



The ability to lie and its relations to the dark triad and general intelligence

Moritz Michels*, Günter Molz, Frederic Maas genannt Bermphohl

Institute of Psychology, University of Wuppertal, Germany



ARTICLE INFO

Keywords:

Intelligence
Dark triad
Manipulation
Lying ability

ABSTRACT

The dark triad of personality (D3) – psychopathy, machiavellianism, and narcissism – is commonly conceived to be related to manipulative and deceptive abilities and is often regarded as an exploitative behavioral strategy. Some authors argue that the effectiveness of this strategy is moderated by other variables, e.g. intelligence. In our study participants prepared three short stories about personal incidences: Two had to be true and one had to be non-factual. The subjects told their stories in a laboratory setting while being videotaped. The *SRP-4*, the *MACH VI* and the *NARQ* were used to measure the dark triad. General intelligence was assessed with the *WAIS-IV*. Subsequently, raters judged which of the three stories was the non-factual one. In conclusion, participants' lying ability was operationalized by the number of raters not succeeding to identify the non-factual story. We tested if (a) the D3 and (b) intelligence were correlated with lying ability, and (c) the D3-lying-ability-relation was moderated by intelligence. The results indicated that neither the dark triad nor general intelligence are meaningfully related to lying ability and that general intelligence does not moderate the D3-lying-ability-relation. Our results challenge the view that the D3-traits enable individuals to exploit their social environment effectively.

1. Introduction

Lying is a frequent part of social interaction (DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996) and has been examined extensively in psychological research. Although lying is often regarded as a nefarious act, it has also been described as a “social lubricant” (Vrij, 2008, p. 12). Lying can be defined as “an act that is intended to foster in another person a belief or understanding which the deceiver considers to be false” (Zuckerman, DePaulo, & Rosenthal, 1981, p. 3). Consequently, lies are neither errors in memory, i.e., due to misremembering or “false memories” (Vrij, 2008), nor untrue statements made when delusional (e.g., due to distorted perception of reality in acute psychosis). Further, a lie does not necessarily need to be successful or put the receiver(s) at a disadvantage (Vrij, 2008). Using sarcasm is not lying either as the deceiver regularly aims at it being uncovered. The mere concealment of information however does not constitute a lie either, since – although deceptive in nature – this might not be regarded as an “act”. There are a few prolific liars who are responsible for a major share of lies that are told (Serota & Levine, 2015), but there is evidence that most people lie approximately one to two times a day (DePaulo et al., 1996; Serota, Levine, & Boster, 2010).

Surprisingly, little research on what constitutes a “good liar” and which people have a high ability to lie is available. We define *lying*

ability (LA) simply as the ability to tell lies successfully. A lie is successful when the receiver's belief is in accordance with the sender's aim after the sender told the lie. Several traits have been discussed as possible factors contributing to an increase in lying ability: Vrij, Granhag, and Mann (2010) propose that individuals who (a) seem likable and trustworthy, (b) can avoid the stereotype of how liars are generally thought to behave, (c) are verbally skilled and intelligent and do not feel guilt or fear during the act of lying, and (d) actually prepare their lie and use concrete strategies to deceive, are more likely to be good liars. Nevertheless, the authors concede that these assumptions are hardly backed up by empirical evidence yet. A systematic literature review on LA and what constitutes a good liar by Semrad, Scott-Parker, and Nagel (2019) was unfortunately mostly inconclusive due to a lack of convincing empirical evidence. While some is known about the characteristics of good liars, there has been extensive research on the perception of lying – especially regarding the accuracy of deception detection. In their prominent study, Bond and DePaulo (2006) found that people identify 47% of lies correctly as lies and 61% of truths correctly as true stories. This demonstrates that lie detection is rather difficult and in this study we aim to identify personal factors of the deceivers that might explain differences in deception detection accuracy. In our study we focus on the *dark triad of personality* (Paulhus & Williams, 2002) and general intelligence as potential beneficial factors

* Corresponding author at: Institute of Psychology, University of Wuppertal, Gaußstraße 20, 42119 Wuppertal, Germany.

E-mail address: michels@uni-wuppertal.de (M. Michels).

for successful lying.

