (Nettle, 2005, 2006, 2007), are likely to facilitate short-term mating. Extraversion may be related to extrapair mating in men and lower relationship commitment in women (Nettle, 2005). Extraverts are generally more interested in short-term mating than introverts (Schmitt & Shackelford, 2008). Extraversion and the Dark Triad traits are positively correlated (Paulhus & Williams, 2002). In addition, variables such as age (Walsh, 1991) and sex of the participant (Jonason, 2007) are also associated with higher self-reports of sexual behaviour. Therefore, we also investigated the correlation between the Dark Triad and short-term mating when we control for the potential confounds of extraversion, age and sex.

## METHOD

### Participants

Two hundred and twenty-four psychology undergraduate students at New Mexico State University (88 men, 136 women) aged 17–43 years (mean = 23.50, median = 21, SD = 6.40) received extra credit for participation. The majority of the sample (88%) was heterosexual, 5% was homosexual and 6% was bisexual (1% nonresponsive).

### Procedures

Participants received a packet that (a) informed them of the nature of the study, (b) asked demographic questions and (c) asked them to respond to the self-report items described below. Participants completed the survey alone in a room with a closed door and a two-way mirror that allowed an experimenter to monitor the participant's progress. Upon completion, the participants were debriefed and thanked for their participation.

### Measures of the Dark Triad

Narcissism was assessed with the 40-item Narcissistic Personality Inventory, a validated and widely used measure (Raskin & Terry, 1988). For each item, participants chose one of two statements that they felt applied to them more. One of the two statements reflected a narcissistic attitude (e.g. 'I have a natural talent for influencing people'), whereas the other statement did not (e.g. 'I am not good at influencing people'). We summed the total number of narcissistic statements the participants endorsed to measure overall narcissism (Cronbach's  $\alpha = .84$ ).

The 31-item Self-Report Psychopathy Scale-III (Paulhus et al., in press) was used to assess subclinical psychopathy. This measure has good psychometric properties (Zagon & Jackson, 1994). Participants rated how much they agreed (1 = strongly disagree, 5 = strongly agree) with statements such as: 'I enjoy driving at high speeds' and 'I think I could beat a lie detector'. The items were averaged to create an index of psychopathy ( $\alpha = .75$ ).

Machiavellianism was measured with the 20-item MACH-IV (Christie & Geis, 1970). This measure has good psychometric properties (Wrightsmann, 1991). Participants were asked how much they agreed (1 = strongly disagree, 5 = strongly agree) with statements such as: 'It is hard to get ahead without cutting corners here and there' and 'People suffering from incurable diseases should have the choice of being put painlessly to death'. The items were averaged to create a Machiavellianism index ( $\alpha = .75$ ).

We also treated the three Dark Triad measures as a composite measure of an exploitive sexual strategy. We first standardised (*z*-scored) overall scores on each measure and then averaged all three together to create a composite Dark Triad score. Overall scores were used as opposed to using the complete set of items from all the scales because dichotomous data, like that in the NPI, is problematic in factor reduction procedures (Comrey, 1973). We then conducted analyses on an overall Dark Triad score ( $\alpha = .60$ ) in addition to the constituent parts. Such an estimate of internal consistency is reasonable for a three-item scale in basic research (Schmitt, 1996).

### Measures of short-term mating

Sociosexual orientation (SOI; Simpson & Gangestad, 1991) was assessed, measuring both sociosexual attitudes (e.g. 'I can imagine myself being comfortable and enjoying casual

sex with different partners') and behaviours (e.g. 'With how many different partners have you had sexual intercourse within the past year'). As in prior work (e.g. Simpson & Gangestad, 1991), individual SOI items were standardised (*z*-scored) prior to computing an index of sociosexuality ( $\alpha = .81$ ).

Participants reported the degree to which they were seeking a short-term mate (1 = not strongly currently seeking, 7 = strongly currently seeking) using a single-item, face-valid question (Buss & Schmitt, 1993). Such a measure may provide a rough estimate of participants' sociosexual desires as discussed by Penke and Asendorpf (in press). Additionally, we assessed the degree to which participants were seeking a long-term mate (Buss & Schmitt, 1993) as a means of briefly assessing a contrasting mating strategy. It was assessed just as the corresponding item for seeking a short-term partner.

Participants also reported their number of lifetime vaginal-sex partners. Because these numbers were positively skewed, we performed a log-transformation before analyses (e.g. Tabachnick and Fidell, 2006).

