

Assortative Mating for Dark Triad Traits:
Evidence of Positive, Initial, and Active Assortment

Abstract

Assortative mating for Dark Triad (DT) traits was examined in a sample of 100 heterosexual dating couples. Three hypotheses regarding positive versus negative assortment, initial assortment versus convergence, and active assortment versus social homogamy were tested. All hypotheses were examined using both variable-centered approaches (VCA) and couple-centered approaches (CCA). Both approaches found modest to moderate degrees of positive assortment for all DT measures, suggesting the highest positive assortment for Machiavellianism, followed by psychopathy and Narcissism. Structural modelling also suggested moderate degrees of positive assortment for men's and women's latent DT constructs. As expected, results supported the initial assortment hypothesis, meaning that couples were already similar in DT at the beginning of their relationships and did not converge during their relationship. Similarity was not due to background variables such as age and education (e.g., social homogamy), supporting active assortment or preferences for mating with a partner who is similar in personality. Overall, the results converged with other findings documenting that in mate selection contexts similarity in personality appears to be more important than complementarity, even for socially undesirable traits such as Machiavellianism, Narcissism, and psychopathy.

Keywords: Assortative mating, Dark Triad traits, initial assortment versus convergence, active assortment versus social homogamy, variable-centered approach, couple-centered approach

Assortative Mating for Dark Triad Traits:

Evidence of Positive, Initial, and Active Assortment

Assortative mating is defined as nonrandom coupling of individuals based on their resemblance to each other on one or more characteristics (Buss, 1984). Research in this domain typically examines the degree of similarity (i.e., positive assortment) versus complementarity (i.e., negative assortment) of partner characteristics, and whether different types of assortment influence romantic relationship outcomes. Positive assortment for numerous characteristics such as intelligence, attitudes, interests, and personality traits has been found, often being linked to positive relationship outcomes such as satisfaction and quality (Blum & Mehrabian, 1999; Decuyper, De Bolle & De Fruyt, 2012; Luo, Chen, Yue, Zhang, Zhaoyang, & Xu, 2008; Luo & Klohnen, 2005; Morry, Kito, & Ortiz, 2011; Schmitt, 2002), though not always (Dyrenforth, Kashy, Donnellan, & Lucas, 2010). Additional scientific rationale for examining romantic relationship assortment and its consequences exists in domains related to human genetics. For instance, assortative mating may increase genetic variance in populations with offspring differing more from the average than they would if mating were random (Domingue, Fletcher, Conley, & Boardman, 2014). Furthermore, assortment affects estimates of heritability because it increases correlations for first degree relatives, and if not taken into account, could inflate heritability estimates in behavioral genetics research (Plomin, DeFries, Knopik, & Neiderhiser, 2013).

Previous studies show the strongest evidence of positive assortment for age (Verbakel & Kalmijn, 2014), followed by political and religious attitudes, education, intelligence, values, and personality traits (Watson et al., 2004). For personality traits, many studies have examined assortment across the comprehensive dimensions of the Big Five (or five-factor model). McCrae (1996) reported significant positive assortment in married couples for Openness and Conscientiousness, whereas Botwin, Buss and Shackelford (1997) found low

levels of positive assortment for Agreeableness, Conscientiousness, and Intellect-Openness. Watson, Hubbard, and Wiese (2000) obtained similarity correlations on the Big Five traits ranging from 0.07 for Conscientiousness to 0.36 for Openness in the dating couples, and from 0.06 for Neuroticism to 0.23 for Extraversion in the married couples. In contrast, Watson et al. (2004) found some evidence of complementarity for Big Five traits in a sample of newlywed couples. Extraversion, for instance, displayed significant negative assortment for both the self-ratings (-0.17) and spouse-ratings (-0.14). Additional analyses on the level of latent variables showed evidence of modest positive assortment for Neuroticism, Openness, and Agreeableness. Examining cultural influences on assortative mating, McCrae et al. (2008) found generally small positive assortment effects across cultures, with correlations greater than 0.40 for Openness and Agreeableness domains. In a sample of newlyweds, Luo and Klohnen (2005) found little or lack of assortment for five-factor personality traits. Overall, most studies show low to moderate positive assortment (i.e., similarity) for Big Five personality traits with the strongest and most consistent evidence of similarity for Openness.

