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This is an Accepted Manuscript of an article published by Taylor & Francis in  
Journal of Sex Research in 2018, available online:

<https://doi.org/10.1080/00224499.2017.1420750>

## Abstract

Previous literature has extensively considered factors that influence short- and long-term mating orientations, with specific attention given to individual differences (e.g., sex and personality). Although research has established the role ‘darker’ personality traits (i.e., the Dark Triad) play in mating orientation, this triad has recently been reconceptualised as a tetrad. Due to this reconceptualisation, the current study sought to establish the utility of sex and the Dark Tetrad in predicting individual short-and long-term mating orientations. In addition, as an alternative to previous methodology, the orientations were assessed using a continuous measure. Overall, 464 participants aged between 18 to 69 years completed an online questionnaire assessing Dark Tetrad traits and mating orientations. Results showed that sex, trait psychopathy, and trait sadism are significant predictors of a short-term mating orientation. For long-term mating orientations, there was no predictive utility of sex, but positive associations for narcissism and negative associations for psychopathy and sadism. These findings add further understanding of the predictors of mating orientation. Importantly, these results establish the utility of the tetrad in predicting mating orientations, and offer future mating orientation studies an alternative measure to the traditional dichotomous format.

Predicting short- and long-term mating orientations: The role of sex and the Dark Tetrad

Human mating is widespread and diverse, lasting anywhere from a few minutes, weeks, months, or even a number of years (Buss & Schmitt, 1993). There are a number of mating strategies available to modern humans, many of which have been inherited through similar tactics that led to our ancestor's reproductive success (Buss, 2007). Such mating strategies include, yet are not limited to: One-night stands, booty-calls, friends-with-benefits (all considered short-term mating), and long-term, committed romantic relationships (Jonason, Luevano, & Adams, 2012).

Past literature appears to have predominately measured human mating in a dichotomous manner: Short-term and long-term (Buss & Schmitt, 1993). These mating strategies, or orientations<sup>1</sup>, are considered to be two distinct categories (Voracek, 2005). A short-term mating orientation is categorised by comparatively little commitment to a partner (Buss & Schmitt, 1993; Gangestad & Simpson, 2000), and individuals with this orientation are likely to pursue casual sex (i.e., sex without a relationship or other emotional commitment; Jackson & Kirkpatrick, 2007). A long-term mating orientation is characterised by a higher level of relationship investment (Buss, 2006), and individuals with this orientation are committed to a partner over a longer period of time, generally involving sexual exclusivity and stronger emotional bonds (Shukusky, 2013).

Both these mating orientations are said to be influenced by a variety of factors, such as sex<sup>2</sup> (Bailey, Gaulin, Agyei, & Gladue, 1994) and personality (Botwin, Buss, & Shackelford, 1997). The purpose of the current study is to explore sex and dark personality traits (i.e., the Dark Tetrad) in predicting short- and long-term mating orientations. The

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<sup>1</sup> Throughout this paper, in order to maintain continuity and outline terms which may be inputted interchangeably to achieve the same intended meaning, the term "orientation" will be used to encompass a wide array of similar mating terminologies including preference, desire, relationships, style, and strategy.

<sup>2</sup> In the current paper, sex refers to biological male and female categories, whereas gender refers to the meaning society ascribes to these categories

importance of the current study to the extant literature is two-fold. First, to the best of our knowledge, to date only one study has empirically explored associations between dark personality traits (e.g., the Dark Triad: Narcissism, psychopathy, and Machiavellianism) and mating orientations (see Jonason, Li, Webster, & Schmitt, 2009). Due to the relatively new conceptualisation of the Triad as a Tetrad with the addition of the trait of everyday sadism, the current study is the first empirical exploration into associations between the Dark Tetrad and mating orientations.

Secondly, in an effort to increase content validity, the current study will assess mating orientations with a more sophisticated, continuous measure. Previous methodology has predominantly assessed mating orientations in a dichotomous format (e.g., are you currently looking for a long-term mate? Yes/No; Clark & Hatfield, 1989), or a ranked format (e.g., report the degree to which you are currently seeking a short-term mate, 1 = not strongly seeking to 7 = currently strongly seeking; Schmitt & Shackelford, 2008). Thus, the current study will add to literature on mating orientations by operationalising these orientations as scales.

### **Short-Term Mating, Long-Term Mating, and Sex Differences**

**Short-term mating.** According to Buss and Schmitt (1993), lifelong mating with the same person does not appear to be the norm for all humans. Further, although mating orientations have largely been considered as either short-term or long term (Simpson & Gangestad, 1991; Voracek, 2005), more recent research has begun to differentiate between short-term relationships, such as booty calls, one-night stands, friends with benefits (e.g., Jonason et al., 2012; Wentland & Reissing, 2014). These relationships are all defined as non-committed sexual relationships, varying in their emotional and sexual involvement (Wentland & Reissing, 2011), and differ to the commitment involved in long-term mating (Wentland & Reissing, 2014).

