

**The Battle between Light and Dark Side of Personality: How Light and Dark
Personality Traits Predict Mating Strategies in the Online Context**

Abstract

In recent years, online dating websites, applications, and social media have become increasingly popular tools for finding romantic and/or sexual partners. Individual differences in personality traits predict the use of online dating websites and applications and also influence the motives for their use. Previous work regarding mating strategies in the context of online dating has focused on the Dark Tetrad concept of malevolent personality while ignoring the Light Triad concept of beneficent personality. Light and dark personality traits are not seen as polar opposites as they supplement each other. Thus, the current study aimed to explore the utility of both light (i.e., Faith in Humanity, Humanism, and Kantianism) and dark (i.e., Machiavellianism, narcissism, psychopathy, and sadism) personality traits in predicting mating strategies in the online context. A total of 216 participants, ages 20 to 56, which used online dating sites, apps, and social media for finding partners in the past year, completed an online questionnaire assessing Dark Tetrad traits, Light Triad traits, and mating orientations. Narcissism, psychopathy, and sadism positively correlated, while Faith in Humanity and Kantianism negatively correlated with short-term mating. However, only Faith in Humanity was a significant predictor of short-term mating. As for long-term mating, the results have shown that it is negatively related to psychopathy and sadism, while it is positively related to all Light Triad traits. Faith in Humanity, Humanism, and Kantianism were significant predictors of long-term mating. These findings highlight the utility of the Dark Tetrad and Light Triad traits in mating orientation research.

Keywords: Dark Tetrad, Light Triad, mating strategies, online dating

Introduction

In recent years, online dating websites, applications, and social media have become increasingly popular tools for finding romantic and/or sexual partners (Lyons, Messenger, Perry, & Brewer, 2020). With time, the usage of dating websites and applications has become less stigmatized (March, Grieve, Marrington, & Jonason, 2017). Online dating provides many unique benefits compared to face-to-face dating such as finding people who share similar interests, sexual orientation, and religious affiliations, a wider and more accessible partner pool, and more privacy and control (Anzani, Di Sarno, & Prunas, 2018; March et al., 2017). Furthermore, dating applications in particular, can run on smartphones and other types of devices, they are mostly free, they allow users to find a partner in their close surroundings by GPS, and online dating profiles can be connected with other social media profiles (Anzani et al., 2018). However, using online dating websites and applications also comes with some disadvantages such as experiencing antisocial behaviors in the forms of trolling, sexual harassment, objectification, cybercrime, and invasion of privacy (Duncan & March, 2019; March et al., 2017; Moor & Anderson, 2019). At first, dating apps, especially Tinder, were considered to be hook-up or sex apps (Sumter, Vandenbosch, & Ligtenberg, 2017). However, recent research has shown that dating applications are used for different motives such as love, casual sex, friendship, boredom, and self-validation (Barrada, Castro, Fernández del Río, & Ramos-Villagrasa, 2021; Sumter et al., 2017). Online dating websites and smartphone-based dating applications are specialized in enabling users to meet new people for potential short-term and long-term relationships (Timmermans & De Caluwé, 2017). On the other hand, people also use social networking sites (SNS) such as Facebook and Instagram to meet new romantic and/or sexual partners. The main difference between online dating services and social networking sites is that connections that are made through online dating sites and apps are not public (Timmermans & De Caluwé, 2017). In this paper, we will address how personality differences are related to mating behaviors on online dating websites, smartphone-based dating applications, and social media.

Types of mating strategies

According to the Sexual strategies theory, humans have evolved complex mating strategies (Buss & Schmitt, 2016). Buss and Schmitt (2016) distinguished between two types of mating strategies on a temporal dimension: short-term mating and long-term mating. Short-term mating is marked by one-night stands, casual hook-ups, brief affairs, while long-term

mating is marked by long-term pair bonding, heavy commitment, and biparental investment (Buss & Schmitt, 2016). These strategies were first seen as opposite poles on a single dimension – sociosexuality, which is defined as a willingness to engage in sexual intercourse without closeness or commitment (Holtzman & Strube, 2013; Jackson & Kirkpatrick, 2007; Penke & Asendorpf, 2008). However, recent research demonstrated that short-term and long-term mating are not mutually exclusive opposite poles of a single bipolar continuum, but rather largely independent strategies, which are differentially related to other variables (Holtzman & Strube, 2013; Jackson & Kirkpatrick, 2007).

Another commonly used framework to explain mating strategies is the life history theory (Figueredo et al., 2006; Kaplan & Gangestad, 2005). It is a middle-level evolutionary theory derived from the general evolutionary theory that is used to describe how living organisms strategically allocate bioenergetic and material resources for survival, mating, and parenting. Organisms have to make trade-offs between investing in mating and survival because of limited metabolic energy and time, and there are individual based differences in effort spent on mating and survival (Jonason & Zeigler-Hill, 2018). Life-history strategies can be differentiated on the fast-to-slow continuum (Valentova, Moraes Junior, Štěrbová, Varella, & Fisher, 2020). The fast life-history strategy is associated with uncommitted relationships, greater number of sexual partners, and more permissible attitudes toward casual sex, while the slow life-history strategy is associated with long-term mating (McDonald, Donnellan, & Navarrete, 2012; Valentova et al., 2020).

Mating strategies are context-dependent (Buss & Schmitt, 2016; Sevi, 2019). Online dating websites, applications, as well as social media provide a new mating context, which is important to examine (Buss & Schmitt, 2016; Sevi, 2019). The effect of individual differences in personality on pursued mating strategies has been recognized, especially in the domain of dark personality traits (Buss & Schmitt, 2016; Jonason, Li, Webster, & Schmitt, 2009). This will be described in the further text.