Positive assortment also has been found for various socially undesirable psychological attributes, such as antisocial behaviors (Krueger, Moffit, Caspi, Bleske, & Silva, 1998), substance use disorders (Low, Cui, & Merikangas, 2007), bipolar disorder and major depression (Mathews & Reus, 2001), as well as “Dark Triad” (DT) personality traits such as psychoticism (Dubuis-Stadelmann, Fenton, Ferrero, & Preisig, 2001). Indeed, all three of the DT personality traits (i.e., Machiavellianism, Narcissism, and psychopathy; Paulhus & Williams, 2002) have been linked to antisocial interpersonal behaviors generally (e.g., bullying; Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009) and specifically to negative romantic relationship dynamics and outcomes (Jonason, Li, & Buss, 2010). If DT traits are associated with negative romantic relationship outcomes, it might seem maladaptive for people to actively choose to assort along these dimensions. In terms of friendships, evidence

suggest DT individuals help each other enact exploitative social strategies (Jonason & Schmitt, 2008), but within the same romantic relationship the adaptive rationale of choosing a partner high in DT traits remains unclear.

There have been few studies on assortative mating for individual DT traits, but extant evidence suggests that romantic partners assort positively for these traits. Savard, Sabourin and Lussier (2011), for instance, found positive assortative mating for global (0.32), primary (0.33) and secondary (0.18) psychopathy among a sample of 140 married and cohabiting young couples. Veronica Smith et al. (2014) found positive assortment for Machiavellianism (0.28), psychopathy (0.39), and the overall level of DT (0.28), with a slight negative assortment for narcissism (-0.23) among a sample of 45 heterosexual exclusive dating couples. Asquith, Lyons, Watson and Jonason (2013) found positive assortment preferences for all DT traits in long-term mating contexts, and for Machiavellianism and psychopathy in short-term mating contexts among a sample of women who rated fictional males described as high or low on DT traits. Overall, it appears that romantic partners seek out and eventually mate with partners who are similar to themselves in DT traits.

One of the most important questions left unanswered by previous investigations is whether the significant assortative mating observed for DT traits is due to *initial assortment* (i.e., couples are already similar in DT in the beginning of their relationship) or *convergence* (i.e., couples become more similar in DT over time). A related question is whether similarity correlations reflect *active assortment* (i.e., a preference for mating with a partner who is similar on a particular DT characteristic) or *social homogamy* (i.e., indirect influences on partner similarity due to common social environment; see Watson et al., 2004).

Current evidence for most personality traits provides stronger support for initial assortment rather than convergence (Gonzaga, Carter, & Galen Buckwalter, 2010). For example, similarity for various personality traits has been documented among samples of

newly dating couples and newlyweds who have yet had time enough for their personalities to converge (Bleske-Rechek, Remiker, & Baker, 2009; Luo & Klohnen, 2005; Watson et al., 2004). It also has been shown that the length of relationship among established couples does not moderate the degree of couple similarity for personality traits (Humbad, Donnellan, Iacono, McGue, & Burt, 2010). Moreover, relatively few longitudinal studies have found any evidence of convergence for personality traits such as Agreeableness, Conscientiousness, Openness (Rammstedt & Schupp, 2008), as well as, self-esteem (Bleske-Rechek et al., 2009). Regarding active assortment versus social homogamy as the key driving force behind couple similarity, previous research have shown that similarity in personality traits between partners is not due to the indirect background variables such as age and education (Luo & Klohnen, 2005; Nagoshi & Johnson, 1994; Watson et al., 2004).

There are two methodological approaches concerning assortative mating, variable-centered approaches (VCA) and couple-centered approaches (CCA; Luo & Klohnen, 2005). VCA is based on correlation between partners' scores on the same characteristic (e.g., values, personality traits, intelligence) across all couples in a sample. This approach has some important limitations (Luo & Klohnen, 2005). Namely, the correlations obtained tell us about the similarity of the samples of men and women, but not about the similarity of any specific couple. Consequently, it is difficult to examine whether couple similarity or complementarity is related to various relationship outcomes, which is possible by using CCA.