All the short-term mating measures were standardised (*z*-scored) and then averaged to create an index of attitudes, behaviours and desires towards short-term mating ( $\alpha = .84$ ). The measures of short-term mating were moderately correlated with each other ( $r = .46-.96, p < .01$ ). We did not include the item for degree of seeking a long-term partner in this composite.

### Extraversion as a covariate

Extraversion was measured with seven self-descriptive statements from the NEO-PI-R (Costa & McCrae, 1992) that are cross-culturally reliable and valid (Benet-Martinez & John, 1998). Participants were asked how much a series of statements fit with their self-concept of how extraverted they were (1 = not at all; 5 = very much). Specifically they were asked: 'I see myself as someone who...' (e.g. 'Is talkative', 'Generates a lot of enthusiasm'). The responses to these statements were averaged to create an index of extraversion ( $\alpha = .75$ ).

## RESULTS

Means, standard deviations and sex difference tests are shown in Table 1. Compared with women, men scored higher on Dark Triad traits, as well as, short-term mating behaviours and attitudes. Men did not show a significantly ( $p = .77$ ) higher preference for seeking long-term mates ( $M = 3.20, SD = 2.27$ ) than women ( $M = 3.70, SD = 2.18$ ).

To examine the possibility that the Dark Triad may reflect a single, underlying social strategy, we conducted three separate tests. First, we tested the intercorrelations among the three measures to determine how strongly correlated they were with one another. Narcissism was significantly correlated with Machiavellianism [ $r(224) = .20, p < .01$ ] and psychopathy [ $r(224) = .39, p < .01$ ], and psychopathy was significantly correlated with Machiavellianism [ $r(224) = .28, p < .01$ ]. Next an exploratory factor analysis yielded a one factor solution when we considered all three measures of the Dark Triad (53.09% of the variance; loadings ranged from .64 to .80). Last, we conducted a confirmatory factor analysis to examine the possibility that the three measures reflected a single latent factor that we will call 'an exploitive social style'. The model is presented in Figure 1, showing

**Table 1.** Descriptive statistics and sex difference tests for measures of short-term mating and the Dark Triad

	Mean (SD)			<i>t</i>	<i>d</i>
	Overall	Males	Females		
<b>Short-term mating</b>					
Sociosexuality	-0.03 (4.72)	2.76 (5.32)	-1.74 (3.36)	-7.62**	-1.01
Seeking short-term mate	2.42 (1.77)	2.94 (2.10)	1.98 (1.43)	-3.96**	-0.53
Number of sex partners (log)	1.43 (1.08)	1.77 (1.20)	1.19 (0.90)	-3.83**	-0.55
Number of sex partners	7.10 (12.76)	11.21 (18.35)	4.39 (5.61)	-3.49**	-0.50
Composite	-0.47 (1.96)	0.70 (2.18)	-1.15 (1.42)	-7.66**	-1.01
<b>Dark Triad</b>					
Narcissism	18.47 (7.23)	20.30 (7.59)	17.36 (6.84)	-2.93**	-0.41
Machiavellianism	2.72 (0.58)	2.83 (0.60)	2.65 (0.56)	-2.11*	-0.31
Psychopathy	2.43 (0.40)	2.65 (0.40)	2.30 (0.33)	-7.03**	-0.95
Composite	0.00 (0.73)	0.34 (0.76)	-0.20 (0.63)	-5.53**	-0.77

Note: Sample size adjusted Cohen's *d*. Sex coded male = 1; female = 2.

\**p* < .05.

\*\**p* < .01.

that all three factors correlated significantly with the single latent factor. These three tests provide convergent evidence that the three measures of the Dark Triad can be treated as a composite. With this support in hand, subsequent analyses were conducted on the Dark Triad composite and its components.

To examine whether the Dark Triad was related to short-term mating, we assessed the intercorrelations between the Dark Triad measures and the short-term mating measures. People's standings on each of the three components of the Dark Triad were related to their history of, orientation towards, and interest in short-term mating, but not long-term mating, as shown in Table 2.