The Dark Tetrad personality traits and mating strategies

Individual differences in personality traits are related to the use of online dating websites and applications, and motives for their use (Timmermans & De Caluwé, 2017). Recent studies have focused on the effects of dark personality traits on motivations for using online dating and online dating behavior (Lyons et al., 2020; Moor & Anderson, 2019). For almost two decades now, the dark side of human personality was mainly addressed by studying

the Dark Triad of personality, which consists of Machiavellianism, narcissism, and psychopathy (Jonason & Middleton, 2015; Paulhus & Williams, 2002). In recent years, it has been suggested that everyday sadism should also be included in this constellation of dark personality traits, thus forming the Dark Tetrad (Buckels, Jones, & Paulhus, 2013; Međedović & Petrović, 2015; Paulhus, Buckels, Trapnell, & Jones, 2021). Therefore, the concept of Dark Tetrad encompasses personality traits of Machiavellianism, narcissism, psychopathy, and sadism, which represent, as a whole, a disposition towards amoral and antisocial behavior (Međedović & Petrović, 2015). These traits are interrelated, but at the same time distinct (Lyons et al., 2020; Međedović & Petrović, 2015).

Machiavellianism is characterized by superficial charm, cynicism, coldness, manipulateness, opportunism, and a pragmatic morality, where ends justify the means (Paulhus & Williams, 2002). Machiavellianism was shown in previous research to be positively related to pursuing short-term mating strategies in Tinder users and sociosexuality (Blötner, Ziegler, Wehner, Back, & Grosz, 2021; Sevi, 2019). Dating app users with higher levels of Machiavellianism also reported higher motivation to use Tinder and other dating apps for sex, and other utilitarian reasons such as peer pressure, acquiring social or flirting skills, social approval, and to pass the time (Freyth & Batinic, 2021; Lyons et al., 2020; Sevi, 2019; Timmermans, De Caluwé, & Alexopoulos, 2018). Machiavellistic individuals may be more prone to short-term mating as they are more reluctant to engage in committed intimate relationships, which leads them to be emotionally detached from other people (Ali & Chamorro-Premuzic, 2010).

Narcissism is composed of vanity, grandiosity, dominance, superiority, and entitlement (Paulhus & Williams, 2002). Narcissism has previously been shown to be positively correlated to sociosexuality and using Tinder for short-term mating (Blötner et al., 2021; Sevi, 2019). Prior research has also shown that higher levels of narcissism in Tinder users are positively related to using Tinder for social approval, entertainment (passing time), distraction, while negatively related to using Tinder for acquiring social or flirting skills (Lyons et al., 2020; Timmermans et al., 2018). Narcissists are likely to pursue short-term mating as they lack empathy, possess unrealistic fantasies concerning romantic relationships, and behave exploitatively in interpersonal relationships (Schmitt et al., 2017).

Psychopathy includes characteristics such as thrill-seeking, aggressiveness, impulsivity, criminality, low fear and anxiety, callousness, and limited empathy (Paulhus & Williams, 2002). Psychopathy was shown to be positively correlated with short-term mating in Tinder users and sociosexuality (Blötner et al., 2021; Sevi, 2019). In line with this, high

psychopathy individuals mainly use dating apps for finding casual sex partners (Freyth & Batinic, 2021; Lyons et al., 2020; Sevi, 2019; Timmermans et al., 2018). Individuals with high levels of trait psychopathy are more likely to express a short-term mating orientation as they pursue an exploitative, impulsive, and aggressive mating strategy (Furnham, Richards, & Paulhus, 2013).

Finally, sadism (also called subclinical or everyday sadism) represents experiencing feelings of pleasure in connection with inflicting verbal and/or physical harm to other people (Buckels et al., 2013). Sadism, as the most recent addition to the dark personality framework, was the least investigated regarding its relationship with mating strategies in users of online dating. Generally, it has been shown that the trait of sadism has positive associations with short-term mating, while it has negative associations with long-term mating (Book et al., 2016; Blötner et al., 2021; Tsoukas & March, 2018). This can be expected based on the sexually exploitive nature of sadism (Tsoukas & March, 2018). Sadism is strongly associated with sexually deviant behaviors (Buckels et al., 2013). Therefore, individuals high in sadism might use online dating websites and applications as a mechanism to facilitate engaging in short-term sadistic sexual interactions (Duncan & March, 2019). In one study, however, it was obtained that sadism does not predict any of the motivations for using Tinder (Lyons et al., 2020).

Previous studies have shown that the Dark Triad is positively associated with short-term mating strategies (Borráz-León & Rantala, 2021; Burtäverde, Jonason, Ene, & Istrate, 2021; Kaufman, Yaden, Hyde, & Tsukayama, 2019; Sevi, 2019), and a recent study has shown that the Dark Tetrad is positively associated with short-term mating (Blötner et al., 2021). This is probably because with these types of short-term encounters individuals high in dark personality traits gain resources and pleasure without the costs of investing in long-term relationships and parenting (Jonason, Koenig, & Tost, 2010). From the perspective of life history theory, individuals high in dark traits may adopt a fast life strategy and engage in negative behaviors in order to gain short-term rewards at the expense of long-term relationships (Min, Pavisic, Howald, Highhouse, & Zickar, 2019). Moreover, the Dark Triad is positively correlated with a manipulative love style (Kaufman et al., 2019).

The Light Triad personality traits and mating strategies

While the dark side of personality both in the form of the Dark Triad and the Dark Tetrad constantly remains in the focus of research, there is also a need to examine the light side of personality (Lukić & Živanović, 2021; Sevi & Doğruyol, 2020). Recently, Kaufman et al.