In this study, assortative mating for DT traits was investigated on the sample of 100 heterosexual dating couples using both VCA and CCA approaches. Additionally, three hypotheses (positive versus negative assortment; initial assortment versus convergence; and active assortment versus social homogamy) were tested. On the basis of previous results on assortative mating for personality traits, Hypothesis 1 states that we expect modest positive assortment (i.e., similarity) for all DT measures. Hypothesis 2 expects that initial assortment

(and not convergence) in DT will be observed across couples. This second hypothesis was based on past research showing little evidence of convergence in personality traits and the fact that DT traits in particular are especially stable over time (e.g., Lyman et al., 2009).

Hypothesis 3 states we expect stronger support for active assortment rather than social homogamy. In all cases, we expected confirmation of hypotheses using both VCA and CCA analytic techniques.

Method

Participants and procedure

A total of 100 heterosexual romantic couples were recruited by snowball sampling. The inclusion criteria for the study required that couples had been in romantic relationship no less than 6 months. At the time of assessment the relationship lengths ranged from 6 months to 11 years ($M = 3.5$ years; $SD = 3.76$ years), and 23% of couples were currently living together.

The participants' age ranged from 18 to 31 years ($M = 24.57$ years, $SD = 3.16$ for men; $M = 23.20$ years, $SD = 2.57$ for women). The sample was fairly well educated: 55% of men and 67% of women had university degree, 8% of men and 13% of women had college education, while 37% of men and 20% of women had high school education. Out of the whole sample, 13% of men and 11% of women were employed, 43% of men and 66% of women unemployed, while 44% of men and 23% of women were university students.

All participants provided informed consent and then completed a series of questionnaires. Each assessment session lasted from 35 to 45 minutes and included one couple. To ensure independent responding while completing the questionnaires, each participant sat at a separate desk.

Measures

Psychopathy was measured by the 31-item Self-Report Psychopathy Scale-III (Paulhus, Hemphill, & Hare, 2012; Williams, Paulhus, & Hare, 2007). Participants rated how much they agreed with each statement (1 = strongly disagree, 5 = strongly agree).

Narcissism was measured with the 40-item Narcissistic Personality Inventory (Raskin & Terry, 1988). For each item participants chose one of two statements they felt applied to them more. The total number of narcissistic statements the participants endorsed was used as an index of narcissism.

Machiavellianism was assessed with the 20-item MACH-IV (Christie & Geis, 1970). Participants indicated how much they agreed with each statement (-3 = strongly disagree, +3 = completely agree).

A DT composite was computed by standardizing overall scores on each measure and then averaging all three together (Jonason, Li, Webster, & Schmitt, 2009). All three measures loaded well (> 0.75) on a single factor that accounted for 61.65% of the variance (Eigen = 1.85).

Results

The results of VCA analyses are presented first. Descriptive statistics for DT traits, age, and years of education for women and men are presented in Table 1. Men scored significantly higher on psychopathy ($d = 0,74$), Narcissism ($d = 0,36$), Machiavellianism ($d = 0,35$), and the overall DT composite ($d = 0,61$). Men also were older than women and somewhat less educated.

The relationship between DT traits and their correlations with age, years of education, and relationship length on women and men are presented in Table 2. Correlations between DT traits were positively and mainly moderately related in both samples, supporting Hypothesis 1. Years of education and relationship length were not related to any of the DT traits, while men's age was positively related with psychopathy.

Similar to previous research (Watson et al., 2004), high positive assortment was found for age ($r(98) = 0.74; p < 0.001$), and to a lesser degree for years of education ($r(98) = 0.28; p < 0.01$). Further, in order to assess assortative mating, the correlations between men and women for DT traits were computed. The initial assortment versus convergence hypothesis was tested by partialling out the effects of the length of relationship, while active assortment versus social homogamy hypothesis was tested by partialling out the effects of six variables: age and years of education of men and women as well as interaction terms of these two variables computed from centered values (Watson et al., 2004). The correlations and partial correlations obtained are presented in Table 3.

The results showed significant positive assortative mating for all DT measures, the lowest for Narcissism ($r(98) = 0.20, p < .05$), and the highest for Machiavellianism ($r(98) = 0.40, p < .001$). As expected, results supported initial assortment rather than convergence (supporting Hypothesis 2) as partialling out the length of relationship led to almost identical cross-partner correlations between men and women. Partialling out six variables related to age and years of education also led to minimal changes in the correlations between men and women, which confirmed active assortment rather than social homogamy as the source of why people tend to assort in romantic partnerships (supporting Hypothesis 3).