To address the possibility that the Dark Triad is a suite of traits that facilitate short-term mating in men, we tested whether the sex of the participant moderated the relationship between a Dark Triad composite and a short-term mating composite using Baron and Kenny's (1986) suggestions. First, we ran zero-order correlations. The Dark Triad composite and short-term mating composite were correlated in men [ $r(87) = .44, p < .01$ ]

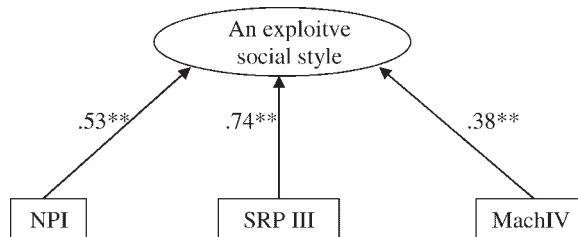


Figure 1. A confirmatory factor analysis demonstrating that the Dark Triad measures represent a single latent factor. \**p* < .05; \*\**p* < .01; NPI, Narcissistic Personality Inventory; MachIV, Machiavellianism; SRP III, Self-Report Psychopathy Scale-III.

Table 2. Correlations between the Dark Triad and measures of mating

	Psychopathy	Narcissism	Machiavellianism	Dark Triad <sup>1</sup>
Sociosexuality	.49*	.41*	.40*	.33*
Number of sex partners (log)	.28*	.28*	.22*	.35*
Seeking long-term mate	-.01	.02	-.06	-.02
Seeking short-term mate	.26*	.21*	.27*	.34*
Short-term mating <sup>2</sup>	.48*	.36*	.26*	.50*

\* $p < .01$ .

<sup>1</sup>Composite of Dark Triad measures.

<sup>2</sup>Composite of short-term mating measures.

and in women [ $r(134) = .39, p < .01$ ]. Second, we conducted separate regressions, examining how the Dark Triad composite predicted short-term mating. The Dark Triad was correlated with short-term mating in men [ $b = 1.26, SE = 0.29, t(87) = 4.30, p < .01$ ] and women [ $b = 0.39, SE = 0.86, t(134) = 4.80, p < .01$ ]. Last, we compared the two unstandardised  $b$  coefficients, which revealed a significant moderation effect ( $z = 3.21, p < .01$ ). This confirmed our prediction that the sex of the participant would moderate the relationship between the Dark Triad and short-term mating.

We hypothesised that the Dark Triad would partially mediate the sex difference in short-term mating. Mediation is present when the relationship between two variables is carried by a third variable that is related significantly to the first two variables. We conducted a mediation test (Baron & Kenny, 1996) to determine if partial mediation was present (Figure 2). We found significant partial mediation (Sobel test:  $z = -4.49, p < .01$ ) when comparing unstandardised values for how much the sex of the participant predicts rates of the Dark Triad composite ( $b = -0.53, SE = 0.10$ ) and the rates of the Dark Triad composite predicted overall short-term mating ( $b = -1.35, SE = 0.16$ ).

To confirm that variables such as age, participant's sex and extraversion were not driving the correlation between the Dark Triad and short-term mating, we built a hierarchical regression model (see Table 3) where Step 1 contained these three variables and Step 2 contained these three and the Dark Triad composite. The Dark Triad composite remained a

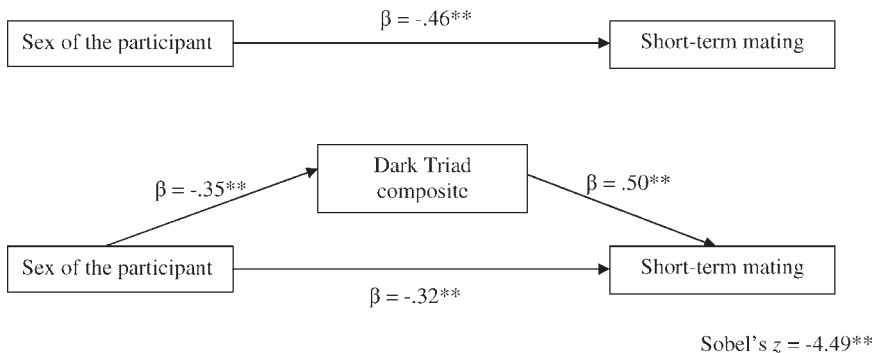


Figure 2. Mediation model demonstrating partial mediation between the sex of the participant and short-term mating. Sex coded: male = 1; female = 2. \* $p < .05$ ; \*\* $p < .01$ . Direct effect of sex:  $R^2 = .21$ , indirect effect of sex through the mediator:  $R^2 = .34$ .