1.1. The dark triad

The dark triad is a set of three personality traits – psychopathy, machiavellianism, and narcissism – that currently poses as a popular concept to describe, explain and predict socially-aversive behavior. Psychopathy (P) is characterized by superficial charm, deceptive and manipulating behavior, a lack of remorse, empathy, fear, and emotionality as well as antisocial behavior in general (Hare, 1999). The *four-factor model of psychopathy* conceptualizes P as a combination of four facets and two higher-order factors (Hare & Neumann, 2006): *Interpersonal Manipulation* (IPM), *Callous Affect* (CA), *Erratic Lifestyle* (ELS), and *Anti-Social Behaviour* (ASB) with IPM and CA representing *Factor 1* (primary psychopathy) and ELS and ASB representing *Factor 2* (secondary psychopathy). P is a trait that is primarily of interest for forensic psychologists (in regards to predicting criminal careers) and has just recently been introduced to personality psychology as well. Machiavellianism (M) – a personality construct whose name refers to the writings of the philosopher Niccolò Machiavelli – describes a lack of affect in interpersonal relations, a utilitarian worldview, and a lack of psychopathology (Christie & Geis, 1970). Machiavellians are thought to be sneaky manipulators that are cold, pragmatic, unimpulsive and goal-oriented. It has been shown that M has high empirical overlap with P which might be the result of problematic measurement of M (i.e. MACH-IV; Christie & Geis, 1970): McHoskey, Worzel, and Szyarto (1998) go as far interpreting the research on M as research on sub-clinical psychopathy. Jones and Paulhus (2009) state that P and M should be differentiated. They refine the M-concept by including aspects of long-term planning and reputation management. We strongly agree and consequently use a conceptually appropriate measure for machiavellianism in our study. Narcissistic individuals tend to feel superior to others, brag about themselves, and intend to dominate their social environment (Raskin & Hall, 1981). Narcissism (N) is thought to be motivated by a strong strive for positive evaluations by others, but should be examined separately from *vulnerable* (or *pathological*) *narcissism* that has been linked to neuroticism and the *narcissistic personality disorder* from the DSM-V (Miller et al., 2018). Back et al. (2013) conceptualize two forms of N: *narcissistic admiration* (grandiose phantasies, interpersonal charm, ...) and *narcissistic rivalry* (aggression, devaluation of others, ...).

There is substantial theoretical overlap and all three D3-traits are moderately intercorrelated (Muris, Merckelbach, Otgaar, & Meijer, 2017). Other concepts of socially aversive behavior dispositions (e.g. *D*, low *honesty-humility* or *everyday sadism*) have shown to be highly correlated with the D3-traits (Moshagen, Hilbig, & Zettler, 2018), but there is no integrative framework on what makes a personality trait “dark” (Marcus & Zeigler-Hill, 2015). Several authors have argued that the D3-traits are probably related to special manipulative abilities and criteria of success: Psychopaths are described as flashy and skilled “human predators” (Hare, 1999, p. 207), machiavellians are supposed to be able to “successfully exploit others, especially in unpredictable and risky situations” (Bereczkei, 2017, p. 44) and narcissists are claimed to have “agentic interpersonal skills (e.g., confidence, charmingness)” (Back et al., 2013, p. 1014). These claims are sometimes backed up by empirical evidence, but are rarely derived from the D3-concepts themselves. The aim of this study is to examine if these assumptions are valid for lying ability.

Some D3-features may be meaningful for the success of telling a lie: Psychopathy is thought to comprise a tendency of low interpersonal affect, a lack of remorse for acting deviantly, frequent lying, and manipulation. Machiavellianism similarly implies a tendency of manipulation and deception. Both P and M go along with the goal of pretending to be a friendly, trustworthy individual, which might lead to higher lying ability according to Vrij et al. (2010). Also, the mere tendency to lie might make D3-individuals good liars due to practice,

since lying ability can probably be improved by training (Van Bockstaele et al., 2012). Note, however, that it is yet unknown if possible manipulative abilities of D3-individuals are the result of their manipulative behavioral style. Additionally, high moral standards, fear and guilt might impede individuals to lie effectively, since they might feel particularly uncomfortable while trying to tell something untrue and show inferior an performance (Zuckerman et al., 1981). Conceptually, this does not apply to psychopaths and machiavellians: They are not thought to be bothered by immoral acts (Egan, Hughes, & Palmer, 2015) or the fear of being caught and might not be “held back” in performing successfully. Therefore, D3-individuals might not have to take self-regulatory countermeasures that demand cognitive capacities and impede their overall lying performance.

