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## The making of Darth Vader: Parent–child care and the Dark Triad

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## ABSTRACT

Does the quality of the relationship one has with their parents influence the development of “dark” personality traits? We examined ( $N = 352$ ) the Dark Triad traits (i.e., narcissism, psychopathy, and Machiavellianism) and their components in relation to a measure of parental care and a measure of attachment. Machiavellianism was the most susceptible to variance associated with low quality or irregular parental care and attachment patterns. Low quality parental care for narcissism and psychopathy had effects localized to components of each trait and specific to the sex of the parent. Path modeling suggests the quality of parental care leads to attachment patterns which may then lead to different aspects of the Dark Triad.

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## 1. Introduction

What turned Anakin Skywalker into Darth Vader? Any Star Wars aficionado will say it was the loss of his mother as depicted in Star Wars II, Attack of the Clones. Life History and Psychodynamic Theories agree; the manner one is treated as a child influences mating strategies, personality, and the timing of girls’ first menarche (Bowlby, 1988; Chisholm, Quinlivan, Petersen, & Coall, 2005). Unfortunately, we know little about the relationships between the Dark Triad and differences in parent–child relationship quality.

Machiavellianism, narcissism, and psychopathy have repeatedly been identified as aversive personality traits (e.g., Kowalski, 2001) characterized by entitlement, superiority, dominance (i.e., narcissism), glib social charm, manipulateness (i.e., Machiavellianism), callous social attitudes, impulsivity, and interpersonal antagonism (i.e., psychopathy). Evolutionary Psychologists (Jonason, Webster, Schmitt, Li, & Crysel, 2012; McDonald, Donnellan, & Navarrete, 2012) suggest the Dark Triad might be sensitive to childhood socioecological conditions. Stressful, harsh, or unstable child–parent relationships might activate an approach to life, captured by the Dark Triad, orienting individuals towards seeking immediate returns in mating (Jonason, Valentine, Li, & Harbeson, 2011) and social relationships (Jonason & Webster, 2012).

Parents have a profound effect on children (Del Giudice & Belsky, 2010); potentially generating different patterns of attachment (Bartholomew & Horowitz, 1991). The general consen-

sis is that there are four typologies of attachment (Bartholomew & Horowitz, 1991; Brennan, Shaver, & Tobey, 1991; Hazan & Shaver, 1987; Hazan & Shaver, 1990). *Secure* attachment is thought to result from a positive and affirming bond with one’s primary caregiver and to result in a tendency towards prosocial behavior and monogamy. In contrast, when the care provided by the primary caregiver is irregular, not present, or volatile, “dysfunctional” attachment patterns may emerge noted respectively, as *insecure*, *avoidant*, and *fearful*. It is possible that uncaring parenting creates attachment insecurity (Gittleman, Klein, Smider, & Essex, 1998), which, in turn, affects the manifestation of the Dark Triad traits in adulthood. Indeed, the Dark Triad traits are linked to promiscuity (Jonason, Li, Webster, & Schmitt, 2009) and selfishness (Jonason, Li, & Teicher, 2010). Personality traits like the Dark Triad, while heritable are still susceptible to fluctuations in environmental conditions (Vernon, Villani, Vickers, & Harris, 2008). One environmental condition that may influence the development of the Dark Triad traits may be attachment insecurity. Attachment insecurity may constitute important information that allows individuals to calibrate their life history strategies to present conditions. While secure attachment with one’s primary caregivers may signal that “life is good”, encouraging a more prosocial and slow life history strategy (a *K*-strategy), dysfunctional parent–child bonds may constitute signals that “life is bad”, encouraging the adoption of a selfish, fast life history strategy (a *r*-strategy; Jonason et al., 2012). These stressful conditions may fundamentally alter a person’s approach to life and by extension their personality traits. Therefore, we predict the Dark Triad will be positively correlated with indicators of dysfunctional parenting (e.g., insecure and avoidant attachment, limited parental care) and negatively correlated with secure attachment.