Table 3. Predicting overall short-term mating

	$\beta$	$t$
Step 1		
Sex of the participant	-.46	-7.57**
Age of the participant	.08	1.26
Extraversion	.15	2.46*
Step 2		
Sex of the participant	-.34	-5.60**
Age of the participant	.11	1.94
Extraversion	.06	1.04
<b>Dark Triad composite</b>	<b>.37</b>	<b>5.92**</b>

Note: A hierarchical multiple regression.

\* $p < .05$ .

\*\* $p < .01$ .

significant predictor of short-term mating in Step 2 whereas extraversion did not. This analysis also demonstrated that the mediation from Figure 2 was robust after controlling for other sources of variability that have been associated with short-term mating.

## DISCUSSION

Although most studies have focused on the negative aspects of the Dark Triad, our evidence suggests that there might be some up-sides to these anti-social personality traits. We found that the scores on the Dark Triad traits were positively related to having more sex partners, an unrestricted sociosexuality and a greater preference for short-term mates. We demonstrated that the association between the Dark Triad composite was correlated with short-term mating above and beyond effects of participant's age, sex and extraversion. We also provide evidence that the three measures of the Dark Triad can be compressed into a composite measure, most notably evidenced in the exploratory and the confirmatory factor analyses.

We confirmed sex differences in all three Dark Triad measures when using a college-student sample (Emmons, 1987; Paulhus & Williams, 2002; Ross & Rausch, 2001). We found a rather high sex difference in psychopathy which may reflect greater rates of secondary psychopathy in college-aged American some men than women (Mealey, 1995). Because we had a smaller amount of men than women in our sample, a few men may have had an undue influence on this sex difference. We confirmed sex differences in short-term mating and a convergence in interest in long-term mating (Li & Kenrick, 2006).

Results are consistent with the possibility that the Dark Triad traits may facilitate an exploitative, short-term mating style in men and with work on Machiavellianism (McHoskey, 2001), narcissism (Foster et al., 2006; Rowe, 1995) and the complete Dark Triad (Paulhus & Williams, 2002). Our mediation tests showed that personality traits such as the Dark Triad partially mediate the relationships between the sex of the participant and short-term mating. However, this was merely a partial mediation, which we suspect is caused by (a) the reliance on a student sample which may mask some of the extremes of these traits in the population, (b) response biases endemic to self-reports of socially



undesirable traits (Wilson, Near, & Miller, 1996) and (c) the large array of possible individual differences that could also partially mediate the sex difference in short-term mating.

### **Adaptive individual differences?**

Whereas personality psychology has been primarily concerned with documenting trait-level individual differences among people (e.g. McCrae & Costa, 1997), evolutionary psychology has typically been concerned with identifying adaptive, species-typical traits and commonalities among peoples (e.g. Buss, 1995). In recent years, these two approaches have been integrated to yield powerful explanations of individual differences (e.g. Buss, 1991a, 1999; Buss & Greiling, 1999; Figueredo, Sefcek, Vasquez, Brumbach, King, & Jacobs, 2005). It is via this adaptive individual difference perspective that we will interpret our results.

An evolutionary view of personality considers traits to have been naturally selected, allowing individuals to compete against conspecifics and deal with the environment. Although directional selection tends to decrease trait variation, localising it in species-typical traits, trait continuums can be maintained in a population if different levels of traits are reproductively useful. For instance, a trait may consist of a dimension whereby both poles of the trait can yield adaptive benefits or bear adaptive costs under certain conditions (Penke, Denissen, & Miller, 2007; Nettle, 2006). That is, one end on a trait (e.g. dominance) might have associated costs and benefits (greater risk and rewards), and the other end of a trait (e.g. submissiveness) might have its own costs and benefits (e.g. lower risks and rewards). However, as long as net fitness gains are achieved by individuals at both ends, then individual differences on this trait may be maintained in the population via balancing selection (Penke et al., 2007; Wilson et al., 1996).

Our study indicates a connection between the Dark Triad and more positive attitudes towards casual sex and more casual sex behaviours. To the extent that lifetime number of sexual partners is a modern-day marker of reproductive success (Kanazawa, 2003; Nettle, 2005), and given that the Dark Triad traits are heritable (Vernon, Villani, Vickers, & Harris, 2008) and exist in different cultures (e.g. Foster et al., 2003), we speculate that these traits may represent one end of a set of individual differences that reflects an evolutionarily stable solution to the adaptive problem of reproduction.