1.2. Intelligence

Lying is considered to be a cognitively demanding task (Vrij et al., 2008; Zuckerman et al., 1981), as it makes use of several cognitive capacities simultaneously and goes beyond simply remembering an actual event. First, producing a lie itself consumes cognitive capacities (Vrij, Fisher, Mann, & Leal, 2008), i.e., a non-factual story has to be constructed in a way that makes it believable to others and “remembered” correctly. Additionally, liars have to conceal the truth while lying, which again requires cognitive performance. They might also have to react spontaneously to questions from the receiver that they might not have anticipated which demands a quick but appropriate response. Moreover, liars often query whether the targets believe them whereas people who tell the truth normally expect to be believed (Vrij, Hartwig, & Granhag, 2019). Therefore, liars monitor the receiver's behavior for cues to assure themselves that the receiver believes the lie while also checking their own behavior to avoid giving cues that they expect to be revealing.

The relation for LA and intelligence has yet to be examined in detail. Surprisingly, Wright, Berry, and Bird (2012) – whose study is similar to ours as it assessed actual lying behavior in a laboratory setting, but it used a group discussion instead – found no significant relationship with either cognitive ability or emotional intelligence regarding (non-self-reported) lying ability. However, Atkinson (2019) found working memory to be positively related to lying performance. In total and mostly due to conceptual reasoning, we expect intelligence to be positively related to LA. Furthermore, we expect it to moderate the P-/M-LA-relation: There is conflicting evidence about the moderating role of high cognitive abilities regarding D3-relations to antisocial behavior: It seems to enable D3-individuals to act antisocially (Côté, DeCelles, McCarthy, Van Kleef, & Hideg, 2011), while reducing their tendencies to act openly in these antisocial ways (Wall, Sellbom, & Goodwin, 2013). These findings are in line with the *moderated-expression model* for successful psychopathy proposed by Hall and Benning (2006). We expect the simultaneous presence of high P or M with high intelligence to enable individuals to show particularly high LA above our expected main effects.

1.3. Hypotheses

All in all and based on the aforementioned theoretical and empirical arguments, we expected that (a) machiavellianism and total psychopathy, (b) the P-facets IPM and CA (c) general intelligence and (d) Verbal Comprehension and Working Memory were positively related to lying ability and (e) intelligence would moderate the P-/M-LA-relation. We conducted exploratory analyses regarding the role of narcissism. The hypotheses were not preregistered.

2. Method

2.1. Participants and procedure

In our study we recruited $N = 55$ participants (mostly students from a German university). They prepared three short stories about a personal incidence in advance: Two had to be true and one had to be non-factual. The participants were instructed via E-mail that preparation time for the three stories should take about 60 min in total and the stories themselves should have a length of 3–5 min. The choice of the stories' topics were up to the participants, but the described personal incidences should be memorable – positive or negative – e.g., an accident, an argument with a close person, a theft or another stressful incidents, or a successful party, a relaxing vacation day, or a bonding experience with another person. The time frame in which the stories took place should not be longer than 24 h and have a clear ending and beginning. In a similar manner, the participants were instructed to generate a non-factual story in addition to the two factual ones. The non-factual story was supposed to be a completely made-up story and not just a variation of an actual incident. Additionally, the participants' stories should not be adapted from another person's life. Further, they were told not get any help generating the stories. The participants were asked to tell their non-factual story in a way that it should not be distinguishable from the presentation of the two factual stories by other individuals. Since it is rather difficult (if not impossible) to determine if a story is true or false by only seeing one story – deception/truth detection accuracy lies slightly above chance (Bond & DePaulo, 2006) – we had to establish a “baseline” to make it possible to identify the false story by comparing the statements with one another and identify the one story that was different to the other two (Vrij, 2008). Thus, the raters were able to get acquainted with the participants' style of storytelling and might have been able to recognize deviations in the performance in telling the confabulated story. Following the *Undeutsch hypothesis*, raters should be able to distinguish the confabulated story from the truthful ones as they would differ in certain verbal criteria (Amado, Arce, & Fariña, 2015).

The subjects narrated their stories in a laboratory setting while being videotaped. Afterwards, they wrote down which story was non-factual and sealed their written answer in an envelope to ensure that the interviewers were unaware of which story was fabricated, so that the participants would not be influenced by them. The subjects were also asked to estimate the time they needed to prepare all three stories. Five participants were excluded from our analysis: Two participants told at least one story that was not in line with the instructions that were given in advance and three participants told stories that were known to more than one rater that judged the stories in the aftermath. Six participants told stories that were known by exactly one rater; we included these participants nonetheless and adjusted the lying ability score (see below). The final sample size for the study was $N = 50$ (60% female).