Research has also shown sex differences in short-term mating, with men often expressing a stronger short-term mating orientation compared to women (Buss, 2006; Oliver & Hyde, 1993; Schmitt, Shackelford, & Buss, 2001). A number of theories appeal to distal mechanisms to explain these sex differences in mating orientations, such as Sexual Strategies Theory (Buss & Schmitt, 1993) and Parental Investment Theory (Trivers, 1972). Both theories postulate that mating is intrinsically a strategic process, facilitated to rectify adaptive issues encountered by ancestors and may adapt to the mating environment (Buss & Schmitt, 1993). Over human evolutionary history, it has been more reproductively advantageous for ancestral men (not women) to engage in a short-term mating orientation (Buss, 2006). Unlike men, women who engage in short-term mating may risk lowering their own mate value and are more likely to experience violence (Buss, 2000). Furthermore, engaging in short-term mating is potentially more damaging to women's reputation than to men's, as men often place a premium on the chastity of women (Buss & Schmitt, 1993). Such disadvantages help explain why modern men and women are orientated to short-term and long-term relationships, respectively.

Despite these apparent disadvantages, women still engage in short-term mating, with benefits including mate switching (i.e., using a mate in the short-term to escape a poor relationship; Greiling & Buss, 2000) and acquisition of resources (i.e., gaining immediate assets; Buss & Schmitt, 1993). In addition, women may also adaptively engage in short-term mating due to the heightened possibility of acquiring good genes (Buss, 2006). Both Good Genes Theory (Thornhill & Gangestad, 1993) and Strategic Pluralism Theory (Gangestad & Simpson, 2000) posit that women may express a short-term mating orientation in an effort to secure high genetic fitness, thus enhancing survival of offspring (Geary, Vigil, & Byrd-Craven, 2004). Further, Sexual Strategies Theory (Buss & Schmitt, 1993) posits that females

may engage in short-term mating in an effort to appraise short-term mates as potential long-term mates.

Current social mores may also help explain why some women orientate towards short-term mating. Traditionally, it has been more acceptable for men to express promiscuity, and women to seek sexual relations within the context of a committed relationship (Owen, Fincham, & Moore, 2011). However, research has provided evidence that this 'sexual double standard' may no longer exist, showing that people do not necessarily still hold men and women to different sexual standards (e.g., Carter, Campbell, & Muncer, 2014; Marks & Fraley, 2005). Other contemporary research has reported that men express a stronger sexual double standard compared to women (Allison & Risman, 2013), and that women continue to be more conservative than men regarding casual sex (Sprecher, Treger, & Sakaluk, 2013).

In sum, men and women are theorised to express a short-term mating orientation for both similar and different reasons. A number of individuals may prefer short-term mating for its numerous reproductive benefits (Li & Kenrick, 2006) and limited commitment to partners (Schmitt, Shackelford, et al., 2001).

**Long-term mating.** Unlike short-term mating, which is considered more opportunistic, the primary mating strategy for both sexes is the pursuit of a long-term mate (Buss, 1998). As discussed above, both sexes have evolved mating strategies that seek to overcome reproductive challenges, and these strategies are also expressed in preference long-term mating (Buss, 2007).

Men may encounter a number of reproductive challenges in mating environments, leading them to express a long-term mating orientation. For instance, less dominant and less physically attractive men often find it difficult to be promiscuous (i.e., engage in short-term relations), and instead place more value on a long-term union (Bogaert & Fisher, 1995). There are also acquirable benefits for men expressing a long-term mating orientation, such as

determining paternity confidence of any resultant offspring (Schmitt, Couden, & Baker, 2001). For men, investing in one long-term mate overcomes the problem of concealed ovulation (i.e. no physiological sign that ovulation, or biological fertility is occurring in women; Schmitt, Couden, et al., 2001; Symons, 1979). By monopolising a woman over long periods of time, men increase their probability of paternity in any resultant offspring (Buss & Schmitt, 1993).

Although there are a number of reproductive challenges for females to overcome in a long-term mating strategy, such as identifying males who are able and willing to invest in offspring (Buss, 2006), there are significant benefits for females engaging in long-term mating. Parental Investment Theory (Trivers, 1972) posits that females benefit from long-term mating by committing to a mate who is able to provide the necessary resources to her and her offspring to ensure their survival (Buss & Schmitt, 1993; Pillsworth & Haselton, 2006). In addition, females were physically vulnerable in ancestral environments if they were pregnant and lactating (Buss & Schmitt, 1993), thus benefiting by attaining long-term protection from other aggressive males (Smuts, 1992) and sustenance in food provisions (Buss, 1998). Further, women may also benefit from long-term mating through attaining a personal higher social status (Li & Kenrick, 2006). Specifically, from a sociocultural standpoint, women have less access to status and power than men do, leading them to prioritise status in a long-term mate (Howard, Blumstein, & Schwartz, 1987). In sum, it is these considerable benefits which have led researchers to conclude contemporary women, compared to men, will express stronger preference for long-term relationships (Buss et al., 1990; Clark & Hatfield, 1989; Schmitt, 2005; Simpson & Gangestad, 1991).

### **Personality and Mating Orientations**

In addition to sex, other variables have also been found to predict short- and long-term mating orientations. Previous research has found personality traits, specifically dark

personality traits, to be associated with expressing mating orientations (e.g., Jonason & Buss, 2012; Jonason & Kavanagh, 2010).

**The Dark Triad.** The Dark Triad is a set of subclinical personality traits comprising of trait narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002). Trait narcissism is characterised by grandiosity, egotism and a profound lack of empathy, trait Machiavellianism involves manipulation, exploitation, and self-interest, and trait psychopathy is comprised of antisociality, impulsivity, callousness, and a lack of remorse (Book, Visser, & Volk, 2015). To varying extents, these traits entail a socially malicious nature with behavioural tendencies toward self-promotion, emotional coldness, deception, and aggressiveness (Paulhus & Williams, 2002).