(2019) developed a scale, which aims to represent a loving and beneficent orientation towards others, i.e., the Light Triad, and consists of three related yet distinct personality traits: Faith in Humanity, Humanism, and Kantianism. It is important to note that the Light Triad is not merely an inverse of the Dark Triad (and the Dark Tetrad), as the absence of darkness does not necessarily imply the presence of lightness (Kaufman et al., 2019).

Faith in Humanity is broadly defined as the belief in the fundamental goodness of humans (Kaufman et al., 2019). Faith in Humanity was shown to be positively correlated with using Tinder for long-term mating (Sevi & Doğruyol, 2020). Humanism encompasses people who value the dignity and worth of each person (Kaufman et al., 2019). Humanism was found to be positively correlated with motivation to use Tinder for long-term mating (Sevi & Doğruyol, 2020). Lastly, Kantianism implies treating people as ends unto themselves, not as mere means to an end, and presents a contrast to Machiavellianism from the frameworks of the Dark Triad and the Dark Tetrad (Kaufman et al., 2019). Lower levels of Kantianism were found to be significantly correlated with higher levels of sociosexuality and with higher levels of motivation to use Tinder for short-term mating (Sevi & Doğruyol, 2020). It can be expected that a person high in Kantianism would be interested in long-term relationships as they tend to be honest and authentic in their interactions with others and avoid manipulation (Sevi, Urganci, & Sakman, 2020). In previous studies, total scores on the Light Triad were negatively associated with sociosexuality, while positively associated with the motivation for using Tinder for long-term mating (Kaufman et al., 2019; Sevi & Doğruyol, 2020). By drawing on life history theory, we can expect that individuals high in Light Triad traits will adopt slow life history strategy and pursue long-term mating relations as a reflection of their tendency to be oriented towards other people (Sevi & Doğruyol, 2020). In addition, higher total scores on the Light Triad were related to love styles that involve romantic love, friendship love, and altruistic love (Kaufman et al., 2019).

The current study

When comparing the findings from previous studies, we can see that the traits from the Light Triad and the Dark Tetrad differentially relate to short- and long-term mating strategies. Additionally, we should acknowledge the existing differences between traditional and online dating and the influence of these differences on mating strategies (Rosen, Cheever, Cummings, & Felt, 2008). Previous work regarding mating strategies in the context of online dating has focused on the malevolent side of human nature while ignoring the beneficent side of human

nature. In addition to that, previous studies focused on preferences toward short-term mating when investigating links with Dark Triad/Dark Tetrad, however little is known about preferences toward long-term mating. Hence, the current study aimed to explore the utility of both light and dark personality traits in predicting mating strategies in the online context. More specifically, we wanted to examine the incremental value of the Light Triad traits over and above the Dark Tetrad traits, as these traits have been significantly less examined in the domain of mating strategies. Similar studies have shown that light and dark traits do not act as opposite poles on a common spectrum of human personality, as they have been shown to predict distinct criteria (Kaufman et al., 2019; Lukić & Živanović, 2021; March & Marrington, 2021; Sevi et al., 2020). Hence, it can be expected that light and dark traits enhance each other's prediction of respective crucial criteria, in this case, long-term mating in light traits and short-term mating in dark traits. Based on previous research, it was hypothesized that higher levels of Dark Tetrad traits would predict higher short-term mating orientation, while higher levels of Light Triad traits would predict higher long-term mating orientations.

Method

Sample and procedure

The sample consisted of 216 participants (age range: 20–56 years, $M_{age} = 29.05$, $SD = 7.74$; 160 females). The majority of participants identified themselves as heterosexual (83.8%), 8.3% as bisexual, 6.9% as homosexual, while .9% of the remaining participants described themselves as other sexual orientations. The sample was recruited via social networks and through snowball procedure. The inclusion criterion for the study was the use of mobile dating applications, dating websites, and social media for finding a romantic and/or sexual partner in the past year. Participants were asked to report on which specific social media, dating websites, and mobile dating apps they were seeking mating opportunities. Compared to other mobile dating apps, websites, and social media, Tinder, Facebook, and Instagram were most frequently used for finding a romantic and/or sexual partner (33.4%, 19.6%, and 18.2% respectively). All participants were treated in accordance with 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was conducted in accordance with the Code of Ethics of the Association of Psychologists of Serbia. Participation was anonymous, voluntary, and without financial compensation. Before taking part in the study, all participants provided their informed consent.

Instruments and measures

The Short Dark Tetrad (SD4; Paulhus et al., 2021, for Serbian adaptation see Dinić, 2020). We used this scale to measure the Dark Tetrad. The scale contains four subscales: Machiavellianism, narcissism, psychopathy, and sadism. Each of the four subscales consists of 7 items rated by using a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*).

The Light Triad Scale (LTS; Kaufman et al., 2019, for Serbian adaptation see Lukić & Živanović, 2021). This scale was used as a measure of the Light Triad. The scale assesses loving and beneficent orientation toward others with three facets: Kantianism, Humanism, and Faith in Humanity. The LTS contains 12 items in total (4 items per facet). Participants gave answers on a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*).

Sociosexual Orientation Inventory-Revised (SOI-R; Penke & Asendorpf, 2008). This instrument assesses sociosexual orientation/short-term mating orientation with three facets: Behavior, Attitude, and Desire. The SOI-R consists of 9 items in total (3 items per facet). Items are rated on a 5-point scale, ranging from 1 = 0 to 5 = 8 or more in the Behavior facet, from 1 = *strongly disagree* to 5 = *strongly agree* in the Attitude facet, and from 1 = *never* to 5 = *nearly every day* in the Desire facet. A total sociosexual orientation score, which was used in the study, was computed by averaging all of the items.