Considering the patterns across specific DT traits, the only statistically significant non-diagonal correlations were those between psychopathy in men and Machiavellianism in women. The size of these correlations were almost the same as those indicating positive assortment for psychopathy. These results suggest that couples did not match only according to similarity in specific traits, but sometimes according to other DT traits.

The degree of assortative mating was also assessed by computing the relationship between two latent constructs (men's and women's DT) using structural equation modelling (LISREL 8.30; Jöreskog & Sörbom, 1999). Two models were tested, both of them

hypothesizing that three DT traits are saturated by the same latent variable. The first model hypothesized that men's and women's latent DT constructs are orthogonal (no assortative mating), while the second model hypothesized that they are obliquely related (assortative mating). Goodness-of-fit indices for both tested models are presented in Table 4.

Indications of the good model fit are normed fit index (NFI), comparative fit index (CFI) and goodness of fit index (GFI) $\geq .90$, root mean square error of approximation (RMSEA) $\leq .08$ and root mean square residual (RMR) $\leq .10$ (Hu & Bentler, 1999; Kline, 1998; Schermelleh-Engel, Moosbrugger, & Müller, 2003). Because the chi-square statistic is conservative and sensible to sample size, it is therefore rarely nonsignificant in larger samples. Several authors suggest that χ^2/df can also be calculated (normed χ^2 ; NC), and values of less than 3 are considered favorable (Kline, 1998).

Generally, goodness-of-fit indices suggested that oblique model was better than orthogonal, which was also confirmed by the quantitative comparison of the two models ($\Delta\chi^2 = 6.80$; $df = 1$; $p < 0.01$). However, $\Delta\chi^2$ as the index of difference in fit has been criticized because of its sensitivity to sample size. There is evidence that ΔCFI is not prone to this problem and some authors suggest that a ΔCFI value higher than 0.01 is indicative of a significant drop in fit (Hu & Bentler, 1990). The obtained ΔCFI is 0.07, which also speaks in favor of oblique model and confirms the hypothesis of assortative mating. The oblique model is presented in Figure 1.

To test whether there was evidence of assortative mating by using CCA, we computed intra-pair correlation coefficients across all items on each of the DT personality measures. Because of different factors such as shared cultural values, social desirability and response bias that influence the individuals' tendency to be more similar than dissimilar, there is a need for careful evaluation of the actual degree of couples' similarity (Luo & Klohnen, 2005). Therefore, we computed intra-pair correlations on each of the three DT questionnaire on 300

male-female random generated couples, and tested the statistical difference in similarity means between real and random couples using one sample *t*-test. The mean of 300 randomly paired couples similarities served as the population mean against which the real couple similarity was compared. The sample of 300 couples was chosen because recent research indicate that correlations stabilize on minimum of 250 participants (Schönbrodt & Perugini, 2013). Table 5 presents descriptive statistics obtained for real and randomly generated couples and the results of one-sample *t*-tests.

One-sample *t*-tests show significantly higher mean intra-pair similarity in real compared to random couples for each DT traits. Generally, medium effect sizes were obtained, the greatest was for Machivellianism. In order to examine how many real and random couples mated assortatively, we analyzed the percent of significant correlations on each trait. None of the real couples showed negative assortative mating on DT traits, and only for psychopathy was there one significant negative correlation for random couples. There were 76.8% of real couples with positive assortment for psychopathy and 63% of random couples ($\chi^2 = 5.99$; $df = 1$; $p = 0.014$). For narcissism, 31% of real couples, and 15% of random couples showed positive assortative mating ($\chi^2 = 9.35$; $df = 1$; $p < 0.001$). For Machiavelianism, 38% of real couples and 25% of random couples showed positive assortment ($\chi^2 = 5.62$; $df = 1$; $p = 0.018$).

Relationship length was not significantly correlated with any of the similarity indices for each DT trait, which is in accord with the initial assortment hypothesis (supporting Hypothesis 2). In order to test active assortment versus social homogamy (Hypothesis 3), we computed correlations of similarity indices for DT traits with age and years of education of men and women as well as with interaction terms of these two variables on men and women. Only two significant correlations were obtained, one between the men's age and similarity in psychopathy ($r(98) = -0.20$; $p = 0.049$), and the other between women's age and similarity in

psychopathy ($r(98) = -0.28; p = 0.004$), suggesting that similarity in psychopathy is somewhat greater in younger participants. Notwithstanding the two correlations in line with social homogamy hypothesis, the vast bulk of our results using CCA supported the active assortment prediction of Hypothesis 3.