**The Dark Triad and mating orientations.** These dark traits have been explored in association with a variety of behaviours, including mating orientations, and such research has indicated positive associations between individual's Dark Triad traits (e.g., narcissism, Machiavellianism, and psychopathy) and expressing a short-term mating orientation (Jonason et al., 2009). Other research substantiates this association, showing relations between these traits and increased individual physical attractiveness (interestingly, a trait both sexes seek in short-term relationships; Holtzman & Strube, 2012) and strategies implemented to avoid long-term relationships (Jonason & Buss, 2012). For example, Jonason and Buss (2012) found that individuals with high levels of Dark Triad traits implement tactics to avoid long-term relationship commitments, such as forms of inaction (e.g., ignoring the short-term partner) and avoidance of emotional intimacy (e.g., cuddling).

These dark traits have also been linked to life history strategy (e.g., Kaplan & Gangestad, 2005), which explains the trade-offs individuals make when dividing their energy and resources across varying activities, such as developing skills, knowledge, and capacities, or instead focusing upon mating or parenting efforts (Roff, 1992; Stearns, 1992). Dark



personality traits been linked to a fast life history strategy, where mating and reproductive efforts are prioritised (McDonald, Donnellan, & Navarrete, 2012). Although outcomes with fast life strategies may often be viewed as socially undesirable; these traits are considered to be strategic adaptive responses to unstable environmental conditions (McDonald et al., 2012).

Independently, trait narcissism appears to be more related to a more opportunistic than exploitative mating style (Jonason et al., 2012), as individuals with higher levels of trait narcissism express a variety of relationship preferences including serious relationships, one-night stands, and friends-with-benefits. High individual levels of trait Machiavellianism has been related to a variety of negative sexual relations regarding cheating, feigning love, and promiscuity (Jonason et al., 2009; McHoskey, 2001). Individuals with high trait Machiavellianism are often reluctant to develop committed intimate relationships, leading them to be emotionally detached from others (Ali & Chamorro-Premuzic 2010). Finally, trait psychopathy is often associated with exploitative short-term mating strategy (Mealey, 1995), and has been positively correlated with shorter-term relationships (e.g., booty-calls) and negatively correlated with serious romantic relationships (Jonason et al., 2012). Individuals with high trait psychopathy are more likely to poach mates from others (Jonason, Li, & Buss, 2010), commit infidelity (Egan & Angus, 2004), and experience relationship stress and breakdown (Savard, Sabourin, & Lussier, 2006).

Predominantly, this association between the Dark Triad and a short-term mating orientation are considered to be an evolved *male* mating strategy (Carter et al., 2014). Jonason, Valentine, Li, and Harbeson (2011) found that men who score highly on Dark Triad traits tended to have lower standards for mates, and this lowering of standards enables a target-rich environment with ample supply of potential short-term mates. However, it is possible this association between the Dark Triad and men's mating strategies is overstated. For instance, a meta-analysis of the Dark Triad established that men continuously score

higher on these traits (Furnham, Richards, & Paulhus, 2013). Combined with associations between these dark traits and a short-term mating strategy (Jonason et al., 2009), it is possible this relationship has erroneously been overstated as a *male* mating strategy. Supporting this premise, Carter et al. (2014) reported no evidence of stronger associations between the dark traits in men and women and corresponding short-term mating strategies.

**The Dark Tetrad.** In addition to narcissism, Machiavellianism, and psychopathy, researchers (e.g., Buckels, Jones, & Paulhus, 2013; Chabrol, Leeuwen, Rodgers, & Séjourné, 2009; Paulhus, 2014) have proposed the inclusion of trait sadism as a dark personality trait, thus transforming the triad into a tetrad. Trait sadism is defined as experiencing callous enjoyment of the physical, sexual, and/or psychological suffering of others (Buckels, 2012), and is shown to have moderate correlations with all other dark personality traits (Chabrol et al., 2009). The inclusion of trait sadism to the dark personality traits is supported by sadism explaining unique variance in predicting antisocial behaviours, above and beyond the Dark Triad (see Buckels et al., 2013; Chabrol et al., 2009; Chabrol, Bouvet, & Goutaudier, 2017). Experimental studies have explored and supported the inclusion of everyday sadism in the constellation of dark personality traits (e.g., Reidy, Zeichner, & Seiber, 2011); and although the four dark traits may overlap in ways, they still remain distinct constructs (Chabrol et al., 2009). Interestingly, Book and colleagues (2016) showed larger relationships between sadism and psychopathy and Machiavellianism than narcissism, and suggested sadism might even be a better inclusion in the 'triad' than narcissism. Finally, Bulut (2017) recommends that future research not ignore the possible overlap between characteristics of sadism and psychopathy when measuring psychopathy in isolation; thus, measuring a Dark Tetrad as an alternative to a triad addresses this limitation.

Although associations between Dark Triad traits and individual mating orientations have been explored (e.g., Jonason & Buss, 2012; Jonason & Kavanagh, 2010; Jonason et al.,

2011), research has not yet explored associations between the Dark Tetrad and mating orientations. With the establishment of a tetrad of dark traits, rather than a triad, previous research that explored associations between the Dark Triad and mating orientations are subject to reassessment, as trait sadism has not previously been explored in relation to mating orientations. Such research will establish the independent relation between everyday sadism and men's and women's mating orientations, thus adding to the literature exploring personality predictors of mating orientations (e.g., Schmitt & Shackelford, 2008).

