Seeing through crocodile tears? Sex-specific associations between the Dark Triad traits and lie detection accuracy

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**Abstract**

Although overall people are poor at lie detection, the accuracy depends on the situation (e.g., high versus low-stakes), as well as the characteristics of the person detecting the lie. In an on-line experiment (*N* = 347), we explored the relationship between the Dark Triad (i.e., Machiavellianism, narcissism, and psychopathy), and accuracy in detecting lies in high-stakes, emotional TV appeals. The participants filled in a 27-item Dark Triad measure, and watched 20 video-clips of people appealing to find a missing person, half of whom had murdered the person they were appealing to find. In both cross-correlational and regression analyses, Machiavellianism had a significant positive relationship with accuracy in women, and narcissism had a significant negative relationship with accuracy in men. Our results suggest that the Dark Triad is a relevant individual difference affecting lie detection, but it has different correlates for men and women.

Key words: High-stakes emotional lies; Dark Triad; Sex Differences

**Introduction**

Although overall people perform poorly when detecting lies (Bond & DePaulo, 2006), research has shown that certain conditions have an association with increased deception detection. For example, high-stakes (e.g., Lyons, Healey, & Bruno, 2013) and emotional (e.g., Warren, Schertler & Bull, 2009) lies may be easier to detect than low-stakes lies, non-emotional lies. High-stakes emotional lies, such as those that involve public appeals in order to find a missing relative, are linked to faking emotions (ten Brinke & Porter, 2012; Wright Whelan, Wagstaff, & Wheatcroft, 2015), which could relate to increased detection. Indeed, individuals who use faked emotions as a cue to detecting lies in high stakes public appeals reach a higher accuracy (Shaw & Lyons, 2017). Although it is apparent that high stakes and emotional situations may be the key to successful lie detection, not many studies have investigated whether there are individual differences that could be related to deception detection in these contexts. This is something we intend to address in the present study.

Research has suggested that there are at least two individual differences relevant in detecting lies. First, high emotional intelligence could hinder lie detection (Baker, ten Brinke, & Porter, 2013), possibly via increased emotive truth bias. Second, there is a positive link between lie production and detection, indicating that those who lie more are better at detecting when others are deceitful (Wright, Berry, & Bird, 2012). It is possible that personality traits that relate to both low emotional intelligence/empathy and high lie production confer advantage in detecting emotional lies. The Dark Triad of personality (i.e., narcissism, Machiavellianism, and psychopathy) is a personality constellation related to both (Baughman, Jonason, Lyons, & Vernon, 2014; Jonason, Lyons, Baughman, & Vernon, 2014; Jonason, Lyons, Bethell, & Ross, 2013). Individuals high in these traits are selfish and cold-hearted (Jones & Figueredo, 2013), with unique profiles associated with each trait. Evolutionary behavioural scientists have suggested that manipulative traits could form an adaptive “cheater strategy”, aiming to reap immediate rewards from the environment without paying any costs (Mealey, 1995).

The Dark Triad traits have some common, and some unique associations with lying and manipulation. Machiavellianism is connected to strategic manipulation of others (Abell, Brewer, Qualter, & Austin, 2016; Brewer, Abell, & Lyons, 2016), and individuals high in this trait produce more high-stakes (Azizli et al., 2016) and white lies (Jonason et al., 2014). Both narcissism and Machiavellianism link to a self-perception of oneself as being a good liar (Giammarco et al., 2013; Jonason et al., 2014). Individuals high in psychopathy feel positive emotions when telling lies (Baughman et al., 2014), and tell lies for no particular reason (Jonason et al., 2014). Overall, Machiavellianism and psychopathy are associated with more deceitfulness than narcissism (Jonason et al., 2014), and would be expected to have a relationship with increased lie detection ability.

To date, there have only been a handful of studies investigating the Dark Triad traits and lie detection, and the findings are inconsistent. For example, Wright, Berry, Catmur and Bird (2015) found no relationship between lie detection and any of the Dark Triad traits, shadowed by similar findings in a study on psychopathy (Martin & Leach, 2013). However, these studies were low-stakes laboratory experiments, with relatively little emotional content to the lies. A study that explored the accuracy of detecting high-stakes emotional lies found that men high in primary psychopathy (i.e., coldness and callousness) performed better (Lyons et al., 2013), which could be linked to an increased ability to detect micro-expressions of sadness (Demetrioff, Porter, & Baker, 2016). However, these studies have looked at psychopathy without the two other Dark Triad traits, and it is possible that the associations with lie detection are driven by the common variance that psychopathy shares with the other two traits.