Discussion

The results of this study show modest to moderate degree of positive assortment for all DT measures using both VCA and CCA. Both approaches suggest the highest positive assortment for Machiavellianism, followed by psychopathy and Narcissism. Structural model with two latent variables, men's and women's DT, also suggests moderate degree of positive assortment (see Figure 1), thus giving the best support of positive assortment for DT. These findings once again suggest that in mate selection similarity in personality is clearly more important than complementarity, even when undesirable traits are concerned. As previous studies have shown, DT traits, and especially psychopathy, are related to short-term mating strategies (Jonason, Luevano, & Adams, 2012), including various mate poaching experiences (Jonason, Li, & Buss, 2010; Kardum, Hudek-Knezevic, Schmitt, & Grundler, 2015), and extra-partner variables such as sexual desire and recreational sex (Carter, Campbell, & Muncer, 2014). Also, there is evidence that people high on DT traits create favorable environments for short-term mating by having lower set of standards when choosing mates, thus insuring themselves a supply of potential short-term mates (Jonason, Valentine, Li, & Harbeson, 2011). It seems that DT traits, especially in men, lead to increased reproductive success through relationship strategies rooted in minimal emotional investment and obtaining large numbers of partners. On the other hand, persons high on DT traits may, themselves, be less desirable as mating partners on a dating market, so perhaps it is the case that that they are able to choose only those mates who are similar to them. Although high scores on DT traits can increase men's reproductive success, positive assortment for these traits could have

negative consequences for men's fitness because women high on DT traits may be lower in maternal investment (Jonason et al., 2013; McDonald, Donnellan, & Navarrete, 2012).

As expected, the initial assortment rather than convergence, and active assortment rather than social homogamy, were largely confirmed by both VCA and CCA. It should be noted that this study was performed on the couples whose relationship lengths were relatively short (mean average of only 3.5 years), which is more likely to support the initial assortment than convergence hypothesis. Furthermore, a certain degree of similarity obtained even among randomly generated couples may also suggest a higher probability of initial assortment (see Table 5). These similarities could be seen as a consequence of various factors such as social desirability, response bias (see Luo & Klohnen, 2005), or sampling technique, but they might also suggest that people in the same community are similar across some dimensions that can facilitate initial assortment.

Although the results show positive assortment for two key background variables, age ($r(98) = 0.74$) and education ($r(98) = 0.28$), there is a weak evidence for social homogamy. Namely, only negative correlations of men's and women's age with the similarity in psychopathy may to some extent indicate social homogamy. These results could be a consequence of positive correlation between psychopathy and age in the sample of men (see Table 2). Therefore, with the increase of age the psychopathy in men is higher, and they become less similar to women on this trait. Relatively restrictive operationalization usually including only age and education, may be the reason why this hypothesis is not supported. Namely, social homogamy includes similar or common social milieu (Reynolds, Baker, & Pedersen, 2000) and therefore, it should be measured by additional variables such as social class, economic status, ethnicity, religious affiliation, type of families, occupation etc.

This research represents one of the first systematic studies addressing assortative mating for DT traits, and contains the largest sample of romantic couples yet to do so. One

strength of this research is that assortment was assessed in several ways using both VCA and CCA. Both approaches have been also used to test two additional hypotheses, initial assortment versus convergence and active assortment versus social homogamy.

Three limitations of this study should be mentioned. First, it would be better if we used partners' ratings along with self-report measures because the analyses on the level of latent variables as well as testing additional hypotheses, such as the role of assumed similarity could be performed. Second, cross-sectional design is not optimal for testing some hypotheses (e.g. convergence) and it would be more appropriate if longitudinal design and longer relationship length were used. The third limitation regards the examining of assortative mating in a relatively narrow personality domain. The evaluation of obtained similarities is possible only by comparing them to similarities in different personality/psychological domains found in other studies. However, as Watson et al. (2004) emphasized, in this case the observed differences in assortment between various studies may reflect differences in sampling or other characteristics related to study design rather than true differences in similarity between couples. Future studies should address these limitations as well as the relations between the similarity for DT traits and some relationship outcomes.