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However, the effects of limited parental care and dysfunctional attachment might differ in the parts of the Dark Triad (Carter, Zeigler-Hill, & Vonk, 2011; Flight & Forth, 2007). One important point about the Dark Triad traits is that while they can be treated as an average composite (Jonason et al., 2009) to test higher-order, theoretical predictions about the proposed latent disposition underneath the three and all share similar links with individual differences in empathy (Jonason, Lyons, Bethell, & Ross, 2013), each trait has its own, unique psychosocial outcomes (Jonason, Li, & Czarna, 2013). Moreover, when studied, researchers have failed to include the three traits simultaneously, thereby creating the possibility that prior associations were spuriously created by shared variance among the Dark Triad (Craig, Gray, & Snowden, 2013). We provide a more in-depth examination of the relationship between the Dark Triad traits and individual differences in parent-child relationship quality.

Parental care is an environmental factor as opposed to a genetic factor influencing one's development. Of the three, Machiavellianism is the most influenced by environmental variance (Vernon et al., 2008), suggesting it should be the part of the Dark Triad that is most sensitive to differences in attachment and parental care. Attachment is a result of parent-child relationships and, given the relative insensitivity of psychopathy and narcissism to socio-ecological conditions, we do not expect them to be related to attachment, a downstream effect of parental care. If correct, childhood stress may activate Machiavellianism in so much as it provides a protean and "whatever it takes" approach to life (Jonason & Webster, 2012).

Although Machiavellianism (as measured by the MACH IV; Christie & Geis, 1970) appears to be one-dimensional (Hunter, Gerbing, & Boster, 1982), both narcissism (as measured with the NPI; Raskin & Terry, 1988) and psychopathy (as measured with the SRP III; Paulhus, Neumann, & Hare, in press) are multidimensional (Ackerman et al., 2011; Falkenbach, Poythress, Falki, & Manchak, 2007; Hicks, Markon, Patrick, Krueger, & Newman, 2004; Raskin & Terry, 1988). Primary psychopathy represents the callous attitudes aspect of psychopathy whereas Secondary psychopathy taps the antisocial/criminal aspects of psychopathy. In the case of narcissism, there are "lighter" aspects to this trait like Leadership and Exhibitionism but "darker" sides as well in terms of Entitlement and Exploitativeness (Jonason, Jones, & Lyons, 2013). Each of the dimensions may represent slightly different responses to individual differences in attachment and recalled care. By looking deeper into these traits we hope to provide a finer grained analysis of the relationships between the Dark Triad and attachment patterns and parental care. However, given the rarity of such analyses, the predictions we offer below represent our conjectures based on our understanding of the Dark Triad, life history theory, and attachment.

Mothers and fathers may play different roles in a child's life and the quality of those parental interactions may have different effects on the development of different types of antisocial behavior. Mothers are seen as more important than fathers in attachment (Bowlby, 1988) in as much as they are the primary caregivers. Uncaring mothers may be a sufficient condition to activate the condition-sensitive responses of the Dark Triad, in particular "darker" aspects like Machiavellianism and entitlement (Jonason, Jones et al., 2013). In contrast, having a good quality paternal relationship might activate agentic behavior that relates to success and achievement of the offspring (Miklikowska, Duriez, & Soenens, 2011), and could be linked to the Exploitive/Entitlement dimension of narcissism. A good father may create the environment responsible for such behavior (e.g., the spoiled trust-fund child), however, good intentioned he was. While a father might create a narcissistic child if his role is positive, if his role is more negative, he might actually create an antisocial deviant. That is, father-figures may act as mor-

al guides to what is "good" and "bad" behavior to children. If these predictions are accurate, they suggest mothers and fathers play different roles in explaining the behavior of their children. Mothers may be "responsible" for the internal aspect of the child's psychology whereas fathers may be "responsible" for how the child deals with the external world, perhaps including after the child has left the nest created by the mother. Indeed, there is at least some analogue evidence for this process in lions (*Panthera leo*) whereby the mothers are responsible for the rearing of offspring but it is ultimately the fathers who eject the offspring (in this case, the male offspring) from the pride.