The Long-Term Mating Orientation Scale (LTMO; Jackson & Kirkpatrick, 2007). This instrument assesses long-term mating orientations with a single dimension. The LTMO consists of 7 items accompanied by a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*). Items were averaged to create the total score on the scale.

Results

Descriptive statistics and reliability

All of the light traits, both types of mating strategies, and some of the dark traits (except for Machiavellianism and narcissism) showed deviations from normal distributions, as their standardized skewness and/or kurtosis values exceeded the threshold of the absolute value of 1.96 (95% confidence interval; see Table 1). Long-term mating and Light Triad traits showed a bias towards higher scores, while psychopathy, sadism, and short-term mating showed a bias towards lower scores. With that being said, the average scores for the Dark Tetrad traits and the Light Triad traits are in line with those from previous studies (e.g., Kaufman et al., 2019; Lukić & Živanović, 2021). The measures of internal consistency (Cronbach's α) ranged from

unacceptably low (the lowest for Kantianism) to high (the highest for long-term mating; Table 1).

Table 1

Descriptive statistics and reliability for study variables.

	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Ku</i>	α
Machiavellianism	1.29	5.00	3.00	.66	-.43	.50	.60
Narcissism	1.00	4.86	2.75	.82	.04	-1.13	.79
Psychopathy	1.00	3.57	1.87	.62	4.39	-.68	.68
Sadism	1.00	4.00	1.84	.65	4.83	.06	.69
Faith in Humanity	1.25	5.00	3.60	.83	-3.13	-1.24	.75
Humanism	1.50	5.00	4.19	.63	-6.54	4.75	.63
Kantianism	1.00	5.00	4.10	.70	-5.02	3.54	.58
Short-term mating	1.00	4.78	2.70	.89	1.46	-2.16	.85
Long-term mating	1.57	5.00	4.33	.79	-8.61	4.78	.89

Notes. *Min* – minimum; *Max* – maximum; *M* – mean; *SD* – standard deviation; *Sk* – standardized skewness; *Ku* – standardized kurtosis; α – internal consistency.

The relations of the Dark Tetrad and Light Triad traits with mating strategies

First of all, we examined the relations among the Dark Tetrad and Light Triad traits and mating strategies through bivariate correlations (Table 2). We also examined partial correlations between these variables controlling for sex of the participant (also Table 2).

Table 2

Correlation coefficients of study variables.

	1	2	3	4	5	6	7	8	9
1. Machiavellianism	—	.17*	.24**	.24**	-.20**	-.20**	-.32**	.07	.02
2. Narcissism	.18**	—	.32**	.28**	-.01	-.04	-.26**	.17*	-.07
3. Psychopathy	.25**	.32**	—	.42**	-.29**	-.24**	-.06	.19**	-.15*
4. Sadism	.29**	.30**	.41**	—	-.26**	-.17*	-.16*	.21**	-.14*
5. Faith in Humanity	-.19**	-.01	-.29**	-.23**	—	.38**	.20**	-.25**	.33**
6. Humanism	-.20**	-.05	-.24**	-.17*	.37**	—	.30**	-.04	.32**
7. Kantianism	-.31**	-.25**	-.05	-.14*	.20**	.30**	—	-.20**	.25**
8. Short-term mating	.11	.18**	.20**	.28**	-.24**	-.05	-.19**	—	-.32**
9. Long-term mating	.01	-.08	-.15*	-.16*	.33**	.32**	.25**	-.32**	—

Notes. The lower diagonal represents bivariate correlations, the upper diagonal represents partial correlations between study variables controlling for sex; * $p < .05$; ** $p < .01$.

The correlation between short-term and long-term mating was moderate and negative and remained the same after controlling for sex. This is consistent with previous results, which show that short-term and long-term mating are not polar opposites (e.g., Holtzman & Strube, 2013; Jackson & Kirkpatrick, 2007).

The correlations between the Dark Tetrad and Light Triad traits, which were significant, ranged from low to moderate, and they were in the expected direction. The correlations between dark and light traits remained even after controlling for sex. The results

of the analysis are in line with those from previous studies, which show that the Light Triad traits are not simply the opposites of the Dark Tetrad traits (e.g., Kaufman et al., 2019; Lukić & Živanović, 2021).

Narcissism, psychopathy, and sadism positively correlated with short-term mating, while Faith in Humanity and Kantianism negatively correlated with this mating strategy, and these correlations remained significant after controlling for sex. As for long-term mating, the results have shown that it is negatively related to psychopathy and sadism, while it is positively related to all Light Triad traits, and these correlations still remained significant after controlling for sex.

After that, we conducted two hierarchical multiple regression analyses specified as follows: (a) Dark Tetrad and Light Triad traits as predictors, short-term mating as criterion, and sex as the control variable in the first model; and (b) Dark Tetrad and Light Triad traits as predictors, long-term mating as criterion, and sex as the control variable in the second model. In both models, sex was entered in the first step, the Dark Tetrad traits were entered in the second step, while the Light Triad traits were entered in the third. In this way, we wanted to investigate if there was incremental value of the Light Triad traits over and above the Dark Tetrad traits because the predictive value of Light Triad traits was significantly less investigated compared to Dark Tetrad traits regarding mating strategies. In the regression models, we only used as predictors variables that exhibited significant zero-order correlations in order to avoid suppressor effects and multicollinearity. The results of these analyses can be seen in Table 3.

Table 3

Incremental value of the Light Triad over the Dark Tetrad traits in prediction of short-term and long-term mating after controlling for sex.