References

- Asquith, D., Lyons, M., Watson, H., & Jonason, P. (2013). Birds of feather flock together – Evidence for assortative mating for the Dark Triad traits. *Personality and Individual Differences, 60*, S27.
- Bleske-Rechek, A., Remiker, M. W., & Baker, J. P. (2009). Similar from the start: Assortment in young adult dating couples and its link to relationship stability over time. *Individual Differences Research, 7*, 142-158.
- Blum, J. S., & Mehrabian, A. (1999). Personality and temperament qualities of marital satisfaction. *Journal of Personality, 67*, 93-125.
- Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality, 65*, 107-136.
- Buss, D. M. (1984). Marital assortment for personality dispositions: Assessment with three different data sources. *Behavior Genetics, 14*, 111-123.
- Carter, G. L., Campbell, A. C., & Muncer, S. (2014). The Dark Triad: Beyond a “male” mating strategy. *Personality and Individual Differences, 56*, 159-164.
- Chabrol, H., Van Leeuwen, N., Rodgers, R., & Séjourné, S. (2009). Contributions of psychopathic, narcissistic, Machiavellian, and sadistic personality traits to juvenile delinquency. *Personality and Individual Differences, 47*, 734-739.
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York: Academic Press.
- Decuyper, M., De Bolle, M., & De Fruyt, F. (2012). Personality similarity, perceptual accuracy, and relationship satisfaction in dating and married couples. *Personal Relationships, 19*, 128-145.
- Domingue, B. W., Fletcher, J., Conley, D., & Boardman, J. D. (2014). Genetic and educational assortative mating among US adults. *Proceedings of the National Academy of Sciences, 111*, 7996-8000.

- Dubuis-Stadelmann, E., Fenton, B. T., Ferrero, F., & Preisig, M. (2001). Spousal similarity for temperament, personality, and psychiatric symptomology. *Personality and Individual Differences, 30*, 1095-1112.
- Dyrenforth, P. S., Kashy, D. A., Donnellan, M. B., & Lucas, R. E. (2010). Predicting relationship and life satisfaction from personality in nationally representative samples from three countries: the relative importance of actor, partner, and similarity effects. *Journal of Personality and Social Psychology, 99*, 690-720.
- Gonzaga, G. C., Carter, S., & Galen Buckwalter, J. (2010). Assortative mating, convergence, and satisfaction in married couples. *Personal Relationships, 17*, 634-644.
- Hu, L., & Bentler, P. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424-53.
- Humbad, M. N., Donnellan, M. B., Iacono, W. G., McGue, M., & Burt, S. A. (2010). Is spousal similarity for personality a matter of convergence or selection? *Personality and Individual Differences, 49*, 827-830.
- Jonason, P. K., Li, N. P., & Buss, D. M. (2010). The costs and benefits of the Dark Triad: Implications for mate poaching and mate retention tactics. *Personality and Individual Differences, 48*, 373-378.
- Jonason, P. K., Li, N. P., Webster, G. W., & Schmitt, D. P. (2009). The Dark Triad: Facilitating short-term mating in men. *European Journal of Personality, 23*, 5-18.
- Jonason, P. K., Luevano, V. X., & Adams, H. M. (2012). How the Dark Triad traits predict relationship choices. *Personality and Individual Differences, 53*, 180-184.
- Jonason, P. K., Lyons, M., & Bethell, E. (2014). The making of Darth Vader: Parent-child care and the Dark Triad. *Personality and individual differences, 67*, 30-34.
- Jonason, P. K., & Schmitt, D. P. (2011). What have you done for me lately? Friendship-selection in the shadow of the Dark Triad traits. *Evolutionary Psychology, 10*, 400-421.