### **Limitations**

Personality traits, such as those associated with the Dark Triad, are often considered to be global, continuous measures (Baldwin, 1995; Eysenck, 1995). We agree with Penke and Asendorpf (in press) that, global measures, such as SOI, may obscure the sophisticated or multidimensional nature of personality traits. Independently, the three Dark Triad measures may have distinct implications for psychological and interpersonal functioning. However, in the case of mating, it appears that all three may be measuring the same or a similar social strategy. Specifically, those who score high on the Dark Triad traits may be equipped to engage in exploitative (e.g. deceptive promises of commitment, behaviourally aggressive) short-term mating, which may be a viable reproductive strategy when the relative frequency of exploitable cooperators in a population is sufficiently high (for a review of adaptations for exploitiveness, see Buss & Duntley, 2008). Whereas such a strategy capitalises on quantity at the cost of receiving long-term benefits, individuals who

are not high on the Dark Triad traits—the majority of populations—may be better equipped to form cooperative long-term relationships and, to a lesser degree, short-term relationships without deception. This long-term, nonexploitive strategy may represent a slower but more stable approach to reproduction. These two mating strategies have been described as the *Cad* and *Dad* strategies or in literature analyses, the ‘dark hero’ and the ‘proper hero’ (for review, see Kruger, Fisher, & Jobling, 2003). Furthermore, because of the asymmetries in reproductive constraints between the sexes (Trivers, 1972), a short-term mating strategy, and by extension, the Dark Triad traits, are more likely to benefit men’s reproductive fitness than women’s.

This study was based on self-report data offered by psychology undergraduate students from the southwestern United States, and thus, our results are limited in their generalisability. Future work should attempt to replicate our findings with a more diverse, cross-cultural sample. Additionally, we cannot exclude the possibility that the present results were partially caused by some individuals (i.e. high scorers on the Dark Triad measures) positively biasing their sexual success in the form of reported lifetime sex partners. We feel our utilisation of multiple measures of short-term mating should alleviate such concerns. Future research should examine whether scores on the Dark Triad traits mediate the sex difference in sexual success.

In our analyses, we used overall measures of narcissism, psychopathy, Machiavellianism and sociosexuality. However, work suggests that these measures can be broken down into sub-dimensions. For instance, SOI can be divided into sociosexual attitudes and behaviours (Webster & Bryan, 2007) or into past behavioural experiences, attitudes towards uncommitted sex and sociosexual desire (Penke & Asendorpf, in press); the NPI can be divided into four (Emmons, 1987) or seven (Raskin & Terry, 1988) components; psychopathy can be divided into primary and secondary psychopathy (Paulhus et al., in press; Mealey, 1995); and at least two different factor structures have been used with Machiavellianism (Christie & Geis, 1970; Hunter et al., 1982). While we reported only the overall results, we did assess different scale dimensions during our analyses and did not find differences among them. For instance, both sociosexual behaviours and attitudes were moderately correlated with all three of the Dark Triad measures and with the composite variable of the Dark Triad.

All three Dark Triad traits are associated with an exploitative social style (Barnett & Thompson, 1985; Bradlee & Emmons, 1992; Campbell et al., 2002b; Foster et al., 2006; Gramzov & Tagney, 1992; Mealey, 1995; Wilson et al., 1996; Wolfson, 1981). However, actual exploitative behaviours in mating, and in general, are rarely addressed (Bushman, Bonacci, van Dijk, & Baumeister, 2003). Future work should examine the Dark Triad traits along with mating-related deception (Haselton, Buss, Oubaid, & Angleitner, 2005), mate-poaching (Schmitt & Buss, 2001), coercive mating (Malamuth, Huppiner, & Bryant, 2005), and other more general measures of this exploitative approach to conspecifics.

## CONCLUSION

The personality traits that compose the Dark Triad have typically been considered abnormal, pathological and inherently maladaptive (e.g. Kowalski, 2001). Although individuals with these traits inflict costs to others and themselves, the Dark Triad traits are also associated with some qualities, including a drive for power (Bradlee & Emmons, 1992; Foster et al., 2006), low neuroticism (Taylor & Armor, 1996) and extraversion (Paulhus &

Williams, 2002), that may be beneficial. Together with low amounts of empathy and agreeableness (Paulhus, 2001), such traits may facilitate—especially for men—the pursuit of an exploitative short-term mating strategy. Although our study is limited, it suggests a potentially interesting new avenue of research to explore. More generally, the application of evolutionary reasoning to the study of personality traits may yield fruitful insights into the wide array of individual differences that exist on various dimensions (e.g. Keller & Miller, 2006; Penke et al., 2007).