Given the sexually exploitative nature of sadism (O'Meara, Davies, & Hammond, 2011), and associations between other dark personality traits, exploitation, and increased short-term mating orientations (Jonason et al., 2012; Mealey, 1995), it is possible individual trait sadism may predict mating orientations. Knight and Sims-Knight (2003) demonstrated that sexual coercion (related to socio-sexual orientation i.e., short-term orientation; Malamuth, 1998) by men against women can be predicted not only from antisocial behaviour and aggression, but also from aggressive sexual fantasies. In fact, callous and unemotional traits (i.e., psychopathy traits) were associated with sexual coercion *via* their association with antisocial behaviour and aggressive sexual fantasies (i.e., sexual sadism). Psychopathy has been linked to a variety of sexual deviant fantasies, including sadism (Williams, Cooper, Howell, Yuille, & Paulhaus, 2009). As the relationship between callousness and sexual coercion was mediated by aggressive sexual fantasies (e.g., Knick & Sims-Knight, 2003), and as Book and colleagues (2016) suggest sadism may 'fit' in the triad better than narcissism, sadism may show to be a fundamental predictor of mating orientations and may even mediate other relationships. While modest, exploring these associations is important to a complete understanding of how dark traits facilitate a sexual strategy.

### **Previous Methodological Limitations in Mating Literature**

Methodological limitations have also been identified in previous mate orientation literature. Generally, previous research has assessed the degree to which an individual seeks short-term mating in dichotomous, nominal responses such as ‘yes’ or ‘no’ (e.g., Clark & Hatfield, 1989), or a ranked format (e.g., report the degree to which you are currently seeking a short-term mate, 1 = not strongly seeking to 7 = currently strongly seeking; Schmitt & Shackelford, 2008). The current study sought to overcome limitations associated with these discrete, categorical responses by measuring individual mating orientations (both short-term and long-term) with a more sophisticated, continuous measure. The Expanded Multidimensional Sociosexual Orientation Inventory (EM-SOI; Jackson & Kirkpatrick, 2007) is measured on a Likert scale which elicits a wider range of possible responses (Jackson & Kirkpatrick, 2007) and a multi-dimensional measure allows for more descriptive coverage (Holtzman & Strube, 2013).

### **Aim and Hypotheses**

The aim of the current study was to explore the utility of sex, and the Dark Tetrad (narcissism, Machiavellianism, psychopathy, and sadism) in predicting short- and long-term mating orientations. For short-term mating, it was predicted that the variable of sex will explain a significant amount of variance, with men exhibiting a stronger short-term mating orientation (H1). In addition to the variance explained by sex, it was predicted that the Dark Tetrad variables (narcissism, Machiavellianism, psychopathy, and sadism) will also explain a significant amount of variance in short-term mating orientations. Specifically, higher levels of the Tetrad would predict higher orientation towards short-term mating (H2).

For long-term mating orientation, it was predicted that the variable of sex will explain a significant amount of variance, with women exhibiting a stronger long-term mating orientation (H3). In addition to the variance explained by sex, it was predicted that the Dark Tetrad variables (narcissism, Machiavellianism, psychopathy, and sadism) would also explain

a significant amount of variance in long-term mating orientations. Specifically, lower levels of the Tetrad would predict higher orientation towards long-term mating (H4).

## Method

### Participants and Procedure

The final sample<sup>3</sup> consisted of 464 (63% women and 37% men) participants aged between 18 to 69 years ( $M = 24.73$ ,  $SD = 7.86$ ). Of participants, 71% identified as heterosexual, 6% identified as homosexual, 16% identified as bisexual, and 7% identified as 'other' sexuality. Participants were predominantly single (44%) or in a long term relationship (27%). Participants were recruited via social media (e.g. Facebook and Instagram) and online Psychology Forums/websites. Potential participants were informed about the voluntary, anonymous questionnaire that could be accessed via [surveymonkey.com](https://www.surveymonkey.com), and that the questionnaire would take them approximately 20 minutes to complete. On completion of the questionnaire, participants were thanked for their involvement, and data was then exported into SPSS version 20 for analyses.

### Measures

Individual levels of narcissism, Machiavellianism, and psychopathy were measured with the Short Dark Triad Scale (SD3; Jones & Paulhus, 2014), a 27-item measure with 9-items for each trait. The narcissism subscale (Cronbach's  $\alpha = .69$ ) contains items such as "I have been compared to famous people"; the Machiavellianism subscale (Cronbach's  $\alpha = .70$ ) contains items such as "Most people can be manipulated"; and the psychopathy subscale (Cronbach's  $\alpha = .76$ ) contains items such as "I like to get revenge on authorities".

Participants responded to each item of a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*), and items were summed for a total score for each trait.

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<sup>3</sup> Initially, 558 individuals accessed the questionnaire; however, only 531 progressed beyond the consent page. Further to this, 67 participants (52% women, 48% men,  $M_{age} = 23.15$  years,  $SD = 5.14$ ) provided only demographic information and did not complete any measures.

The Short Sadistic Impulse Scale (SSIS; O'Meara et al., 2011) was used to measure individual levels of everyday sadism. Participants rated their agreement (1 = *Strongly Disagree*; 5 = *Strongly Agree*) to 10 statements, such as “Hurting people is exciting” and “I wouldn't intentionally hurt anyone [Reverse Scored]”. Items were summed for an overall score of trait sadism (Cronbach's  $\alpha = .85$ ).