In this study, we provide new detail about how individual differences in parent-child relationships are related to the Dark Triad traits. By examining the three traits at both the high-order (i.e., global personality traits) and lower-order (i.e., aspects of the Dark Triad traits) level, we hope to provide unique insights into the potential factors that could influence the emergence of these apparently antisocial and potentially adaptive personality traits. We test the primary hypothesis, derived from Life History Theory, that the Dark Triad traits are condition-dependent solutions to dealing with the world.

## 2. Method

### 2.1. Participants

Students ( $n = 153$ ) and community members ( $n = 199$ ) were invited via email and social media advertisements to participate in an online survey looking at "Personality and Childhood Experiences" (60 males,  $M = 25.10$ ,  $SD = 9.80$ ). Responses did not differ as a function of sample-type or the sex of the participant and, thus, results were collapsed across those distinctions. Participants provided informed consent and were debriefed at the end of the study.

### 2.2. Measures

Psychopathy was measured on a 5-point (1 = *Disagree strongly*; 5 = *Agree strongly*), 64-item Self-Reported Psychopathy scale (Paulhus et al., in press). The items included statements such as "I have tricked somebody into giving money to me" and "I never cry at movies". The items were averaged to create indexes of Primary (Cronbach's  $\alpha = .85$ ), Secondary ( $\alpha = .83$ ), and overall psychopathy ( $\alpha = .90$ ).

Machiavellianism was measured on a 7-point (1 = *Disagree strongly*; 7 = *Agree strongly*), 20-item Mach IV scale (Christie & Geis, 1970). The items include statements such as "Never tell anyone the real reason you did something unless it is useful to do so" and "It's hard to get ahead without cutting corners here and there". Items were averaged to create a Machiavellianism index ( $\alpha = .77$ ).

Narcissism was measured using the 40-item forced-choice Narcissistic Personality Inventory (Raskin & Terry, 1988). Participants choose between two statements, one of which indicates high narcissism (e.g., I know that I am good because everybody keeps telling me so) and one of which indicates low narcissism (e.g., When people compliment me I sometimes get embarrassed). A score of 1 is given for each high narcissism choice (0 for a low narcissism choice), and these points are averaged to create an overall narcissism index ( $\alpha = .82$ ). The items were also used to create the three-factor solution (Ackerman et al., 2011), including facets of Leadership/Authority ( $\alpha = .83$ ), Entitlement/Exploitativeness ( $\alpha = .40$ ), and Grandiose/Exhibitionism ( $\alpha = .80$ ), along with an overall narcissism score ( $\alpha = .83$ ).

Parental care was measured with the 24-item Parental Bonding Instrument (Parker, Tupling, & Brown, 1979). Participants are

**Table 1**

Zero-order correlations and regression coefficients for the Dark Triad, attachment, and quality of parental care.

	<i>r</i> ( $\beta$ )		Attachment patterns			
	Quality of parental care		Secure	Anxious	Avoidant	Fearful
	Mother	Father				
<i>Psychopathy</i>	-.17** (.03)	-.25** (-.11*)	-.20* (-.02)	.04 (-.01)	.21** (.12*)	.16* (-.01)
Primary psychopathy	-.17** (-.02)	-.22** (.02)	-.25** (-.04)	.05 (-.01)	.20** (.05)	.17** (-.04)
Secondary psychopathy	-.17** (.03)	-.25** (-.13**)	-.12* (.04)	.01 (-.02)	.18** (.06)	.13* (.04)
<i>Narcissism</i>	-.54** (-.53**)	.12* (.27**)	.14* (.14**)	-.01 (.02)	.03 (.01)	.09 (-.05)
Leadership/Authority	-.54** (-.21**)	.11 (.06)	.14** (.03)	.01 (-.03)	.02 (.04)	-.10 (-.01)
Grandiose/Exhibitionism	-.46** (-.02)	.18** (.08)	.18** (.04)	.01 (.04)	-.04 (-.04)	-.11* (-.01)
Entitlement/Exploiteness	-.16 (-.11*)	-.02 (.10*)	-.22** (-.11*)	.12* (-.09)	.10 (.02)	.13* (-.02)
<i>Machiavellianism</i>	-.15* (-.08)	-.30** (-.12*)	-.33** (-.16*)	.13* (.09)	.14* (-.01)	.29** (.11*)