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### REFERENCES

- Allsopp, J., Eysenck, H. J., & Eysenck, S. B. (1991). Machiavellianism as a component in psychoticism and extraversion. *Personality and Individual Differences*, *9*, 113–115.
- Andershed, H., Gustafson, S. B., Kerr, M., & Stattin, H. (2002). The usefulness of self-reported psychopathy-like traits in the study of antisocial behavior among non-referred adolescents. *European Journal of Personality*, *16*, 383–402.
- Baldwin, J. D. (1995). Continua outperform dichotomies. *Behavioral and Brain Sciences*, *18*, 543–544.
- Barnett, M. A., & Thompson, S. (1985). The role of perspective taking and empathy in children's Machiavellianism, prosocial behavior, and motive for helping. *Journal of Genetic Psychology*, *146*, 295–305.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Benet-Martinez, V., & John, O. P. (1998). Los Cinco Grandes across cultures and ethnic groups: Multitrait-multimethod matrix analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology*, *75*, 729–750.
- Bogart, L. M., Benotsch, E. G., & Pavlovic, J. D. (2004). Feeling superior but threatened: The relation of narcissism to social comparison. *Basic and Applied Social Psychology*, *16*, 35–44.
- Botwin, M., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality*, *65*, 107–136.
- Bradlee, P. M., & Emmons, R. A. (1992). Location of narcissism within the interpersonal circumplex of the five-factor model. *Personality and Individual Differences*, *13*, 821–830.
- 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*, 219–229.
- Bushman, B. J., Bonacci, A. M., van Dijk, M., & Baumeister, R. F. (2003). Narcissism, sexual refusal, and aggression: Testing a Narcissistic Reactance model of sexual coercion. *Journal of Personality and Social Psychology*, *84*, 1027–1040.
- Buss, D. M. (1991a). Evolutionary personality. *Annual Review of Psychology*, *42*, 459–491.
- Buss, D. M. (1991b). Conflict in married couples: Personality predictors of anger and upset. *Journal of Personality*, *59*, 663–688.
- Buss, D. M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry*, *6*, 1–30.