- Jonason, P. K., Valentine, K. A., Li, N., & Harbeson, C. L. (2011). Mate-selection and the Dark Triad: Facilitating a short-term mating strategy and creating a volatile environment. *Personality and Individual Differences, 51*, 759-763.
- Jöreskog, K. G., & Sörbom, D. (1999). *LISREL 8 User's Reference Guide*. Lincolnwood, IL: Scientific Software International.
- Kardum, I. Hudek Knezevic, J. Schmitt, D., & Grundler, P. (2015). Personality and mate poaching experiences. *Personality and Individual Differences, 75*, 7-12.
- Kline, R. B. (1998). *Principles and practice of structural equations modeling*. New York: Guilford.
- Kruger, R. F., Moffit, T. E., Caspi, A., Bleske, A., & Silva, P. A. (1998). Assortative mating for antisocial behavior: Developmental and methodological implication. *Behavior Genetics, 28*, 173-186.
- Low, N., Cui, L., & Merikangas, K. R. (2007). Spousal concordance for substance use and anxiety disorders. *Journal of Psychiatric Research, 41*, 942-951.
- Luo, S., Chen, H., Yue, G., Zhang, G., Zhaoyang, R., & Xu, D. (2008). Predicting marital satisfaction from self, partner, and couple characteristics: is it me, you, or us?. *Journal of Personality, 76*, 1231-1266.
- Luo, S., & Klohnen, E. C. (2005). Assortative mating and marital quality in newlyweds: A couple-centered approach. *Journal of Personality and Social Psychology, 88*, 304-326.
- Lynam, D. R., Charnigo, R., Moffitt, T. E., Raine, A., Loeber, R., & Stouthamer-Loeber, M. (2009). The stability of psychopathy across adolescence. *Development and Psychopathology, 21*, 1133-1153.
- Mathews, C. A., & Reus, V. I. (2001). Assortative mating in the affective disorders: A systematic review and meta-analysis. *Comprehensive Psychiatry, 42*, 257-262.
- McDonald, M. M., Donnellan, M. B., & Navarrete, C. D. (2012). A life history approach to understanding the Dark Triad. *Personality and Individual Differences, 52*, 601-605.

- McCrae, R. R. (1996). Social consequences of experiential openness. *Psychological Bulletin*, *120*, 323-337.
- McCrae, R. R., Martin, T. A., Hrebícková, M., Urbánek, T., Boomsma, D. I., Willemsen, G., & Costa, P. T. (2008). Personality trait similarity between spouses in four cultures. *Journal of Personality*, *76*, 1137-1164.
- Morry, M. M., Kito, M. I. E., & Ortiz, L. (2011). The attraction–similarity model and dating couples: Projection, perceived similarity, and psychological benefits. *Personal Relationships*, *18*, 125-143.
- Nagoshi, C. T., & Johnson, R. C. (1994). Phenotypic assortment versus social homogamy for personality, education, attitudes, and language use. *Personality and Individual Differences*, *17*, 755-761.
- Paulhus, D. L., Hemphill, J. D., & Hare, R. D. (2012). *Manual for the Self-Report Psychopathy Scale*. Toronto, Canada: Multi-Health Systems.
- Paulhus, D.L., & Williams, K.M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, *36*, 556–563.
- Plomin, R., DeFries, J. C., Knopik, V. S., & Neiderhiser, J. M. (2013). *Behavioral Genetics*. New York: Worth Publishers.
- Rammstedt, B., & Schupp, J. (2008). Only the congruent survive – Personality similarity in couples. *Personality and Individual Differences*, *45*, 533-535.
- Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, *54*, 890-902.
- Reynolds, C. R., Baker, L. A., & Pedersen, N. L. (2000). Multivariate models of mixed assortment: Phenotypic assortment and social homogamy for education and fluid ability. *Behavior Genetics*, *30*, 455-476.

- Savard, C., Sabourin, S., & Lussier, Y. (2011). Correlates of psychopathic personality traits in community couples. *Personality and Mental Health, 5*, 186-199.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Test of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online, 8*, 23-74.
- Schmitt, D. P. (2002). Personality, attachment and sexuality related to dating relationship outcomes: Contrasting three perspectives on personal attribute interaction. *British Journal of Social Psychology, 41*, 589-610.
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality, 47*, 609-612.
- Verbake, E., & Kalmijn, M. (2014). Assortative Mating Among Dutch Married and Cohabiting Same-Sex and Different-Sex Couples. *Journal of Marriage and Family, 76*, 1-12.
- Veronica Smith, C., Hadden, B. W., Webster, G. D., Jonason, P. K., Gesselman, A. N., & Crysel, L. C. (2014). Mutually attracted or repulsed? Actor-partner interdependence models of Dark Triad traits and relationship outcomes. *Personality and Individual Differences, 67*, 35-41.
- Watson, D., Hubbard, B., & Wiese, D. (2000). Self-other agreement in personality and affectivity: The role of acquaintanceship, trait visibility, and assumed similarity. *Journal of Personality and Social Psychology, 78*, 546-558.
- Watson, D., Klohnen, E. C., Casillas, A., Nus Sims, E., Haig, J., & Berry, D. S. (2004). Match makers and deal breakers: Analyses of assortative mating in newlywed couples. *Journal of Personality, 72*, 1029-1068.
- Williams, K. M., Paulhus, D. L., & Hare, R. D. (2007). Capturing the four-factor structure of psychopathy in college students via self-report. *Journal of Personality Assessment, 88*, 205-219.