After all stories were videotaped 13 raters who were academic assistants and interns from the department (age: $M = 22.67$, $SD = 3.36$; 62% female) watched each video. We balanced for possible sequence effects by using the latin-square-technique. The raters were informed that one of the three stories was fabricated and only stated which story they thought was confabulated. Subsequently, we calculated the proportion of raters that were successfully deceived by the participant (number of raters that were successfully deluded, i.e., raters chose a true story as the wrong one divided by the number of raters that judged the subjects' stories) – the “lying ability score”. The participants deluded 61% of the raters on average, which is unsurprising in the light of Bond and DePaulo's (2006) analyses. The internal consistency for LA (with the raters' judgments [correct/incorrect] posing as item scores) was $\alpha = .62$.

2.2. Instruments

2.2.1. Dark triad

We assessed the dark triad of personality with three prominent measures: *The Self-report Psychopathy Scale – Forth Edition* (SRP-4; Paulhus, Neumann, & Hare, 2016) was used to measure P. It is a 64-self-report-questionnaire that has shown to be the self-report equivalent of the *Psychopathy Checklist-Revised* (PCL-R; Hare, 2003) – the gold standard to measure psychopathy. It comprises the four facets *Interpersonal Manipulation*, *Callous Affect*, *Erratic Lifestyle*, and *Anti-Social Behaviour* and has shown to be a valid measure for P (Boduszek & Debowska, 2016). In our study the SRP-4 had a good internal consistency ($\alpha = .88$). Machiavellianism was measured with the *Machiavellianism Scale VI* (MACH VI; Jones & Paulhus, 2008), a 9-item-test that poses an alternative to the prominent MACH IV (Christie & Geis, 1970). While the MACH IV has shown to be related to impulsivity (Jones & Paulhus, 2009) – a result that is inconsistent with the concept of M – the MACH VI has shown to be unrelated to impulsivity and focuses on more adaptive manipulative strategies like reputation maintenance and long-term planning. Unfortunately, reliability of the MACH VI was very low in our study ($\alpha = .52$) – the results should only be interpreted with great caution. We measured N with the *Narcissistic Admiration and Rivalry Questionnaire* (NARQ; Back et al., 2013), a 18-item-self-report that measures N based on two dimensions which are partly contradictory: *Admiration* and *Rivalry*. Both sub-dimensions have shown to be distinctively related to relevant external criteria and are only (latently) intercorrelated by $r = .61$ (Back et al., 2013). Although most authors argue against it, both scales were aggregated in this study. In our current study the NARQ was a reliable measure to assess N ($\alpha = .85$). We used a 6-point Likert scale for each D3-component.

2.2.2. Intelligence

We measured general intelligence and its sub-components with the German adaption of the *Wechsler Adult Intelligence Scale – Fourth Edition* (WAIS-IV; Petermann, 2012). The WAIS-IV has shown to be one of the best tests to measure intelligence in adults that are currently available. The WAIS-IV is conducted in an individual setting and usually takes about 90 min. We conducted the ten so-called “core tests” to generate IQ-values for the four sub-facets *Verbal Comprehension*, *Perceptual Reasoning*, *Working Memory*, and *Processing Speed*. The internal consistency was low ($\alpha = .71$) with the overall (already normed) core test scores posing as items (i.e., 10 items), but note that reliability is generally calculated differently for the WAIS-IV.

3. Results

3.1. Descriptive statistics and correlational analysis

The descriptive statistics regarding our final sample ($N = 50$) are depicted in Table 1. The whole trial took about two hours and the participants were remunerated with either test person hours (required for their degree in psychology) or a small amount of money.

The intercorrelations between the study variables can be observed in Table 2. Lying ability correlates with almost no study variables significantly. There are small non-significant positive relations between LA on the one hand and P ($r = .144$, $p = .160$, 95%-CI [-.095; 1], one-tailed test) and general intelligence ($r = .145$, $p = .157$, 95%-CI [-.093; 1], one-tailed test) on the other hand. There were small non-significant positive relations between Verbal Comprehension and Working Memory regarding LA. The strongest relations could be observed with P and two of its facets: While lying ability seems to be unrelated to primary psychopathy (no significant relation with IPM or CA), there seems to be a relation with secondary psychopathy: We found a non-hypothesized positive significant, moderate relation between LA and ASB ($r = .301$, $p = .034$, 95%-CI [.025; .534], two-tailed test). LA was unrelated to M ($r = -.023$, $p = .563$, 95%-CI [-.257; 1],

Table 1
Descriptive statistics.