- Buss, D. M. (1999). Human nature and individual differences: The evolution of human personality. In L. A. Pervin, & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 31–56). New York, NY: Guilford.
- Buss, D. M., & Duntley, J. D. (2008). Adaptations for exploitation. *Group Dynamics: Theory, Research, and Practice*, 12, 53–62.
- Buss, D. M., & Greiling, H. (1999). Adaptive individual differences. *Journal of Personality*, 67, 209–243.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, 100, 204–232.
- Campbell, W. K., & Foster, C. A. (2002). Narcissism and commitment in romantic relationships: An investment model analysis. *Personality and Social Psychology Bulletin*, 28, 484–495.
- Campbell, W. K., Foster, C. A., & Finkel, E. J. (2002). Does self-love lead to love for others? A story of narcissistic game playing. *Journal of Personality and Social Psychology*, 83, 340–354.
- Campbell, W. K., Rudich, E., & Sedikides, C. (2002). Narcissism, self-esteem, and positivity of self-views: Two portraits of self-love. *Personality and Social Psychology Bulletin*, 28, 358–368.
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York, NY: Academic Press.
- Clark, R. D., & Hatfield, E. (1989). Gender differences in receptivity to sexual offers. *Journal of Psychology and Human Sexuality*, 2, 39–55.
- Comrey, A. L. (1973). *A first course in factor analysis*. New York, NY: Academic Press.
- Costa, P., & McCrae, R. R. (1992). *Professional manual for the NEO-PI-R*. Orlando, Florida: Psychological Assessment Resources.
- Emmons, R. A. (1987). Narcissism theory and measurement. *Journal of Personality and Social Psychology*, 52, 11–17.
- Eysenck, H. J. (1995). Psychopathology: Type or trait? *Behavioral and Brain Sciences*, 18, 355–356.
- Fehr, B., Samson, D., & Paulhus, D. L. (1992). The construct of Machiavellianism: Twenty years later. In C. D. Spielberger, & J. N. Butcher (Eds.), *Advances in personality assessment* (Vol. 9, pp. 77–116). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Figueredo, A. J., Sefcek, J. A., Vasquez, G., Brumbach, B. H., King, J. E., & Jacobs, W. J. (2005). Evolutionary personality psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 851–877). Hoboken, NJ: Wiley.
- Foster, J. D., Campbell, W. K., & Twenge, J. M. (2003). Individual differences in narcissism: Inflated self-views across the lifespan and around the world. *Journal of Research in Personality*, 37, 469–486.
- Foster, J. D., Shriram, L., & Campbell, W. K. (2006). Theoretical models of narcissism, sexuality, and relationship commitment. *Journal of Social and Personal Relationships*, 23, 367–386.
- Gramzow, R., & Tagney, J. P. (1992). Proneness to shame and the narcissistic personality. *Personality and Social Psychology Bulletin*, 18, 369–376.
- Hare, R. D. (1996). Psychopathy: A clinical construct whose time has come. *Criminal Justice and Behavior*, 23, 25–54.
- Hart, S., & Hare, R. D. (1998). Association between psychopathy and narcissism: Theoretical views and empirical evidence. In E. F. Ronningstam (Ed.), *Disorders of narcissism: Diagnostic, clinical, and empirical implications* (pp. 415–436). Washington, DC: American Psychiatric Press.
- Haselton, M., Buss, D. M., Oubaid, V., & Angleitner, A. (2005). Sex, lies, and strategic interference: The psychology of deception between the sexes. *Personality and Social Psychology Bulletin*, 31, 3–23.
- House, R. J., & Howell, J. M. (1992). Personality and charismatic leadership. *Leadership Quarterly*, 3, 81–108.
- Hunter, J. E., Gerbing, D. W., & Boster, F. J. (1982). Machiavellianism beliefs and personality: Construct invalidity of the Machiavellianism dimensions. *Journal of Personality and Social Psychology*, 43, 1293–1305.
- Jonason, P. K. (2007). A mediation hypothesis to account for the sex difference in reported number of sexual partners: An intrasexual competition approach. *International Journal of Sexual Health*, 19, 41–49.
- Kanazawa, S. (2003). Can evolutionary psychology explain reproductive behavior in the contemporary United States? *Sociological Quarterly*, 44, 291–302.

- Keller, M. C., & Miller, G. F. (2006). Resolving the paradox of common, harmful, heritable mental disorders: Which evolutionary genetic models work best? *Behavioral and Brain Sciences*, *29*, 385–452.
- Kowalski R. M. (Ed.). (2001). *Behaving badly: Aversive behaviors in interpersonal relationships*. Washington, DC: American Psychological Association.
- Kruger, D. J., Fisher, M., & Jobling, I. (2003). Proper and dark heroes as dads and cads. *Human Nature*, *15*, 305–317.
- Larson, R., & Buss, D. M. (2006). *Personality psychology: Domains of knowledge*. New York, NY: McGraw-Hill.
- Li, N. P., & Kenrick, D. T. (2006). Sex similarities and differences in preferences for short-term mates: What, whether, and why. *Journal of Personality and Social Psychology*, *90*, 468–489.
- Malamuth, N., Huppini, M., & Bryant, P. (2005). Sexual coercion. In D. M. Buss (Ed.), *Evolutionary psychology handbook* (pp. 394–418). New York, NY: Wiley.
- McCrae, R. R., & Costa, P. T., Jr. (1997). Personality trait structure as human universal. *American Psychologist*, *52*, 509–516.
- McHoskey, J. (2001). Machiavellianism and sexuality: On the moderating role of biological sex. *Personality and Individual Differences*, *31*, 779–789.
- McHoskey, J. (1995). Narcissism and Machiavellianism. *Psychological Reports*, *77*, 755–759.
- Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences*, *18*, 523–599.
- Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of Narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, *12*, 177–196.
- Nettle, D. (2005). An evolutionary approach to the extraversion continuum. *Evolution and Human Behavior*, *26*, 363–373.
- Nettle, D. (2006). The evolution of personality variation in humans and other animals. *American Psychologist*, *61*, 622–631.
- Nettle, D. (2007). Individual differences. In R. I. M. Dunbar, & L. Barrett (Eds.), *Oxford handbook of evolutionary psychology* (pp. 479–490). Oxford, UK: Oxford University Press.
- Paulhus, D. L. (1998). Interpersonal and intrapsychic adaptiveness of trait self-enhancement: A mixed blessing? *Journal of Personality and Social Psychology*, *74*, 1197–1208.
- Paulhus, D. L. (2001). Normal narcissism: Two minimalist accounts. *Psychological Inquiry*, *12*, 228–230.
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism and psychopathy. *Journal of Research in Personality*, *36*, 556–563.
- Paulhus, D. L., Hemphill, J. F., & Hare, R. D. (in press). *Self-Report Psychopathy scale (SRP-III)*. Toronto: Multi-Health Systems.
- Penke, L., & Asendorpf, J. B. (in press). Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships. *Journal of Personality and Social Psychology*.
- Penke, L., Denissen, J. J. A., & Miller, G. F. (2007). The evolutionary genetics of personality. *European Journal of Personality*, *21*, 549–587.
- Raskin, R., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological Reports*, *45*, 590.
- Raskin, R. N., & 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*, 890–902.
- Rhodewalt, F., & Morf, C. C. (1995). Self and interpersonal correlates of the Narcissistic Personality Inventory: A review and new findings. *Journal of Research in Personality*, *29*, 1–23.
- Ross, S. R., & Rausch, M. K. (2001). Psychopathic attributes and achievement dispositions in a college sample. *Personality and Individual Differences*, *30*, 471–480.
- Rowe, D. C. (1995). Evolution, mating effort, and crime. *Behavioral and Brain Sciences*, *18*, 573–574.
- Schmitt, D. P. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences*, *28*, 247–311.
- Schmitt, D. P., & Buss, D. M. (2001). Human mate poaching: Tactics and temptations for infiltrating existing relationships. *Journal of Personality and Social Psychology*, *80*, 894–917.