Short- and long-term mating orientations were assessed with the Expanded Multidimensional Sociosexual Inventory (EM-SOI; Jackson & Kirkpatrick, 2007). The EM-SOI is comprised of 17-items and two subscales, with 10-items on the short-term mating orientation subscale and 7-items on the long-term mating orientation subscale. Presentation of the subscales was counterbalanced with 44.54% of participants who completed the study receiving the short-term mating orientation subscale first, and 55.46% of participants receiving the long-term mating orientation subscale first.

The 10-item short-term mating orientation subscale (Cronbach's  $\alpha = .94$ ) includes statements such as “I can easily imagine myself being comfortable and enjoying casual sex with different partners” and “Sometimes I would rather have sex with someone I did not care about”. The 7-item long-term mating orientation subscale (Cronbach's  $\alpha = .94$ ) includes statements such as “I hope to have a romantic relationship that lasts the rest of my life” and “I can see myself settling down romantically with one special person” which assess an individual's orientation to long-term mating. Participants respond to the statements on a 7-point Likert scale (1 = *Strongly Disagree*; 7 = *Strongly Agree*), and scores are summed for two total subscale scores.

## **Design**

The current study was a correlational design with the predictors of sex and the Dark Tetrad (narcissism, Machiavellianism, psychopathy, and sadism). The criterions were short-term mating orientation and long-term mating orientation.

## Results

Bivariate Pearson correlations were run between the predictors of sex and the Dark Tetrad (narcissism, Machiavellianism, psychopathy, and sadism), and the criteria of short- and long-term mating orientations (See Table 1). Correlations between predictors did not exceed .9, therefore multicollinearity was not violated. Descriptive statistics for these scales are presented in Table 2<sup>4</sup>.

### Hypothesis Testing

**Predicting short-term mating orientation.** To test Hypotheses 1 and 2, a 3 Step Hierarchical Regression was run using the enter method with sex and the Dark Tetrad (narcissism, Machiavellianism, psychopathy, and sadism) as the predictors and short-term mating orientation as the criterion. Sex was entered at Step 1 of the regression analysis, narcissism, Machiavellianism, and psychopathy were entered at Step 2, and sadism was entered at Step 3. At Step 1, sex explained a significant 5.3% ( $R^2$  adjusted) of variance in short-term mating orientation,  $F(1, 395) = 23.03, p < .001, f^2 = .05$ . At Step 2, narcissism, Machiavellianism, and psychopathy were entered and explained an additional 5.7% ( $R^2$  change) of variance in short-term mating orientation, and this change was significant,  $F(3, 392) = 8.40, p < .001, f^2 = .05$ . At Step 3, the addition of sadism explained an additional 1% ( $R^2$  change) of variance in short-term mating orientation, and this change was significant,  $F(1, 391) = 4.47, p = .035, f^2 = .01$ . Overall, the regression model with both sex and the Dark Tetrad predicted 11.1% ( $R^2$  adjusted) of variance in short-term mating orientation, and this was significant,  $F(5, 391) = 10.89, p < .001, f^2 = .14$ . See Table 3 for coefficient values and  $R^2$ .

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<sup>4</sup> At the recommendation of an anonymous reviewer, participant responses (in percentages) to scales are available upon request

**Predicting long-term mating orientation.** To test Hypotheses 3 and 4, a second 3 Step Hierarchical Regression was conducted with sex and The Dark Tetrad as the predictors and long-term mating orientation as the criterion variable. Sex was entered at Step 1 of the regression analysis, narcissism, Machiavellianism, and psychopathy were entered at Step 2, and sadism was entered at Step 3. Results showed that at Step 1, sex explained a non-significant .01% ( $R^2$  adjusted) of variance in long-term mating orientation,  $F(1, 398) = 2.53$ ,  $p = .113$ ,  $f^2 = .01$ . At Step 2, narcissism, Machiavellianism, and psychopathy explained an additional, significant 5.4% ( $R^2$  change) of variance in long-term mating orientation,  $F(3, 395) = 6.64$ ,  $p < .001$ ,  $f^2 = .05$ . At Step 3, the addition of sadism explained an additional 2% ( $R^2$  change) of variance in long-term mating orientation, and this change was significant,  $F(1, 394) = 8.67$ ,  $p = .003$ ,  $f^2 = .02$ . Overall, the regression model with both sex and the Dark Tetrad predicted 6.3% ( $R^2$  adjusted) of variance in long-term mating orientation, and this was significant,  $F(5, 394) = 6.33$ ,  $p < .001$ ,  $f^2 = .08$ . See Table 3 for coefficient values and  $R^2$ .

Table 3 shows that at Step 1, men are more orientated towards short-term relationships compared to women. At Step 2, sex continues to positively predict short-term mating orientation, along with trait psychopathy. At Step, sex, psychopathy, and sadism positively predict short-term mating orientation. Specifically, higher levels of psychopathy and sadism predict higher short-term mating orientation.

For long-term mating orientation, sex was not a significant predictor. At Step 2, narcissism is a significant positive predictor and psychopathy is a significant negative predictor. At step 3, sadism also negatively predicts long-term mating orientation. In sum, higher levels of narcissism and lower levels of psychopathy and sadism predict higher long-term mating orientation.