\*  $p < .05$ .\*\*  $p < .01$ .

asked to recall their parents (or parental figures) up until the age of 16, and rate the degree to which the 24 statements describe (0 = *Very unlike*; 3 = *Very like*) them on statements such as “My mother was affectionate to me” or “My mother seemed emotionally cold to me”. We summed the 12 items for the mother (or mother-figure) and 12 for the father (or father-figure) to create corresponding indexes ( $\alpha$ 's = .95).

Adult attachment styles were measured with the 4-item Relationship Questionnaire (Bartholomew & Horowitz, 1991). The scale is a brief, self-report measure of adult attachment styles, consisting of four descriptions of feelings in interpersonal relationships. Participants were asked how much (1 = *Not like me at all*; 7 = *Very much like me*) items like “It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.” (i.e., secure attachment) described them.

### 3. Results

We conducted 2 different sets of correlational analyses—all reported in Table 1—where we examined the zero-order links and then controlled for the shared variance<sup>1</sup> among the Dark Triad through the use of multiple regression. First, we examined the links between the Dark Triad traits and attachment (controlling for the shared variance between attachment patterns) and parental care (controlling for the shared variance between maternal and paternal care). Second, we replaced psychopathy and narcissism with their 2 and 3, respective sub-dimensions. Machiavellianism was linked to dysfunctional attachment and low quality paternal care (results held when we used Machiavellianism across steps so we only report the results from our first set of analyses). The Leadership/Authority aspect of narcissism was correlated with low quality maternal care. The Entitlement/Exploiteness aspect of narcissism was linked to high quality paternal care, low quality maternal care, and low secure attachment style, and the Leadership/Authority aspect was linked to low quality maternal care. Secondary psychopathy was correlated with low quality paternal care.

In Fig. 1 we present a hypothetical model whereby the quality of parental care leads to attachment which then leads to different aspects of the Dark Triad ( $\chi^2(41) = 82.70$ ,  $p < .01$ ,  $\chi^2/df = 2.02$ ,  $NFI = .93$ ,  $CFI = .96$ ,  $RMSEA = .05$  [95%CI = .04–.07],  $p$ -closeness = .33). When we compared this model to one that just had the Dark Triad traits and not their facets ( $\chi^2(18) = 53.60$ ,  $p < .01$ ,

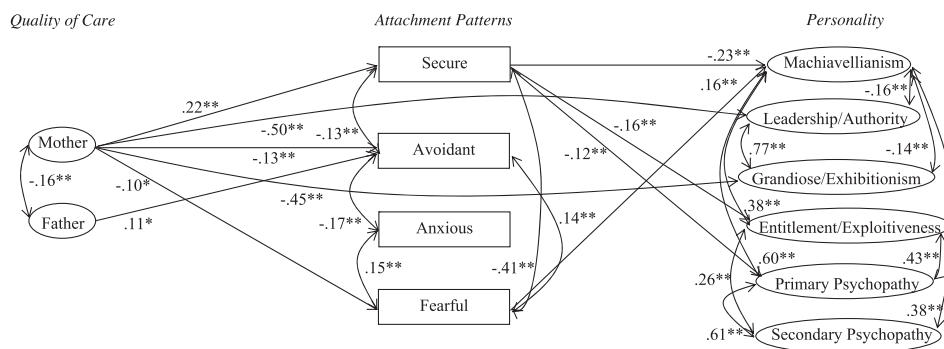
$\chi^2/df = 2.98$ ,  $NFI = .90$ ,  $CFI = .93$ ,  $RMSEA = .08$  [95%CI = .05–.10],  $p$ -closeness = .04), it fit the data less well ( $\Delta\chi^2 = 29.10$ ,  $p < .05$ ) on all of the fit indexes. This confirms the necessity of examining the aspects of the Dark Triad and not just the traits themselves. This model suggests that limited secure attachment leads to Machiavellianism, Entitlement/Exploiteness, and Primary Psychopathy, ostensibly “dark” aspects of the Dark Triad (Jonason, Jones et al., 2013). The only other attachment pattern linked to the Dark Triad suggested that fearful attachment was linked to Machiavellianism. Maternal care was linked to secure, avoidant, and fearful attachment patterns whereas paternal care was linked to an avoidant pattern. Maternal care was directly linked to the Leadership/Authority and Grandiose/Exhibitionistic aspects of narcissism.