Table 1. Descriptive statistics for Dark Triad traits, age, and years of education on women and men.

Variables	Women			Men			<i>t</i>	<i>d</i>
	α	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>		
Psychopathy	0.82	66.07	10.96	0.87	75.53	14.28	5.26***	0.74
Narcissism	0.73	12.57	5.10	0.88	14.91	7.76	2.52*	0.36
Machiavellianism	0.77	62.81	12.36	0.79	67.16	12.58	2.47*	0.35
DT composite	0.86	-0.23	0.64	0.91	0.23	0.85	4.38***	0.61
Age	-	23.20	2.57	-	24.57	3.16	3.36***	0.47
Education	-	15.74	1.99	-	14.99	2.36	2.43*	0.34

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; α = Cronbach's alpha; *M* = mean; *SD* = standard deviation; *t* = t-test; *d* = Cohen's *d*.

Table 2. Relationship between Dark Triad traits and their correlations with age, years of education and relationship length on women and men.

Variables	Women				Men			
	P	N	M	DT	P	N	M	DT
P		0.42***	0.42***	0.80***		0.47***	0.48***	0.82***
N			0.20*	0.68***			0.36***	0.80***
M				0.77***				0.75***
Age	-0.15	0.10	0.07	0.01	0.28**	-0.04	0.01	0.10
Education	-0.12	0.06	0.09	0.02	-0.15	-0.02	0.01	-0.07
Length of relation	-0.12	0.00	0.11	0.01	-0.06	-0.18	-0.05	-0.13

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; P = psychopathy; N = Narcissism; M = Machiavellianism; DT = Dark Triad composite

Table 3. Correlations and partial correlations between women and men on Dark Triad measures.

Men	Women			
	P	N	M	DT
P	0.26**	0.12	0.24*	0.28**
	0.25*	0.12	0.25*	0.28**
	0.24*	0.08	0.23*	0.24*
N	0.19	0.20*	0.01	0.17
	0.18	0.21*	0.03	0.17
	0.16	0.20*	0.01	0.15
M	0.14	0.00	0.40***	0.27**
	0.13	0.00	0.41***	0.27**
	0.11	-0.01	0.39***	0.24*
DT	0.25*	0.14	0.26**	0.30**
	0.24*	0.15	0.28**	0.30**
	0.21*	0.12	0.24*	0.26*

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; P – psychopathy; N – Narcissim; M – Machiavellianism; DT – Dark Triad composite; first row – correlations between women and men; second row – partial correlations (controlling for relationship length); third row – partial correlations (controlling for age and years of education for each partner)

Table 4. Goodness-of-fit indices for both models.

Goodness-of-fit indices	Orthogonal model	Oblique model
Chi-square	$\chi^2 = 30.69$ df = 9 $p = 0.0003$	$\chi^2 = 23.89$ df = 8 $p = 0.002$
Normed Chi-square (NC)	3.41	2.99
Normed Fit Index (NFI)	0.73	0.80
Comparative Fit Index (CFI)	0.77	0.84
Goodness of Fit Index (GFI)	0.91	0.93
Root Mean Square Error of Approximation (RMSEA)	0.16	0.14
Root Mean Square Residual (RMR)	0.14	0.08

Table 5. Descriptive statistics for real and randomly generated couples and the results of one-sample t-tests.

Variable	Couples	Min.	Max.	M	SD	T	d
Psychopathy	real	0.11	0.84	0.48	0.17	3.84***	0.40
	random	-0.44	0.82	0.41	0.18		
Narcissism	real	-0.22	0.81	0.20	0.20	3.84***	0.42
	random	-0.31	0.54	0.12	0.18		
Machiavelianism	real	-0.21	0.93	0.39	0.25	4.83***	0.49
	random	-0.42	0.79	0.27	0.24		

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$; Min. = minimum; Max. = maximum; t = t-value; d = Cohen's d .

Figure 1, Structural model of the relationship between men's and women's DT.