### **Exploratory Mediation Analysis**



Both regression models showed that when sadism was added to the model, the standardised coefficient of psychopathy considerably decreased. Bivariate correlations were run between psychopathy, STMO, and LTMO, controlling for sadism. When controlling for sadism, the bivariate correlation between psychopathy and LTMO was no longer significant. A mediation analysis was run using PROCESS, and results can be seen in Figure 1.

As shown in Figure 1, sadism fully mediates the relationship between psychopathy and LTMO. Interestingly, at Step 3 in the regression model predicting LTMO, psychopathy remains significant even when sadism is added. All variables were centralised and interactions were computed between all variables and psychopathy. Addition of these variables at Step 4 of the regression model<sup>5</sup> indicated a significant interaction between gender and psychopathy.

### **Discussion**

The aim of the current study was to explore the utility of sex and dark personality traits (The Dark Tetrad: Narcissism, Machiavellianism, psychopathy, and sadism) in predicting short- and long-term mating orientations. For both orientations, trait sadism explained unique, significant variance.

#### **Discussion of Short-Term Mating Orientation Results**

It was predicted that participant sex would explain a significant amount of variance in short-term mating orientation, and results supported this prediction. Results also supported the prediction that men would express a stronger orientation to short-term mating compared to women. This supports previous research which has found sex to be significantly related to short-term mating orientation (Buss, 2006; Clark & Hatfield, 1989; Schmitt, Couden, et al., 2001). Further, this result also support premises of Sexual Strategies Theory (Buss & Schmitt, 1993), which posits that in an effort to overcome reproductive obstacles, males,

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<sup>5</sup> Analyses available from the principal researcher upon request

compared to females, are more likely to express a short-term mating orientation. For males, it is more reproductively beneficial to have sexual access to a larger number of fertile females, as engaging in intercourse with multiple partners is associated with reproductive success (Trivers, 1972).

In addition to the variance explained by sex, it was predicted that higher levels of narcissism, Machiavellianism, psychopathy, and sadism (the Dark Tetrad) would explain a significant amount of variance in short-term mating orientation. This hypothesis was only partially supported, as only trait psychopathy and sadism predicted a short-term mating orientation. It was surprising that trait narcissism and Machiavellianism were not associated with orientation to short-term mating. For example, previous research has linked trait narcissism to short-term mate appeal, (Dufner, Rauthman, Czarna, & Denissen, 2013) and higher incidences of infidelity (Campbell, Foster, & Finkel, 2002), and trait Machiavellianism to greater preference for short-term relationships (Brewer & Abell, 2015) and sexual promiscuity (McHoskey, 2001). However, not all research has established associations between short-term mating and Machiavellianism. For example, Jonason et al. (2012) found Machiavellianism not to be correlated with any specific type of relationship. Furnham and colleagues (2013) also demonstrate that such individuals often benefit from a more strategic mating style where they are able to exercise their predilection to manipulation through mate retention behaviours (i.e. inducing jealousy, punishing mate and emotional manipulation).

Consistent with previous research (e.g. Jonason et al., 2012; Jonason & Buss, 2012; Jonason & Kavanagh, 2010), the current study reported trait psychopathy as a significant, positive predictor of a short-term mating orientation. Out of the Dark Triad, previous research has reported individuals with high trait psychopathy display a clearly impulsive style of mating (best suited to a short-term mating orientation; Jones & Paulhus, 2011). Compared to

other dark traits, individuals with high trait psychopathy aim to increase their mating opportunities with a more aggressive approach (Furnham et al., 2013). Furthermore, psychopathy is related to a number of aspects of hypersexuality, including a higher number of sex partners and seeking short-term mates (Jonason et al., 2012). For these reasons, individuals with high levels of trait psychopathy are more likely to express a short-term mating orientation (Jones & Paulhus, 2011), and results of the current study corroborate this premise.

Results of the current study also showed that in addition to trait psychopathy, trait sadism was a significant positive predictor of a short-term mating orientation. This is the first study to explore associations between individual trait sadism and mating orientations, and the first to associate trait sadism and a short-term mating orientation. Although mating orientations of individuals with high trait sadism are yet to be thoroughly explored, a number of possibilities can explain this result. Conceptually, sadism is associated with enjoyment of emotionally hurting others, taking pleasure in another's distress, and a failure to admit responsibility over their actions (Buckels et al., 2013). Therefore, individuals with high trait sadism may be more likely to orientate towards short-term relationships, as they prefer to avoid emotional commitments due to a lack of remorse and care for the emotions of others (Meloy, 2000; O'Meara et al., 2011). Such individuals may also strategically seek short-term mates as they are aware that they themselves are lacking in the mate qualities sought for a long-term relationships (e.g., kindness, warmth, and honesty; Regan, Levin, & Sprecher, 2000).

Trait sadism and psychopathy have also been found to be strongly, positively related (Reidy et al., 2011). Taking into consideration trait psychopathy and sadism share a number of commonalities, such as callousness, impulsivity (Paulhus, 2014; Reidy et al., 2011) and a lack of remorse for others (Meloy, 2000), their shared callousness towards the emotions of

others (Book et al., 2015; Buckels et al., 2013) could be a primary explanation as to why more sadistic and psychopathic personalities may be predictive short-term mating orientations.