### 4. Discussion

Anyone interested in the darker aspects of human nature must also be concerned with the etiology of those aspects. In this study, we have provided some insight into potential mechanisms that influence the development of the Dark Triad traits. Importantly, our results suggest (1) these effects may differ across and within each trait, (2) may differ as a function of the sex of the parent, and (3) may be sensitive to gene-environment interactions. While we found a variety of effects, importantly, we found that low maternal care led to Machiavellianism, the Entitlement/Exploiteness, and Leadership/Authority aspects of narcissism when the intervening factor of secure attachment fails to occur (see Fig. 1). Low paternal care, in turn, related to Secondary psychopathy and high paternal care had an association with Entitlement/Exploiteness dimension of narcissism.

The path model provides new detail about the direct and indirect effects of parental care and the Dark Triad traits because it was able to (1) disentangle effects localized to one parent and not the other, (2) to control for overlap in attachment systems and the Dark Triad traits, and (3) directs our attention to specific behavior patterns instead of global personality traits. While the links are small in some cases, opening us up to criticisms about multiplicative invalidity (Trafimow, 2003), the path model suggests a number of interesting associations warranting consideration in future work. First, it appears that the effect of maternal care is more widespread in terms of attachment systems and Dark Triad traits. In some cases, maternal care appears to be linked to the Dark Triad traits through attachment systems (i.e., Machiavellianism, Primary Psychopathy, Entitlement/Exhibitionism) whereas in other cases maternal care was directly linked to the Dark Triad (i.e., Leadership/Authority and Grandiose/Exhibitionism). For instance, lower quality maternal care was linked to

<sup>1</sup> Psychopathy was correlated with narcissism ( $r(352) = .58$ ,  $p < .01$ ) and Machiavellianism ( $r(352) = .15$ ,  $p < .01$ ) we failed to find a correlation between Machiavellianism and narcissism ( $r = -.01$ ).



$$\chi^2(41) = 82.70, p < .01, \chi^2/df = 2.02, NFI = .93, CFI = .96, RMSEA = .05 [95\%CI = .04-.07], p\text{-closeness} = .33$$

\*  $p < .05$ , \*\*  $p < .01$

**Fig. 1.** Path model (significant links only) to account for the development of different aspects of the Dark Triad.

increased fearful attachment which was in turn linked to increased rates of Machiavellianism. This suggests that fearful attachment may act as a mediating factor between maternal care and the deployment of the life history strategy associated with Machiavellianism. The quality of maternal care had strong links with decreased rates of the Leadership/Authority and Grandiose/Exhibitionism aspects of narcissism. To us this suggests that good mothering may decrease at least these two “lighter” aspects of narcissism directly. In contrast, to mothers, quality paternal care appears to be (counter-intuitively) limited to an increased tendency towards an avoidant attachment pattern and having limited, if any, downstream effects on personality traits in terms of the Dark Triad. The fact that we found links between paternal care and the Dark Triad traits in our correlational/regression results but not in the path model provides strong evidence for the need to provide more sophisticated multiple correlational models to better understand the etiology and the consequents of the Dark Triad traits.