Variable	α	CI $_{\alpha}$	M	SD	Range
Age			25.28	9.24	[18; 56]
Intelligence (IQ)			104.20	9.96	[86; 134]
Verbal Comprehension			105.60	9.23	[83; 127]
Perceptual Reasoning			100.54	12.52	[76; 133]
Working Memory			100.36	12.44	[77; 128]
Processing Speed			107.96	11.71	[86; 143]
Psychopathy	.88	[.83; .92]	140.64	28.15	[83; 223]
IPM	.78	[.69; .87]	41.12	9.98	[20; 67]
CA	.78	[.69; .86]	32.88	9.53	[17; 56]
ELS	.75	[.66; .85]	43.40	1.96	[24; 70]
ASB	.69	[.57; .80]	23.24	8.25	[16; 59]
Machiavellianism	.52	[.32; .70]	31.72	5.34	[20; 46]
Narcissism	.85	[.79; .91]	45.68	1.74	[26; 84]
Narcissistic Admiration	.77	[.68; .87]	27.06	6.01	[12; 40]
Narcissistic Rivalry	.84	[.77; .90]	18.80	6.65	[10; 44]
Lying ability score	.62	[.47; .77]	0.61	0.21	[0.15; 0.92]
Preparation time (min)			47.70	33.91	[5; 200]

Notes. Study sample N = 50. CI $_{\alpha}$ = 95% confidence interval for α .

one-tailed test) and N ($r = -.088, p = .544, 95\% \text{-CI} [-.357; .195]$, two-tailed test). Note, that a post-hoc-power-analysis showed unsatisfying results, e.g. for P-LA the achieved power was only .26.

3.2. Moderator analysis

In this study, intelligence was examined as a moderator of the relation between the D3 traits and LA. First, the values for P, M, and intelligence were z-standardized. The results of the moderator analyses are depicted in Table 3. It can be observed that there were no significant interaction effects for P-intelligence or M-intelligence in regards to predicting LA. Thus, intelligence was not found to be a significant moderator of any of the proposed P-/M-LA relationships.

4. Discussion

None of our hypotheses were corroborated: Lying ability does not seem to be meaningfully related to the dark triad or intelligence. Furthermore, we did not find any relevant moderator effects. Several authors argue that the D3 is related to special manipulative abilities (e.g., Babiak & Hare, 2006; Back, Schmukle, & Egloff, 2010; Bereczkei, 2017). The dark triad is indeed conceptionally connected to the use of lies and D3-tests have also shown to predict deceptive behavior (Azizli

Table 2
Correlation matrix for the study variables.

Variable	1	1a	1b	1c	1d	2	2a	2b	2c	2d	3	4	4a	4b
1 Intelligence (IQ)														
1a Verbal Comprehension	.61**													
1b Perceptual Reasoning	.81**	.33*												
1c Working Memory	.76**	.36*	.50**											
1d Processing Speed	.45**	-.04	.15	.24										
2 Psychopathy	-.17	.18	-.09	-.20	-.34*									
2a IPM	-.09	.25	-.14	-.09	-.22	.78**								
2b CA	-.10	.17	-.11	-.10	-.21	.74**	.70**							
2c ELS	-.20	.06	.01	-.25	-.39**	.71**	.24	.24						
2d ASB	-.10	.05	-.04	-.11	-.15	.68**	.33*	.20	.51**					
3 Machiavellianism	-.10	-.08	-.06	-.14	.01	.17	.33*	.32*	-.18	.05				
4 Narcissism	.04	.05	-.01	.23	-.10	.41**	.43**	.40**	.27	.07	-.02			
4a Narcissistic Admiration	.13	.01	.11	.32*	.00	.28*	.27	.13	.32*	.07	-.17	.83**		
4b Narcissistic Rivalry	-.06	.06	-.12	.08	-.16	.41**	.45**	.52**	.15	.05	.13	.86**	.44**	
5 Lying ability score	.15	.13	.16	.11	-.10	.14	-.01	-.11	.25	.30*	-.02	-.09	-.01	-.13

Notes. Lying ability (score) = number of raters that were successfully deluded / number of raters that judged the subjects' stories. Significance levels are for two-tailed tests.

* $p < .05$.

** $p < .01$.

Table 3
Moderator analysis for intelligence regarding the P-/M-LA-relation.

	b	SE b	β	R ²	F
P-LA				0.081 (0.021)	1.354
Psychopathy	0.0358	0.0295	0.1743		
Intelligence	0.0210	0.0319	0.1021		
Intelligence x P	-0.0366	0.0295	-0.1898		
M-LA				0.091 (0.032)	1.539
Machiavellianism	0.0118	0.0299	0.0576		
Intelligence	0.3387*	0.1667	1.6490		
Intelligence x M	-0.0103	0.0055	-1.5223		

Notes. b = regression weights, SE b = standard error for b, β = standardized regression weights, R² = coefficient of determination (adjusted R² in brackets), F = F-value (df = 3; 46).