It should be noted that although trait sadism and psychopathy do share a number of similarities, a paramount difference between these traits may be related to empathy. Positive associations have been reported between trait psychopathy and empathy impairment (Diaz-Galvan, Ostrosky-Shejet, & Romero-Rebollar, 2015). Meanwhile, individuals with high trait sadism are assumed to possess an understanding of empathy (i.e. high cognitive empathy; Warren, Hazelwood, & Dietz, 1996), and by extension, possess emotion recognition abilities. It is postulated this understanding of empathy, yet lack of remorse (Meloy, 2000), is essential for those scoring highly in sadism to be able to hurt others and truly derive gratification from the suffering of another (Kirsch & Becker, 2007). Thus, individuals with high trait psychopathy might engage short-term mating opportunities because lack an understanding of how their callous behaviour could be hurtful to another (Book et al., 2015). However, individuals with high trait sadism may take pleasure in engaging in short-term mating as such strategies offer the opportunity to exploit and emotionally hurt others (e.g., 'hit it and quit it'; Borreli, 2014).

### **Discussion of Long-Term Mating Orientation Results**

Contrary to expectations, results of the current study did not support the prediction that sex would explain a significant amount of variance in long-term mating orientations. This result was unexpected, due to a number of previous studies demonstrating that women, compared to men, show a higher preference for long-term mating (e.g. Buss et al., 1990; Clark & Hatfield, 1989; Schmitt, 2005; Simpson & Gangestad, 1991). For instance, results of the current study do not support results of Buss et al. (1990), who found that cross-culturally, women expressed a higher preference than men for long-term relationships. This was

indicated by women giving more importance to mate characteristics that are typically associated with long-term mating. In addition to previous research, we also expected sex to predict long-term mating orientations based on the premises Parental Investment theory (Trivers, 1972), which posits the sex with the highest mandatory investment in potential offspring (i.e. females) will be more selective when approaching relationships (Buss, 2006).

Still, this result does corroborate some previous research. For example, Tadinac and Hromatko (2006), found that unlike short-term mating strategies, men and women express similar long-term mating strategies, and that both sexes have a number of beneficial reasons to express a long-term mating orientation. Buss (2006) suggests that such benefits for men include being able to monopolise a women's lifetime reproductive resources, attain women of higher mate value, and solving the problem of concealed ovulation. Meanwhile, benefits for women include resource acquisition (Buss, 2006), protection for herself and offspring (Buss & Schmitt, 1993), and even increased social status (Li & Kenrick, 2006). Furthermore, Tadinac and Hromatko (2006) suggest that only men of high mate value may be able to afford expressing stronger short-term mating orientations and pursuing multiple partners.

In addition to sex, it was predicted that the Dark Tetrad traits would predict long-term mating orientation. Results only partially supported this hypothesis, indicating trait Machiavellianism did not predict long-term mating orientations. However, previous research has suggested that Machiavellianism usually only reaches significance due to shared variance with the other Dark Triad traits (Jonason, Koenig, & Tost, 2010; Jonason & Tost, 2010). Specifically, when shared variance among the Dark Triad and relationship preference is removed, Machiavellianism no longer predicts relationship preferences (Jonason et al., 2012). Thus, trait Machiavellianism may not independently predict relationship preference.

Interestingly, contrary to predictions, the relationship between trait narcissism and long-term mating orientation was positive. This contradicts previous research which has

indicated positive associations between narcissism and short-term mating (Jonason et al., 2009; McHoskey, 2001) instead of a long-term mating (Foster, Shrira, & Campbell, 2006). Although speculative, it may be that the narcissist's need for external admiration (Back et al., 2013) is better achieved in a long-term, committed relationship instead of a fleeting, shorter relationship. Individuals with high levels of narcissism may be reliant on validation from a long-term partner in order to maintain their fragile positive self-concept and ego through other's affirmative perceptions of them (Campbell et al., 2002). Campbell and colleagues (2002) stated that narcissists may use a long-term relationship to maintain access to positive attention, self-esteem, and sexual resources. In addition, as individuals with high trait narcissism are easily threatened and require constant validation (Book et al., 2015), they may seek long-term relationships as their self-esteem is too unstable to engage in the associated uncertainty of engaging in short-term mating.

Finally, trait psychopathy and trait sadism were negatively associated with long-term mating orientations. This corroborates previous suggestions that trait psychopathy may not be well suited to long-term relationships (e.g., Jonason et al., 2012). A long-term relationship involves individuals in a committed relationship with their partner and is often characterised as being sexually exclusive and sharing a strong emotional bond (Shukusky, 2013). As mentioned above, psychopathy has been found to be related to a number of aspects of hypersexuality, including a higher number of sex partners and seeking short-term mates (Jonason et al., 2012). Although perhaps a slower approach to reproductive behaviour, a long-term relationship may draw benefits in its non-exploitative nature and allow for a more stable mating environment (Jonason et al., 2009). Due to psychopathy's manipulative and callous nature, and possessing a number of hypersexuality aspects (Book et al., 2015; Jonason et al., 2009; Mealey, 1995), it is not surprising individuals with high levels of this trait may not be orientated towards long-term relationships.

As previously mentioned, the current paper is the first to empirically explore trait sadism in relation to mating orientations. As such, interpretation of the negative association between trait sadism and long-term mating orientation is speculative. Still, as past literature has associated trait sadism with humiliation of others, cruelty and demeaning behaviour, as well as harming others physically, sexually, or psychologically for personal enjoyment (O'Meara et al., 2011), this also contradicts elements of a long-term relationship. Specifically, a long-term relationship includes strong feelings of love and engaging in mutually stimulating sexual activities (Shukusky, 2013). Therefore, it is unsurprising higher levels of trait sadism are associated with decreased orientation towards long-term mating. In sum, it appears that the exploitative and callous traits of psychopathy (Book et al., 2015; Mealey, 1995) and the cruel and demeaning traits of sadism (O'Meara et al., 2011), and their low levels of empathic understanding (Brewer, Hunt, James & Abell, 2015) may be counterproductive for successful, long-term intimate relationships (Ullrich, Farrington, & Cold, 2008).