Variables	STM			LTM		
	β_1	β_2	β_3	β_1	β_2	β_3
Sex	.22**	.14	.17*	-.07	-.02	-.06
Machiavellianism	/	/	/	/	/	/
Narcissism	/	.09	.08	/	/	/
Psychopathy	/	.10	.06	/	-.11	-.03
Sadism	/	.16	.10	/	-.10	-.02
Faith in Humanity	/	/	-.18**	/	/	.22**
Humanism	/	/	/	/	/	.18**
Kantianism	/	/	-.12	/	/	.15**

Notes. Sex is coded as Female = 1; Male = 2; STM – short-term mating; LTM – long-term mating; β_1 – standardized regression coefficients in step 1; β_2 – standardized regression coefficients in step 2; β_3 – standardized regression coefficients in step 3; * $p < .05$; ** $p < .01$.

Sex of the participant entered in the first step was a significant predictor of short-term mating in this step and explained 4.7 % of short-term mating variance ($F(1, 214) = 10.54, p < .01$). In the second step, when Dark Tetrad traits were added, the proportion of the explained variance of short-term mating increased to 11 % ($F(4, 211) = 6.51, p < .01$), although their individual contribution as predictors was insignificant. Finally, in the last step, when Light Triad traits were added, Faith in Humanity was the only light personality trait that was a significant predictor of short-term mating, and the proportion of the explained variance of short-term mating increased to 15.9 % ($F(6, 209) = 6.59, p < .01$).

Sex of the participant entered in the first step of the analysis, was not a significant predictor of long-term mating, and thus did not significantly explain long-term mating variance. In the second step, when Dark Tetrad traits were added, it was shown that these traits did not significantly predict long-term mating. Finally, in the third step, when Light Triad traits were added, all of the Light Triad traits were significant predictors of long-term mating, and these traits accounted for 17.6% of the variance of this construct ($F(6, 209) = 7.46, p < .01$).

To evaluate the influence of using partialized scores instead of total scores on the Dark Tetrad and Light Triad in the analyses, we quantified the agreement between bivariate correlations and standardized regression weights using double-entry intraclass correlations coefficients (ICC_{DE} ; Furr, 2010; McCrae, 2008). To calculate the coefficients, we used the R package *iccde* (Version 0.3.2; Blötner & Grosz, 2021). For relations of Dark Tetrad traits with short-term mating, $ICC_{DE} = -.32$, which showed that there is high bias resulting from partialing. The case is similar for relations of Light Triad traits with short-term mating, with $ICC_{DE} = -.17$. Regarding relations of Dark Tetrad traits with long-term mating, there was very low agreement between bivariate correlations and standardized regression weights, with $ICC_{DE} = -1.00$. There was also low agreement between bivariate correlations and standardized regression weights in the case of relations of Light Triad traits with long-term mating ($ICC_{DE} = -.56$).

Discussion

This study aimed to investigate the utility of both light and dark personality traits in predicting mating strategies in the domain of online dating. Our results suggest that both darker and lighter aspects of personality are related to mating strategies in users of online dating. The present work demonstrates that light and dark personality traits have distinct relational patterns with short- and long-term mating, respectively. The present study supports results from previous studies (Kaufman et al., 2019; Lukić & Živanović, 2021; March & Marrington, 2021;

Sevi et al., 2020), which indicate that light traits are not just opposite of the dark traits, and extends to show that individuals with light and dark traits have distinct patterns of motivational and behavioral tendencies in the domain of online dating.

Discussion of the relationship between Dark Tetrad personality traits and mating strategies

It was predicted that higher levels of Dark Tetrad traits would predict higher short-term mating orientation. However, none of the traits significantly predicted short-term mating.

The absence of associations between short-term mating and Machiavellianism is supported by previous research and suggests that Machiavellianism perhaps has an irrelevant role in short-mating (Jonason, Luevano, & Adams, 2012; Tsoukas & March, 2018). Individuals high in Machiavellianism demonstrate flexibility in their mating styles (Furnham et al., 2013). In addition to this, Machiavellian individuals often benefit from a more strategic and regulated mating style, where they are able to express their tendency to manipulate through different mate-retention behaviors such as punishing their partners, manipulating emotions, and inducing jealousy (Furnham et al., 2013; Tsoukas & March, 2018).

Narcissism, psychopathy, and sadism positively correlated with short-term mating; however, they were not significant predictors of short-term mating. Similar correlations were obtained in another study (Tsoukas & March, 2018). Nevertheless, it was surprising these traits did not significantly predict short-term mating. One possible explanation for narcissism is that its relation with short-term mating depends on the instrument used to measure it (Davis, Visser, Volk, Vaillancourt, & Arnocky, 2018). Narcissism as a trait may contain a mixture of indicators of both slow and fast life history strategies (Jonason et al., 2017). Individuals high in narcissism show a variety of mating preferences, including one-night stands, friends with benefits, but also serious relationships (Jonason et al., 2012). Mixed bivariate and multivariate results described above regarding psychopathy and sadism can be explained by sadism and psychopathy being redundant with one another (Davis et al., 2018). The obtained double-entry intraclass correlation coefficient additionally supports this assumption. Another potential explanation for the absence of predictive utility of narcissism, psychopathy, and sadism is limited content coverage of the Short Dark Tetrad scale. Finally, sex of the participant explained a significant amount of variance in short-term mating, with men expressing a stronger orientation to short-term mating compared to women. This supports previous research (e.g., Buss, 2013; Buss & Schmitt, 2019; Marzoli, Havlíček, & Roberts, 2017), and indicates

participant's sex may play a significantly more important role in short-term mating compared to dark personality traits.

None of the traits from the Dark Tetrad significantly predicted long-term mating. This corroborates previous research done on the Dark Triad and can be explained by the fact that individuals high on Dark Triad traits are not interested nor suited for long-term relationships (Jonason et al., 2009). Quite the opposite, these individuals are suited for interactions with others in short-term durations (Jonason et al., 2009). In the context of research on online dating, this result is consistent with a result from a previous study where no significant correlations were found between Dark Triad traits and motivation to use Tinder for long-term mating (Sevi, 2019). Alternatively, failure of the Dark Tetrad traits to predict long-term mating can be ascribed to the multicollinearity problems, as psychopathy and sadism had negative zero-order correlation with long-term mating.