* $p < .05$.

et al., 2016; Jones & Paulhus, 2017). Furthermore, D3-individuals tend to describe themselves to be successful deceivers (Austin, Farrelly, Black, & Moore, 2007; Giammarco, Atkinson, Baughman, Veselka, & Vernon, 2013; Wissing & Reinhard, 2019). That being said, the D3 has often not shown to be a relevant predictor of actual successful manipulative behavior (Semrad & Scott-Parker, 2020; Wright, Berry, Catmur, & Bird, 2015) and some authors have questioned the view of adaptive, successful D3-individuals (Lilienfeld, Watts, & Smith, 2015; Wilson, Near, & Miller, 1998). Our findings are in notion with these recent results. Surprisingly, secondary psychopathy seems to be positively related to LA whereas primary psychopathy is not which we are unable to explain at this point. Cognitive ability was also not meaningfully related to LA. This might be an interesting finding since – in forensic psychology and *Criteria-Based Content Analysis* – intelligence it is often thought to be related to the ability to generate “high-quality” non-factual statements (which is slightly different from what we define as successful lies), although it has rarely been examined (Volbert, Steller, & Galow, 2010).

4.1. Limitations of our study

First of all, our study suffered from low power and possibly from range restriction regarding the D3 due to our student sample (e.g., possible maximum score for the SRP is 384 compared to a mean of 140.64 (SD = 28.15) in our sample). Reliability for the MACH-VI was extremely low, which makes it difficult to interpret the study results. However, the main issue of our study might be our operationalization of LA: Since lying ability has rarely been measured by not using self-

reports, our procedure was new and untested. Confounding might have played a major role: The raters' decisions on which story is fabricated can most likely not be explained only by LA, but also might depend on other variables like sex, age, motivation, content of the stories or emotional states. Additionally, participants were not specifically motivated to lie successfully (e.g. by an incentive). Furthermore, we did not control the participants' preparation time and reliability for LA was rather low. Consequently, our procedure should not be interpreted as an actual test of LA, but rather an external criterion of successful deceptive behavior. Furthermore, Vrij (2008) presumes that lies are told "without forewarning" which is not the case in our study since the raters were informed that they had to expect a fabricated story. Note that in our study, it is possible that the way we measure LA, we measured some kind of "narrative" ability instead: Participants had to prepare stories in advance, did not have to lie spontaneously and probably thought they had to enrich their stories with compelling, but also convincing details which is not very different from what a writer of fiction does. However, we do assume that in everyday life the option of planning, preparation and "story-telling" is not uncommon for individuals who are willing to lie and is therefore an appropriate design element for our study. Although this study comprises lies in a more playful and innocent setting compared to the "field" in real life, it comes with the advantages of laboratory settings. We were unable to check the objective factuality of the participants' stories and a problem might arise from our definition of lying which implicates that lies only have to be contrafactual in the eyes of the sender: If a participant would tell a story they think is untrue, but the story is objectively true (which is known by the receiver), the participant would technically tell a successful lie. In this case a high LA score would be due to the participant's distorted perception of reality and the receiver's (objectively true) knowledge, but independent from an actual ability. Although thought-provoking in theory, we had no reason to believe that this specific scenario occurred in our study. Lastly, the number of raters was only 13 which is a very small number, but note that in order to prevent bias from different levels of "lying detection ability" it was necessary that all videos were examined by the same raters (which took several hours).

4.2. Concluding remarks

There are many assumptions regarding the manipulative abilities of socially-averse individuals that are rarely backed up by empirical evidence not relying on self-reports. Although D3-individuals might need high manipulative skills, it is unclear whether they actually have them. We recommend that future research on the dark triad should more often imply observable behavior which might lead to a more accurate perception of D3-individuals' skills.

CRedit authorship contribution statement

Moritz Michels: Conceptualization, Methodology, Data curation, Formal analysis, Writing - original draft, Writing - review & editing, Supervision, Project administration. **Günter Molz:** Conceptualization, Writing - review & editing, Resources, Supervision. **Frederic Maas genannt BERPohl:** Conceptualization, Writing - review & editing, Investigation, Supervision.

Acknowledgments

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

Amado, B. G., Arce, R., & Fariña, F. (2015). Undeutsch hypothesis and criteria based content analysis: A meta-analytic review. *The European Journal of Psychology Applied to Legal Context*, 7, 3–12. <https://doi.org/10.1016/j.ejpal.2014.11.002>.