- Schmitt, D. P., & Shackelford, T. K. (2008). Big Five traits related to short-term mating: From personality to promiscuity across 46 nations. *Evolutionary Psychology*, *6*, 246–282.
- Schmitt, N. (1996). Uses and abuses of coefficient alphas. *Psychological Assessment*, *8*, 350–353.
- Sedikides, C., Rudich, E. A., Gregg, A. P., Kumashiro, M., & Rusbult, C. (2004). Are normal narcissists psychologically healthy?: Self-esteem matters. *Journal of Personality and Social Psychology*, *87*, 400–416.
- Simpson, J., & Gangestad, S. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology*, *60*, 870–883.
- Taylor, S. E., & Armor, D. A. (1996). Positive illusions and coping with adversity. *Journal of Personality*, *64*, 873–898, 69–81.
- Tabachnick, B. G., & Fidell, L. S. (2006). *Using multivariate statistics* (5th ed.). Needham Heights, MA: Allyn & Bacon, Inc.
- Trivers, R. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man, 1871–1971* (pp 136–179). Chicago, IL: Aldine de Gruyter.
- Vecchio, R. P. (2005). Explorations in employee envy: Feeling envious and feeling envied. *Cognition and Emotion*, *19*, 69–81.
- Vernon, P. A., Villani, V. C., Vickers, L. C., & Harris, J. A. (2008). A behavioral genetics investigation of the Dark Triad and the Big 5. *Personality and Individual Differences*, *44*, 445–452.
- Walsh, A. (1991). Self-esteem and sexual behavior: Exploring gender differences. *Sex Roles*, *25*, 441–450.
- Watson, P. J., & Biderman, M. D. (1994). Narcissistic trait scale: Validity evidence and sex differences in narcissism. *Personality and Individual Differences*, *16*, 501–504.
- Webster, G. D., & Bryan, A. (2007). Sociosexual attitudes and behaviors: Why two factors are better than one. *Journal of Research in Personality*, *41*, 917–922.
- Wilson, D. S., Near, D., & Miller, R. R. (1996). Machiavellianism: A synthesis of the evolutionary and psychological literatures. *Psychological Bulletin*, *119*, 285–299.
- Wolfson, S. L. (1981). Effects of Machiavellianism and communication on helping behavior during emergency. *British Journal of Social Psychology*, *20*, 189–195.
- Wrightsman, L. S. (1991). Interpersonal trust and attitudes toward human nature. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 373–412). San Diego, CA: Academic Press.
- Zagon, I. K., & Jackson, H. J. (1994). Construct validity of a psychopathy measure. *Personality and Individual Differences*, *17*, 125–135.

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