The phenotypic expression of the Dark Triad could be a result of different evolutionary strategies. For example, Secondary psychopathy, Machiavellianism, and darker aspects of narcissism could be examples of developmentally plastic, conditional strategies, proximately triggered by a harsh social environment in childhood like low quality parental care (Jonason et al., 2012). Alternative strategies, in turn, depend more on heritable dispositions and less on the environment (Gross, 1996). The apparent lack of parental influences on the Primary psychopathy could be an indication of an alternative, frequency-dependent cheater-strategy (Mealey, 1995). The Dark Triad constellation would benefit from integration of different proximate and ultimate theories for each facet, acknowledging complexity of the construct. Nevertheless, results suggest one answer to why some people are narcissistic, psychopathic, and Machiavellian is because of the way their parents treated them.

This study is not without its limitations. First, we report relatively weak associations, although these correlations are no different than those reporting in most work on the Dark Triad and personality psychology in general. Second, the Entitlement/Exploitive aspect of narcissism returned quite low internal consistency, even by liberal standards (Schmitt, 1996). We corrected for measurement error in our correlations with this part of narcissism, however, it might suggest the 3-dimensional structure now considered to be the best solution (Ackerman et al., 2011) might still need some refining. Nevertheless, we have downplayed the related results and discussion. Third, while our sample was composed of college students and community members, an ostensible strength of the study, we had a grossly imbalanced ratio of men to women.

Fourth, our assessment of the quality of parental care was “recalled” and could be subject to memory biases (Levine & Safer, 2002). However, such effects are likely to apply equally across the Dark Triad traits, and therefore, should not be all that problematic; a point affirmed by our ability to confirm our hypotheses. Fifth, we have adopted a scale for attachment that relies on single item assessments. While this measure appears to converge on similar results as other multi-item measures (Brennan, Clark, & Shaver, 1998; Crowell, Fraley, & Shaver, 1999; Fraley, Waller, & Brennan, 2000), single-item assessments are notoriously unreliable. Therefore, further analyses are needed that include both a variety of measures of attachment but also multi-item instruments. Nevertheless, we have provided unique insights into the Dark Triad.

So then what is the difference between Luke and Anakin Skywalker? If we assume that processes of inheritance like Mendelian genetics and evolutionary biology apply to a galaxy far, far away, what are the conditions that might have led Anakin to fall to the temptations of the dark side of the force but not Luke despite sharing genes? From this study it appears to come down to parenting. Luke, while his parents were both dead, had a caring aunt and uncle. Anakin, in contrast, arguably lacked any such parental figure, indeed, his mother died in his own arms only after he had been taken from her when he was just a child a decade or so earlier. Anakin then, lacking the anchor provided by good parents, was easily swayed by the appeal of the “fast” life offered by the dark side of the force. For those like Anakin, perhaps turning to the dark side of the force—and the Dark Triad—is an adaptive response.

## References

- Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trseniewski, K. H., Robins, R. W., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment, 18*, 67–87.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226–244.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Routledge.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford Press.
- Brennan, K. A., Shaver, P. R., & Tobey, A. E. (1991). Attachment styles, gender, and parental problem drinking. *Journal of Social and Personal Relationships, 8*, 451–466.
- Carter, T. E., Zeigler-Hill, V., & Vonk, J. (2011). Narcissism and recollections of early life experiences. *Personality and Individual Differences, 51*, 935–939.
- Chisholm, J. S., Quinlivan, J. A., Petersen, R. W., & Coall, D. A. (2005). Early stress predicts age at menarche and first birth, adult attachment, and expected lifespan. *Human Nature, 16*, 233–265.
- Christie, R., & Geis, F. (1970). *Studies in Machiavellianism*. New York: Academic Press.