A particularly important novel finding of the current study is trait sadism mediating the relationship between psychopathy and long-term mating orientation. Given Knight and Sims-Knight (2003) found that the relationship between callousness and sexual coercion was due to the relationship with aggressive sexual fantasies, we speculated that sadism could mediate the relationship between psychopathy and a short-term mating orientation. Surprisingly, sadism was found to fully mediate the relationship between psychopathy and long-term mating orientation. Although speculative, this indicates that the psychopathy traits that predict a long-term mating orientation are captured by trait sadism, and thus become non-significant when trait sadism is present. For example, research has demonstrated aggression and violence as a commonality between the traits (Kirsch & Becker, 2007), and that sexual sadists even represent a distinct subtype of psychopaths (Murphy & Vess, 2003). Based on the mediation results of the current study, it is possible the tendency for sexual

violence predicts lower long-term mating orientation (but not higher short-term mating orientation). Future research should seek to further explore this mediation, exacting the particular traits shared by psychopathy and sadism that predict long-term mating orientations.

### **Summary of Results**

Overall, the results show that men (compared to women) and individuals with higher trait psychopathy and sadism express a stronger short-term mating orientation. For long-term mating orientations, contrary to expectations there were no sex differences. Lower trait psychopathy and sadism (with psychopathy being fully mediated by sadism), and higher trait narcissism were associated with stronger long-term mating orientation. Perhaps most important, it appears that the very dark personality traits (i.e., psychopathy and sadism) that predict stronger preference for a short-term mating orientation are the very traits that predict less preference for a long-term mating orientation. Such a result establishes divergent theoretical validity for these two mating orientations and personality traits. This result also provide richness to Sexual Strategies theory (Buss & Schmitt, 1993), indicating that people with such dark traits may strategically seek and avoid different relationships in an effort to maximise their mating success.

### **Limitations, Strengths, and Future Directions**

Although informative, results attained from the current study should be assessed within the context of limitations. One potential limitation in the current study regards the content validity of trait narcissism. Maples, Lamkin, and Miller (2014) compared the construct of narcissism in the SD3 to the Dirty Dozen (Jonason & Webster, 2010), and found that the narcissism scale of the SD3 appeared to primarily assess grandiose aspects of the constructs, whereas the Dirty Dozen captured both vulnerable and grandiose features of narcissism. As the current study applied the SD3 to assess narcissism, it is possible participants were only assessed on grandiose aspects of narcissism, not the vulnerable



aspects. Future studies should seek to include a more comprehensive measure of narcissism, assessing both grandiose and vulnerable aspects.

Although including a continuous measure of mating orientations is considered a methodological strength, a potential limitation is not including dichotomous questioning alongside the continuous scales for comparison. Such a comparison could have informed results of the possible advantages/disadvantages of the two techniques, and also informed future studies of the contrast between the two measures. Both dichotomous and continuous responses regarding mating orientations could be examined in future research in an effort to make a comparison between the two methodologies.

In addition, although short- and long-term mating orientations were assessed on continuous measures, these measures still technically assume there are two types of mating orientations. Researchers who have examined relationships which do not fit the dichotomy (such as one-night-stands, booty-calls, and friends-with-benefits; Jonason et al., 2012; Wentland & Reissing, 2011), have reported these relationships comprise elements of both a short- and long-term mating orientation. Therefore, future research could conceptualise and measure these orientations on a bipolar continuum, to allow for a variety of distinct types of relationships to be explored on one continuous measure.

Despite the aforementioned limitations, this study had a number of strengths. The current study's use of a multi-dimensional measure of mating orientation is advantageous, as results were measured using a continuous format allowing for a continuum regarding each mating orientation. This is in contrast to previous research, which has generally measured these orientations in a dichotomous format (i.e., "Are you interested in a short-term relationship? Yes/No). Such a continuous scale is able to more efficiently capture the complexity of mating orientations than is possible when using a dichotomous format. Finally,

the internal consistency of the short- and long-term mating orientation scales are particularly high, indicating excellent reliability.

### **Implications and Conclusion**

Results of the current study have shown that reconceptualising the Dark Triad as a Dark Tetrad has significant utility when predicting men's and women's short- and long-term mating orientations. Such a result has important theoretical implications, as previous research on associations between the Dark Triad and human behaviours are now subject to reassessment.

Results showed that a stronger short-term mating orientation was associated with the male sex, and higher trait psychopathy and sadism. Meanwhile, lower levels of trait psychopathy and sadism, and higher levels of narcissism, were associated with a stronger long-term mating orientation. Finally, both men and women appear to express similar long-term mating orientations. In sum, the Dark Tetrad has shown utility in predicting short- and long-term mating orientations, and sadism is an important predictive variable for future research to consider. Most interestingly, the current study indicates that the traits of callousness, impulsivity (i.e., psychopathy), and sadism which ultimately orientate an individual towards a short-term mating strategy are the very traits that explain an individual avoiding a long-term mating strategy.

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