- Atkinson, D. J. (2019). *What makes a good liar? The relationship between cognitive and personality assessments' and lying ability using traditional and strategic interview approaches (unpublished doctoral dissertation)*. USA: Iowa State University.
- Austin, E. J., Farrelly, D., Black, C., & Moore, H. (2007). Emotional intelligence, machiavellianism and emotional manipulation: Does EI have a dark side? *Personality and Individual Differences*, 43, 179–189. <https://doi.org/10.1016/j.paid.2006.11.019>.
- 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. <https://doi.org/10.1016/j.paid.2015.09.034>.
- Babiak, P., & Hare, R. D. (2006). *Snakes in suits: When psychopaths go to work*. New York, NY: Regan Books.
- Back, M. D., Kufner, A. C. P., Dufner, M., Gerlach, T. M., Rauthmann, J. F., & Denissen, J. J. A. (2013). Narcissistic admiration and rivalry: Disentangling the bright and dark sides of narcissism. *Journal of Personality and Social Psychology*, 105, 1013–1037. <https://doi.org/10.1037/a0034431>.
- Back, M. D., Schmukle, S. C., & Egloff, B. (2010). Why are narcissists so charming at first sight? Decoding the narcissism–popularity link at zero acquaintance. *Journal of Personality and Social Psychology*, 98, 132–145. <https://doi.org/10.1037/a0016338>.
- Bereczkei, T. (2017). Machiavellian intelligence hypothesis revisited: What evolved cognitive and social skills may underlie human manipulation. *Evolutionary Behavioral Sciences*, 12, 32–51. <https://doi.org/10.1037/ebs0000096>.
- Boduszek, D., & Debowska, A. (2016). Critical evaluation of psychopathy measurement (PCL-R and SRP-III/SF) and recommendations for future research. *Journal of Criminal Justice*, 44, 1–12. <https://doi.org/10.1016/j.jcrimjus.2015.11.004>.
- Bond, C. F., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Personality and Social Psychology Review*, 10, 214–234. <https://doi.org/10.1207/s15327957pspr1003>.
- Christie, R., & Geis, F. (1970). *Studies in machiavellianism*. New York, NY: Academic Press.
- Côté, S., DeCelles, K. A., McCarthy, J. M., Van Kleef, G. A., & Hideg, I. (2011). The Jekyll and Hyde of emotional intelligence: Emotion-regulation knowledge facilitates both prosocial and interpersonally deviant behavior. *Psychological Science*, 22, 1073–1080. <https://doi.org/10.1177/0956797611416251>.
- DePaulo, B. M., Kashy, D. A., Kirkendol, S. E., Wyer, M. M., & Epstein, J. A. (1996). Lying in everyday life. *Journal of Personality and Social Psychology*, 70, 979–995. <https://doi.org/10.1037/0022-3514.70.5.979>.
- Egan, V., Hughes, N., & Palmer, E. J. (2015). Moral disengagement, the dark triad, and unethical consumer attitudes. *Personality and Individual Differences*, 76, 123–128. <https://doi.org/10.1016/j.paid.2014.11.054>.
- 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. <https://doi.org/10.1016/j.paid.2012.09.004>.
- Hall, J. R., & Benning, S. D. (2006). The "successful" psychopath: Adaptive and sub-clinical manifestations of psychopathy in the general population. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 459–478). New York, NY: Guilford Publications.
- Hare, R. D. (1999). *Without conscience: The disturbing world of the psychopaths among us*. New York, NY: Guilford Press.
- Hare, R. D. (2003). *The psychopathy checklist-Revised*. Toronto, ON: Multi-Health Systems.
- Hare, R. D., & Neumann, C. S. (2006). The PCL-R assessment of psychopathy. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 58–88). New York: Guilford Publications.
- Jones, D. N., & Paulhus, D. L. (2008). *Machiavellianism: A new measurement approach. Presented at the meeting of the Association for Research in Personality, Albuquerque, New Mexico*. February.
- Jones, D. N., & Paulhus, D. L. (2009). Machiavellianism. In M. R. Leary, & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 93–108). New York: Guilford Press.
- Jones, D. N., & Paulhus, D. L. (2017). Duplicity among the dark triad: Three faces of deceit. *Journal of Personality and Social Psychology*, 113, 329–342. <https://doi.org/10.1037/pspp0000139>.
- Lilienfeld, S. O., Watts, A. L., & Smith, S. F. (2015). Successful psychopathy: A scientific status report. *Current Directions in Psychological Science*, 24, 298–303. <https://doi.org/10.1177/0963721415580297>.
- Marcus, D. K., & Zeigler-Hill, V. (2015). A big tent of dark personality traits. *Social and Personality Psychology Compass*, 9, 434–446. <https://doi.org/10.1111/spc3.12185>.
- McHoskey, J. W., Worzel, W., & Szyarto, C. (1998). Machiavellianism and psychopathy. *Journal of Personality and Social Psychology*, 74, 192–210. <https://doi.org/10.1037/0022-3514.74.1.192>.
- Miller, J. D., Lynam, D. R., Vize, C., Crowe, M., Sleep, C., Maples-Keller, J. L., & Campbell, W. K. (2018). Vulnerable narcissism is (mostly) a disorder of neuroticism. *Journal of Personality*, 86, 186–199. <https://doi.org/10.1111/jopy.12303>.
- Moshagen, M., Hilbig, B. E., & Zettler, I. (2018). The dark core of personality. *Psychological Review*, 125, 656–688. <https://doi.org/10.1037/rev0000111>.
- Muris, P., Merckelbach, H., Otgaar, H., & Meijer, E. (2017). The malevolent side of human nature: A meta-analysis and critical review of the literature on the dark triad (narcissism, machiavellianism, and psychopathy). *Perspectives on Psychological Science*, 12, 183–204. <https://doi.org/10.1177/1745691616666070>.
- Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2016). *Manual for the self-report psychopathy scale-fourth edition*. Toronto, ON: 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. [https://doi.org/10.1016/S0092-6566\(02\)00505-6](https://doi.org/10.1016/S0092-6566(02)00505-6).
- Petermann, F. (2012). *Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV) (German version)*. Frankfurt, Germany: Pearson Assessment.
- Raskin, R., & Hall, C. S. (1981). The narcissistic personality inventory: Alternative form reliability and further evidence of construct validity. *Journal of Personality Assessment*,