- Craig, R. L., Gray, N. S., & Snowden, R. J. (2013). Recalled parental bonding, current attachment, and the triarchic conceptualization of psychopathy. *Personality and Individual Differences, 55*, 345–350.
- Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measures of individual differences in adolescent and adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434–465). New York: Guilford.
- Del Giudice, M., & Belsky, J. (2010). Parent-child relationships. In C. A. Salmon & T. K. Shackelford (Eds.), *The Oxford handbook of evolutionary family psychology* (pp. 65–82). New York: Oxford University Press.
- Falkenbach, D., Poythress, N., Falki, M., & Manchak, S. (2007). Reliability and validity of two self-report measures of psychopathy. *Assessment, 14*, 341–350.
- Flight, J. I., & Forth, A. E. (2007). Instrumentally violent youths: The roles of psychopathic traits, empathy, and attachment. *Criminal Justice and Behavior, 34*, 739–751.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*, 350–365.
- Gittleman, M. G., Klein, M. H., Smider, N. A., & Essex, M. J. (1998). Recollections of parental behavior, adult attachment, and mental health: Mediating and moderating effects. *Psychological Medicine, 28*, 1443–1455.
- Gross, M. R. (1996). Alternative reproductive strategies and tactics: Diversity within the sexes. *TREE, 11*, 92–98.
- Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511–524.
- Hazan, C., & Shaver, P. R. (1990). Love and work: An attachment-theoretical perspective. *Journal of Personality and Social Psychology, 59*, 270–280.
- Hicks, B. M., Markon, K. E., Patrick, C. J., Krueger, R. F., & Newman, J. P. (2004). Identifying psychopathy subtypes on the basis of personality structure. *Psychological Assessment, 16*, 276–288.
- Hunter, J. E., Gerbing, D. W., & Boster, F. J. (1982). Machiavellianism beliefs and personality: Construct invalidity of the Machiavellianism dimensions. *Journal of Personality and Social Psychology, 43*, 1293–1305.
- Jonason, P. K., Jones, A., & Lyons, M. (2013). Creatures of the night: Chronotype and the Dark Triad traits. *Personality and Individual Differences, 55*, 538–541.
- Jonason, P. K., Li, N. P., & Czarna, A. Z. (2013). Quick and Dirty: Some psychosocial costs associated with the Dark Triad in three countries. *Evolutionary Psychology, 11*, 172–185.
- Jonason, P. K., Li, N. P., & Teicher, E. A. (2010). Who is James Bond? The Dark Triad as an agentic social style. *Individual Differences Research, 8*, 111–120.
- 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., Lyons, M., Bethell, E. J., & Ross, R. (2013). Different routes to limited empathy in the sexes: Examining the links between the Dark Triad and empathy. *Personality and Individual Differences, 54*, 572–576.
- Jonason, P. K., Valentine, K. A., Li, N. P., & 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.
- Jonason, P. K., & Webster, G. D. (2012). A protean approach to social influence: Dark Triad personalities and social influence tactics. *Personality and Individual Differences, 52*, 521–526.
- Jonason, P. K., Webster, G. W., Schmitt, D. P., Li, N. P., & Crysel, L. (2012). The antihero in popular culture: A Life History Theory of the Dark Triad. *Review of General Psychology, 16*, 192–199.
- Kowalski, R. M. (2001). *Behaving badly: Aversive behaviors in interpersonal relationships*. Washington, DC: American Psychological Association.
- Levine, L. J., & Safer, M. A. (2002). Sources of bias in memory for emotions. *Current Directions in Psychological Science, 11*, 169–173.
- 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.
- Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences, 18*, 523–599.
- Miklikowska, M., Duriez, B., & Soenens, B. (2011). Family roots of empathy-related characteristics: The role of perceived maternal and paternal need support in adolescence. *Developmental Psychology, 47*, 1342–1352.
- Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *British Journal of Medical Psychology, 52*, 1–10.
- Paulhus, D.L., Neumann, C.S., & Hare, R. (in press). *Manual for the self-report psychopathy scale*. Toronto: Multi-Heath Systems.
- Raskin, R. N., & 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.
- Schmitt, N. (1996). Uses and abuses of coefficient alphas. *Psychological Assessment, 8*, 350–353.
- Trafimow, D. (2003). Hypothesis testing and theory evaluation at the boundaries: Surprising insights from Bayes's theorem. *Psychological Review, 110*, 526–535.
- Vernon, P. A., Villani, V. C., Vickers, L. C., & Harris, J. A. (2008). A behavioural genetic investigation of the Dark triad and the Big 5. *Personality and Individual Differences, 44*, 445–452.