We were also interested in exploring sex differences with regards to deception detection and the Dark Triad. Previous research has found that women perform better than men in detecting high-stakes lies, and psychopathy sub-types have opposing effects on lie detection depending on the sex of the participant (Lyons et al., 2013). Further, relationship between empathy and the Dark Triad depend on the sex of the individual, where empathy deficits are localised to primary psychopathy in men, and narcissism in women (Jonason et al., 2013). As empathy and emotional intelligence could have an impact on lie detection (Baker et al., 2013), it is important to investigate the sex differences between accuracy and Dark Triad as well. However, there is not enough previous literature to make specific predictions for each sex, and therefore, the analyses on sex differences in this study are exploratory in nature.

In summary, the present study is unique in the following ways. First, we add to the existing literature by looking at lie detection and the three Dark Triad traits together, rather than investigating the traits in isolation from each other. Second, we utilise high-stakes emotional TV appeals, which has not been investigated together with the Dark Triad in previous studies. Third, we take into account possible sex differences between personality and ability to detect lies. We expect that the links between lie detection accuracy and personality may be dependent on the sex of the participant, although we will not make any specific predictions with this regard.

**Methods**

Participants and procedure

The final sample consisted of 347 volunteers (age range 17-80, Mean age = 25.78, *SD* = 13.40; 98 men), who entered an on-line experiment on “Personality and lie detection”. The survey link was advertised to first year psychology students who could participate in exchange of course credits, as well as to the social networks of the researchers and student research assistants. Most participants (*n* = 320) were from the United Kingdom. On entering the survey, participants were presented with an on-line information sheet, and after giving their consent, they were directed to a page containing the Dark Triad questionnaire, followed by 20 video clips, randomised for lies and truths.

Materials

The Short Dark Triad (SD-3; Jones & Paulhus, 2014) consists of 27 Likert-scale questions (1 = *Disagree strongly*, 5 = *Agree strongly*), nine for each trait. Machiavellianism was measured with questions such as “It is not wise to tell your secrets”, and “I like to use clever manipulation to get my way” (Cronbach’s alpha = .75). Psychopathy items included “I enjoy having sex with people I hardly know”, and “People who mess with me always regret it” (α = .55). Narcissism items include statements such as “I know that I am special because everybody keeps telling me so”, and “People see me as a natural leader” (α = .45). The low internal reliability for narcissism and psychopathy are of concern, and the results for these two traits should be treated with caution.

The video clips consisted of 20 short (10-30 seconds) recordings from international news websites where people were appealing in front of TV cameras in order to find a missing person. In half of the cases, the individual making the appeal had murdered the person (see Shaw & Lyons, 2017). After each clip, participants were asked to indicate whether the person is lying or telling the truth (lie/truth), and if they were familiar with the case (yes/no). Participants who were familiar with one or more cases were dropped from the analyses.

Data analysis

We used the signal detection theory for estimating bias-free deception detection accuracy (Higham, Perfect, & Bruno, 2009). First, we computed a hit rate (i.e., the probability of correctly identifying a liar), and a false alarm rate (i.e., the probability of incorrectly identifying a non-liar as a liar). We then applied the Snodgrass and Corwin (1988) correction to these rates in order to calculate a non-biased measure of lie detection accuracy (*d’*), as well as response bias (c), which indicates the likelihood of judging people as liars even when they are telling the truth.

**Results**

In Table 1, we present descriptive statistics for the whole sample. We also analysed the results for sex differences, which were found only for Machiavellianism and psychopathy, where men scored significantly higher than women (please contact the first author for full results). In Table 1, we also present Pearson’s cross-correlations separately for each sex. Machiavellianism had a significant, positive association with accuracy in women, but not in men. The differences in the correlations in men and women for Machiavellianism and accuracy were not significant (Fisher’s *z* = 1.17, *p* > .05). Narcissism had a significant, negative correlation with accuracy in men, but not in women. These correlations were significantly different between the sexes (Fisher’s *z* = 2.27, *p* < .01).

Table 1: Descriptive Statistics for the whole sample, and cross-correlations between the Dark Triad and lie detection accuracy, bias, and confidence (men are below, and women above the diagonal)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Mean (SD) | 1 | 2 | 3 |  4 |  5 |
| 1. Psychopathy | 2.46 (0.48) | - | .37\*\* | .57\*\* | -.01 | -.07 |
| 2. Narcissism  | 2.86 (0.44) | .30\*\* | - | .41\*\* | .05 | .01 |
| 3. Machiavellianism | 2.91 (0.62) | .55\*\* | .25\* | - | .10\*\* | -.02 |
| 4. d’  | 0.48 (0.61) | .03 | -.22\* | .03 | - | -.02 |
| 5. c’  | 0.03 (0.37) | .06 | .09 | -.05 | -.02 | - |

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

Because age had a significant, negative correlation with all the Dark Triad traits (Machiavellianism *r* = -.28, *p* < .001; narcissism *r* = -16, *p* < .01, psychopathy *r* = -.40, *p* < .001) as well as a positive correlation with lie detection accuracy (*r* = .12, *p* < .05), age was entered as a control variable in subsequent regression analyses.