Discussion of the relationship between Light Triad personality traits and mating strategies

Results of the current study showed that only Faith in Humanity was a significant negative predictor of short-term mating. Faith in Humanity, as a belief that people are fundamentally good, is conceptually opposed to distrust, which might lead individuals low in Faith in Humanity to have a lack of trust in people and to be more prone to short-term relationships (Tweed, Mah, & Conway, 2020). This finding is in line with previous research which shows that the Light Triad traits negatively relate to various outcomes, with which the Dark Tetrad traits relate positively (Kaufman et al., 2019; Lukić & Živanović, 2021).

It was predicted that the Light Triad traits would explain a significant amount of variance in long-term mating orientation. Results of this study supported this prediction. This supports previous research, which found the Light Triad to be significantly related to motivation to use Tinder for finding a long-term partner (Sevi & Doğruyol, 2020). In previous research, individuals who are higher on the Light Triad also reported being primarily motivated by intimacy (Kaufman et al., 2019). This may be one of the reasons they seek long-term relationships. In addition to this reason, individuals scoring higher on the Light Triad also report more romantic love in their relationships, which can only be realized through serious and committed relationships (Kaufman et al., 2019). In the context of internet dating, the loving, beneficent, and cooperation-promoting nature of the Light Triad may motivate

individuals to seek long-term partners on the internet (Kaufman et al., 2019; Sevi & Doğruyol, 2020).

Limitations and directions for future research¹

Several possible limitations of the present study should be addressed. The study had a small to medium sample size. The sample was homogenous as it was obtained through snowball sampling (e.g., Cohen & Arieli, 2011). As the study had a cross-sectional design, potential developmental or time-variant factors were neglected such as changing mating strategies over time. Therefore, future studies could use a longitudinal study design in order to examine the roles of light and dark traits in using online dating websites and applications. It would be valuable to examine longitudinally, for instance, the influence of dark and light traits on the frequency of use of online dating platforms, preference of short- vs. long-term mating, infidelity, and on the openness of expressing one's true intentions. Due to the dissimilarities of traditional and online dating contexts (Rosen et al., 2008), results may be different in the traditional mating context. This should be further investigated in future research. In future studies, it would be valuable to construct and include other-ratings in addition to self-ratings, as well as real-life behaviors, in order to assess these light and dark traits more objectively. Another limitation of the study is low reliability of some scales especially Machiavellianism and Kantianism. Finally, it would be valuable to replicate this study with more extensive measures of the Light Triad traits, which remain to be developed.

Conclusions

Obtained findings contribute to the understanding of predictors of mating strategies in the online context. In sum, there was a significant utility of Faith in Humanity in predicting short-term mating orientation. Meanwhile, all of the Light Triad Traits have shown utility in predicting long-term mating orientation. Results of the current study highlight the importance of investigating the light side of human nature.

¹ We would like to thank an anonymous reviewer for giving us suggestions on limitations of the present study and areas for future research.

References

- Ali, F., & Chamorro-Premuzic, T. (2010). The dark side of love and life satisfaction: Associations with intimate relationships, psychopathy and Machiavellianism. *Personality and Individual Differences*, 48(2), 228–233. <https://doi.org/10.1016/j.paid.2009.10.016>
- Anzani, A., Di Sarno, M., & Prunas, A. (2018). Using smartphone apps to find sexual partners: A review of the literature. *Sexologies*, 27(3), e61–e65. <https://doi.org/10.1016/j.sexol.2018.05.001>
- Barrada, J. R., Castro, Á., Fernández del Río, E., & Ramos-Villagrasa, P. J. (2021). Do young dating app users and non-users differ in mating orientations? *PLOS ONE*, 16(2), e0246350. <https://doi.org/10.1371/journal.pone.0246350>
- Blötner, C., & Grosz, M. P. (2021). *iccde: Computation of the double-entry intraclass correlation (R package version 0.3.2)*. CRAN. <https://cran.rproject.org/package=iccde>
- Blötner, C., Ziegler, M., Wehner, C., Back, M. D., & Grosz, M. P. (2021). The nomological network of the Short Dark Tetrad Scale (SD4). *European Journal of Psychological Assessment*. Advance online publication. <https://doi.org/10.1027/1015-5759/a000655>
- Book, A., Visser, B. A., Blais, J., Hosker-Field, A., Methot-Jones, T., Gauthier, N. Y., Volk, A., Holden, R. R., & D'Agata, M. T. (2016). Unpacking more “evil”: What is at the core of the dark tetrad?. *Personality and Individual Differences*, 90, 269–272. <https://doi.org/10.1016/j.paid.2015.11.009>
- Borráz-León, J. I., & Rantala, M. J. (2021). Does the Dark Triad predict self-perceived attractiveness, mate value, and number of sexual partners both in men and women? *Personality and Individual Differences*, 168, 110341. <https://doi.org/10.1016/j.paid.2020.110341>
- Buckels, E. E., Jones, D. N., & Paulhus, D. L. (2013). Behavioral confirmation of everyday sadism. *Psychological Science*, 24(11), 2201–2209. <https://doi.org/10.1177/0956797613490749>
- Burtăverde, V., Jonason, P. K., Ene, C., & Istrate, M. (2021). On being “dark” and promiscuous: The Dark Triad traits, mate value, disgust, and sociosexuality. *Personality and Individual Differences*, 168, 110255. <https://doi.org/10.1016/j.paid.2020.110255>