We run a linear multiple regression separately for the sexes, where accuracy (d’) was entered as the outcome variable, and age, the Dark Triad traits, and bias (c) were entered as simultaneous predictor variables. In men, only narcissism emerged as a significant predictor, indicating that higher narcissism had an association with lower accuracy (β = -.24, t = -2.30, p < .02). In women, both age (β = .15, t = 2.27, p < .02) and Machiavellianism (β = .28, t = 3.46, p < .001) were significant positive predictors of accuracy. For the full results (including the non-significant relationships), please contact the first author.

**Discussion**

Detecting truthfulness of others is a vital skill with a high relevance in the legal system, as well as in everyday social interactions. Our results suggest that sex and personality are important predictors of accuracy in high-stakes emotional settings. We found that bias-free accuracy had a positive correlation with Machiavellianism, but only in the female sample. In the male sample, those who were more narcissistic had lower lie detection ability. These sex differences are curious, and challenging to explain in the light of previous studies.

Much of the previous literature on the Dark Triad has focussed on explaining the traits as male-typical mating adaptations, and the theories with regards to women have been left under-developed (see Carter, Campbell, & Muncer, 2014). Research that has focussed on Machiavellianism in women specifically shows that individuals on the higher end of this trait use manipulation and aggression in inter-personal relationships (Abell et al., 2016; Abell & Brewer, 2014; Brewer, Abell, & Lyons, 2016). This suggests that Machiavellianism could be an adaptive, manipulative cheater strategy aiding women to gain access to resources. Lie detection could be part of the same strategy.

Interestingly, men who were high on narcissism were poor at detecting lies. Previous studies have found that narcissism is associated with over-confidence in one’s ability, but not necessarily in better performance. For instance, Ames and Kammrath (2004) investigated self-perceived and actual inter-personal perception in two experiments with male-heavy samples. They found that those who were high in narcissism over-estimated their ability to read others, but did not perform above chance. Research has also found that narcissism (Black, Woodworth, & Porter, 2014; Rauthmann, 2012) and associated characteristics such as self-centeredness (Back, Schmukle, & Egloff, 2011), are linked to negative evaluations of other people. It is possible that especially in narcissistic men, the negative bias towards others distracts individuals from objective assessment of truthfulness. Future studies should investigate how narcissistic individuals perceive the liars and truth-tellers, and if these perceptions detract from accurate assessment of veracity.

Our research has some limitations, which are discussed next. The low internal reliability of narcissism and psychopathy subscales were somewhat of a problem, and the study would benefit from a replication with longer Dark Triad instruments. Taking the replication crisis in psychology (Maxwell, Lau, & Howard, 2015), these results should be considered as preliminary until they have been replicated by other research teams. Further, using longer instruments would also facilitate analysis of the sub-components of narcissism and psychopathy, which have been identified as having important, sex-specific relationships with empathy (Jonason et al., 2013), as well as lie detection (Lyons et al., 2013). Finally, the present study did not establish whether the link between personality and accuracy is associated with the ability or inability to use emotional authenticity as a cue. Being able to judge emotional authenticity is a key to detecting liars in high-stakes settings (Shaw & Lyons, 2017), and it is possible that this is where high Machiavellian women excel, and high narcissistic men fail. Future studies could investigate the links between personality, and the types of cues that people focus on when detecting emotional lies.

In conclusion, we found some interesting, sex-dependent associations between personality, and accuracy in lie detection. When judging the veracity of statements in a high-stakes emotional appeals, Machiavellianism in women had a relationship with increased accuracy, and narcissism in men related to decreased accuracy. Being able to judge truthfulness of others is an important skill, and could be part of an adaptive cheater strategy, especially for women. The interplay between the Dark Triad of personality and sex in high-stakes emotional lie detection is a potentially fruitful area of research, and could help us to understand further the sex-specific correlates associated with manipulative personality traits.

References

Abell, L., & Brewer, G. (2014). Machiavellianism, self-monitoring, self-promotion and relational aggression on Facebook. *Computers in Human Behavior*, *36*, 258-262.

Abell, L., Brewer, G., Qualter, P., & Austin, E. (2016). Machiavellianism, emotional manipulation, and friendship functions in women's friendships. *Personality and Individual Differences*, *88*, 108-113.

Ames, D. R., & Kammrath, L. K. (2004). Mind-reading and metacognition: Narcissism, not actual competence, predicts self-estimated ability. *Journal of Nonverbal Behavior*, *28*, 187-209.

Azizli, N., Atkinson, B. E., Baughman, H. M., Chin, K., Vernon, P. A., Harris, E., & Veselka, L. (2016). Lies and crimes: Dark Triad, misconduct, and high-stakes deception. *Personality and Individual Differences*, *89*, 34-39.

Back, M. D., Schmukle, S. C., & Egloff, B. (2011). A closer look at first sight: Social relations lens model analysis of personality and interpersonal attraction at zero acquaintance. *European Journal of Personality*, *25*, 225-238.

Baker, A., ten Brinke, L., & Porter, S. (2013). Will get fooled again: Emotionally intelligent people are easily duped by high‐stakes deceivers. *Legal and Criminological Psychology*, *18*, 300-313.

Baughman, H. M., Jonason, P. K., Lyons, M., & Vernon, P. A. (2014). Liar liar pants on fire: Cheater strategies linked to the Dark Triad. *Personality and Individual Differences*, *71*, 35-38.

Black, P. J., Woodworth, M., & Porter, S. (2014). The Big Bad Wolf? The relation between the Dark Triad and the interpersonal assessment of vulnerability. *Personality and Individual Differences*, *67*, 52-56.

 Bond, C. F., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Personality and Social Psychology Review*, *10*, 214-234.

 Brewer, G., Abell, L., & Lyons, M. (2016). Machiavellianism, pretending orgasm, and sexual intimacy. *Personality and Individual Differences*, *96*, 155-158.

Carter, G. L., Campbell, A. C., & Muncer, S. (2014). The Dark Triad: Beyond a ‘male’mating strategy. *Personality and Individual Differences*, *56*, 159-164.

Demetrioff, S., Porter, S., & Baker, A. (2016). I know how you feel: the influence of psychopathic traits on the ability to identify micro-expressions. *Psychology, Crime & Law*, 1-17.

Giammarco, E. A., Atkinson, B., Baughman, H. M., Veselka, L., & Vernon, P. A. (2013). The relation between antisocial personality and the perceived ability to deceive. *Personality and Individual Differences*, *54*, 246-250.

Higham, P. A., Perfect, T. J., & Bruno, D. (2009). Investigating strength and frequency effects in recognition memory using type-2 signal detection theory. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 35,* 57–80.

Jonason, P. K., Lyons, M., Baughman, H. M., & Vernon, P. A. (2014). What a tangled web we weave: The Dark Triad traits and deception. *Personality and Individual Differences*, *70*, 117-119.

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.

Jones, D. N., & Figueredo, A. J. (2013). The core of darkness: Uncovering the heart of the Dark Triad. *European Journal of Personality*, *27*, 521-531.

Jones, D. N., & Paulhus, D. L. (2014). Introducing the short dark triad (SD3) a brief measure of dark personality traits. *Assessment*, *21*, 28-41.

Lyons, M., Healy, N., & Bruno, D. (2013). It takes one to know one: Relationship between lie detection and psychopathy. *Personality and Individual Differences*, *55*, 676-679.

Martin, K., & Leach, A. M. (2013). Psychopathy and deception detection. *Personality and Mental Health*, *7*, 154-159.

Maxwell, S. E., Lau, M. Y., & Howard, G. S. (2015). Is psychology suffering from a replication crisis? What does “failure to replicate” really mean?.*American Psychologist*, *70*, 487-498.

Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain sciences*, *18*, 523-541.

Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, *36*, 556-563.

Rauthmann, J. F. (2012). The Dark Triad and interpersonal perception: Similarities and differences in the social consequences of narcissism, Machiavellianism, and psychopathy. *Social Psychological and Personality Science*, *3*, 487-496.

Shaw, H., & Lyons, M (in press) Lie Detection Accuracy—the Role of Age and the Use of Emotions as a Reliable Cue. *Journal of Police and Criminal Psychology*

Snodgrass, J. G., & Corwin, J. (1988). Perceptual identification thresholds for 150 fragmented pictures from the Snodgrass and Vanderwart picture set. *Perceptual and Motor Skills, 67*, 3–36.

ten Brinke, L., & Porter, S. (2012). Cry me a river: Identifying the behavioral consequences of extremely high-stakes interpersonal deception. *Law and Human Behavior*, *36*, 469-477.

Warren, G., Schertler, E., & Bull, P. (2009). Detecting deception from emotional and unemotional cues. *Journal of Nonverbal Behavior*, *33*, 59-69.

Wright Whelan, C., Wagstaff, G. F., & Wheatcroft, J. M. (2015). Subjective Cues to Deception/Honesty in a High Stakes Situation: An Exploratory Approach. *The Journal of Psychology*, *149*, 517-534.

Wright, G. R., Berry, C. J., Catmur, C., & Bird, G. (2015). Good liars are neither ‘dark’nor self-deceptive. *PloS one*, *10*(6), e0127315.

Wright GRT, Berry CJ, Bird G (2012) "You can't kid a kidder": Association between production and detection of deception in an interactive deception task. *Frontiers in Human Neuroscience*, 6, 1–7.