- Buss, D. M. (2013). The science of human mating strategies: An historical perspective. *Psychological Inquiry*, 24(3), 171–177. <https://doi.org/10.1080/1047840x.2013.819552>
- Buss, D. M., & Schmitt, D. P. (2016). Sexual strategies theory. In T. K. Shackelford & V. A. Weekes-Shackelford (Eds.), *Encyclopedia of Evolutionary Psychological Science*. Springer: Cham. http://dx.doi.org/10.1007/978-3-319-16999-6_1861-1
- Buss, D. M., & Schmitt, D. P. (2019). Mate preferences and their behavioral manifestations. *Annual Review of Psychology*, 70(1), 77–110. <https://doi.org/10.1146/annurev-psych-010418-103408>
- Cohen, N., & Arieli, T. (2011). Field research in conflict environments: Methodological challenges and snowball sampling. *Journal of Peace Research*, 48(4), 423–435. <https://doi.org/10.1177/0022343311405698>
- Davis, A. C., Visser, B. A., Volk, A. A., Vaillancourt, T., & Arnocky, S. (2018). The relations between life history strategy and dark personality traits among young adults. *Evolutionary Psychological Science*, 5(2), 166–177. <https://doi.org/10.1007/s40806-018-0175-3>
- Dinić, B. (2020). Serbian adaptation of the Short Dark Tetrad (SD4). Unpublished manuscript.
- Duncan, Z., & March, E. (2019). Using Tinder® to start a fire: Predicting antisocial use of Tinder® with gender and the Dark Tetrad. *Personality and Individual Differences*, 145, 9–14. <https://doi.org/10.1016/j.paid.2019.03.014>
- Figueredo, A., Vásquez, G., Brumbach, B., Schneider, S., Sefcek, J., Tal, I., ... Jacobs, W. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review*, 26(2), 243–275. <https://doi.org/10.1016/j.dr.2006.02.002>
- Freyth, L., & Batinic, B. (2021). How bright and dark personality traits predict dating app behavior. *Personality and Individual Differences*, 168, 110316. <https://doi.org/10.1016/j.paid.2020.110316>
- Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The Dark Triad of personality: A 10 year review. *Social and Personality Psychology Compass*, 7(3), 199–216. <https://doi.org/10.1111/spc3.12018>
- Furr, R. M. (2010). The double-entry intraclass correlation as an index of profile similarity: Meaning, limitations, and alternatives. *Journal of Personality Assessment*, 92(1), 1–15. <https://doi.org/10.1080/00223890903379134>

- Holtzman, N. S., & Strube, M. J. (2013). Above and beyond short-term mating, long-term mating is uniquely tied to human personality. *Evolutionary Psychology*, *11*(5), 147470491301100. <https://doi.org/10.1177/147470491301100514>
- Jackson, J. J., & Kirkpatrick, L. A. (2007). The structure and measurement of human mating strategies: Toward a multidimensional model of sociosexuality. *Evolution and Human Behavior*, *28*(6), 382–391. <https://doi.org/10.1016/j.evolhumbehav.2007.04.005>
- Jonason, P. K., & Middleton, J. P. (2015). Dark Triad: The “dark side” of human personality. In *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)* (pp. 671–675). Elsevier.
- Jonason, P. K., & Zeigler-Hill, V. (2018). The fundamental social motives that characterize dark personality traits. *Personality and Individual Differences*, *132*, 98–107. <https://doi.org/10.1016/j.paid.2018.05.031>
- Jonason, P. K., Foster, J. D., Egorova, M. S., Parshikova, O., Csathó, Á., Oshio, A., & Gouveia, V. V. (2017). The Dark Triad traits from a life history perspective in six countries. *Frontiers in Psychology*, *8*. <https://doi.org/10.3389/fpsyg.2017.01476>
- Jonason, P. K., Koenig, B. L., & Tost, J. (2010). Living a fast life. *Human Nature*, *21*(4), 428–442. <https://doi.org/10.1007/s12110-010-9102-4>
- Jonason, P. K., Li, N. P., Webster, G. D., & Schmitt, D. P. (2009). The dark triad: Facilitating a short-term mating strategy in men. *European Journal of Personality*, *23*(1), 5–18. <https://doi.org/10.1002/per.698>
- Jonason, P. K., Luevano, V. X., & Adams, H. M. (2012). How the Dark Triad traits predict relationship choices. *Personality and Individual Differences*, *53*(3), 180–184. <https://doi.org/10.1016/j.paid.2012.03.007>
- Kaplan, H. S., & Gangestad, S. W. (2005). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 68–96). New York: Wiley.
- Kaufman, S. B., Yaden, D. B., Hyde, E., & Tsukayama, E. (2019). The light vs. Dark Triad of personality: Contrasting two very different profiles of human nature. *Frontiers in Psychology*, *10*. <https://doi.org/10.3389/fpsyg.2019.00467>
- Lukić, P., & Živanović, M. (2021). Shedding light on the Light Triad: Further evidence on structural, construct, and predictive validity of the Light Triad. *Personality and Individual Differences*, *178*, 110876. <https://doi.org/10.1016/j.paid.2021.110876>

- Lyons, M., Messenger, A., Perry, R., & Brewer, G. (2020). The Dark Tetrad in Tinder: Hook-up app for high psychopathy individuals, and a diverse utilitarian tool for Machiavellians? *Current Psychology*. <https://doi.org/10.1007/s12144-019-00589-z>
- March, E., & Marrington, J. Z. (2021). Antisocial and prosocial online behaviour: Exploring the roles of the Dark and Light Triads. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01552-7>
- March, E., Grieve, R., Marrington, J., & Jonason, P. K. (2017). Trolling on Tinder® (and other dating apps): Examining the role of the Dark Tetrad and impulsivity. *Personality and Individual Differences*, *110*, 139–143. <https://doi.org/10.1016/j.paid.2017.01.025>
- Marzoli, D., Havlíček, J., & Roberts, S. C. (2017). Human mating strategies: From past causes to present consequences. *Wiley Interdisciplinary Reviews: Cognitive Science*, *9*(2), e1456. <https://doi.org/10.1002/wcs.1456>
- McCrae, R. R. (2008). A note on some measures of profile agreement. *Journal of Personality Assessment*, *90*(2), 105–109. <https://doi.org/10.1080/00223890701845104>
- McDonald, M. M., Donnellan, M. B., & Navarrete, C. D. (2012). A life history approach to understanding the Dark Triad. *Personality and Individual Differences*, *52*(5), 601–605. <https://doi.org/10.1016/j.paid.2011.12.003>
- Mededović, J., & Petrović, B. (2015). The Dark Tetrad: Structural properties and location in the personality space. *Journal of Individual Differences*, *36*(4), 228–236. <https://doi.org/10.1027/1614-0001/a000179>
- Min, H., Pavisic, I., Howald, N., Highhouse, S., & Zickar, M. J. (2019). A systematic comparison of three sadism measures and their ability to explain workplace mistreatment over and above the dark triad. *Journal of Research in Personality*, *82*, 103862. <https://doi.org/10.1016/j.jrp.2019.103862>
- Moor, L., & Anderson, J. R. (2019). A systematic literature review of the relationship between dark personality traits and antisocial online behaviours. *Personality and Individual Differences*, *144*, 40–55. <https://doi.org/10.1016/j.paid.2019.02.027>
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, *36*(6), 556–563. [https://doi.org/10.1016/s0092-6566\(02\)00505-6](https://doi.org/10.1016/s0092-6566(02)00505-6)
- Paulhus, D. L., Buckels, E. E., Trapnell, P. D., & Jones, D. N. (2021). Screening for dark personalities: The short Dark Tetrad. *European Journal of Psychological Assessment*, *37*(3), 208–222. <https://doi.org/10.1027/1015-5759/a000602>

- Penke, L., & Asendorpf, J. B. (2008). Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships. *Journal of Personality and Social Psychology*, *95*(5), 1113–1135. <https://doi.org/10.1037/0022-3514.95.5.1113>
- Rosen, L. D., Cheever, N. A., Cummings, C., & Felt, J. (2008). The impact of emotionality and self-disclosure on online dating versus traditional dating. *Computers in Human Behavior*, *24*(5), 2124–2157. <https://doi.org/10.1016/j.chb.2007.10.003>
- Schmitt, D. P., Alcalay, L., Allik, J., Alves, I. C. B., Anderson, C. A., Angelini, A. L., Asendorpf, J. B., Austers, I., Balaguer, I., Baptista, A., Bender, S. S., Bennett, K., Bianchi, G., Birashk, B., Bleske-Rechek, A., Boholst, F. A., Boothroyd, L., Borja, T., Bos, A., . . . Kökény, T. (2017). Narcissism and the strategic pursuit of short-term mating: Universal links across 11 world regions of the International Sexuality Description Project-2. *Psihologijske Teme*, *26*(1), 89–137. <https://doi.org/10.31820/pt.26.1.5>
- Sevi, B. (2019). The dark side of Tinder: The Dark Triad of personality as correlates of Tinder use. *Journal of Individual Differences*, *40*(4), 242–246. <https://doi.org/10.1027/1614-0001/a000297>
- Sevi, B., & Doğruyol, B. (2020). Looking from the bright side: The Light Triad predicts Tinder use for love. *Journal of Social and Personal Relationships*, *37*(7), 2136–2144. <https://doi.org/10.1177/0265407520918942>
- Sevi, B., Urganci, B., & Sakman, E. (2020). Who cheats? An examination of light and dark personality traits as predictors of infidelity. *Personality and Individual Differences*, *164*, 110126. <https://doi.org/10.1016/j.paid.2020.110126>
- Sumter, S. R., Vandenbosch, L., & Ligtenberg, L. (2017). Love me Tinder: Untangling emerging adults' motivations for using the dating application Tinder. *Telematics and Informatics*, *34*(1), 67–78. <https://doi.org/10.1016/j.tele.2016.04.009>
- Timmermans, E., & De Caluwé, E. (2017). To Tinder or not to Tinder, that's the question: An individual differences perspective to Tinder use and motives. *Personality and Individual Differences*, *110*, 74–79. <https://doi.org/10.1016/j.paid.2017.01.026>
- Timmermans, E., De Caluwé, E., & Alexopoulos, C. (2018). Why are you cheating on tinder? Exploring users' motives and (dark) personality traits. *Computers in Human Behavior*, *89*, 129–139. <https://doi.org/10.1016/j.chb.2018.07.040>

- Tsoukas, A., & March, E. (2018). Predicting short-and long-term mating orientations: The role of sex and the Dark Tetrad. *The Journal of Sex Research*, 55(9), 1206–1218. <https://doi.org/10.1080/00224499.2017.1420750>
- Tweed, R. G., Mah, E. Y., & Conway, L. G. (2020). Bringing coherence to positive psychology: Faith in humanity. *The Journal of Positive Psychology*, 1–12. <https://doi.org/10.1080/17439760.2020.1725605>
- Valentova, J. V., Moraes Junior, F. P., Štěrbová, Z., Varella, M. A. C., & Fisher, M. L. (2020). The association between Dark Triad traits and sociosexuality with mating and parenting efforts: A cross-cultural study. *Personality and Individual Differences*, 154, 109613. <https://doi.org/10.1016/j.paid.2019.109613>