- 45, 159–162. https://doi.org/10.1207/s15327752jpa4502_10.
- Semrad, M., & Scott-Parker, B. (2020). Police, personality and the ability to deceive. *International Journal of Police Science & Management*, 22, 50–61. <https://doi.org/10.1177/1461355719880568>.
- Semrad, M., Scott-Parker, B., & Nagel, M. (2019). Personality traits of a good liar: A systematic review of the literature. *Personality and Individual Differences*, 147, 306–316. <https://doi.org/10.1016/j.paid.2019.05.007>.
- Serota, K. B., & Levine, T. R. (2015). A few prolific liars. *Journal of Language and Social Psychology*, 34, 138–157. <https://doi.org/10.1177/0261927X14528804>.
- Serota, K. B., Levine, T. R., & Boster, F. J. (2010). The prevalence of lying in America: Three studies of self-reported lies. *Human Communication Research*, 36, 2–25. <https://doi.org/10.1111/j.1468-2958.2009.01366.x>.
- Van Bockstaele, B., Verschuere, B., Moens, T., Suchotzki, K., Debey, E., & Spruyt, A. (2012). Learning to lie: Effects of practice on the cognitive cost of lying. *Frontiers in Psychology*, 3, 526. <https://doi.org/10.3389/fpsyg.2012.00526>.
- Volbert, R., Steller, M., & Galow, A. (2010). Das Glaubhaftigkeitsgutachten [Credibility assessment]. In H.-L. Kröber, D. Dölling, N. Leygraf, & H. Sass (Eds.). *Handbuch der Forensischen Psychiatrie. Band 2: Psychopathologische Grundlagen und Praxis der Forensischen Psychiatrie im Strafrecht* (pp. 623–689). Steinkopff: Darmstadt.
- Vrij, A. (2008). *Detecting lies and deceit - pitfalls and opportunities*. Hoboken, NJ: John Wiley & Sons.
- Vrij, A., Fisher, R. P., Mann, S., & Leal, S. (2008). A cognitive load approach to lie detection. *Journal of Investigative Psychology and Offender Profiling*, 5, 39–43. <https://doi.org/10.1002/jip.82>.
- Vrij, A., Granhag, P. A., & Mann, S. (2010). Good liars. *The Journal of Psychiatry & Law*, 38, 77–98. <https://doi.org/10.1177/009318531003800105>.
- Vrij, A., Hartwig, M., & Granhag, P. A. (2019). Reading lies: Nonverbal communication and deception. *Annual Review of Psychology*, 70, 295–317. <https://doi.org/10.1146/annurev-psych-010418-103135>.
- Vrij, A., Mann, S. A., Fisher, R. P., Leal, S., Milne, R., & Bull, R. (2008). Increasing cognitive load to facilitate lie detection: The benefit of recalling an event in reverse order. *Law and Human Behavior*, 32, 253–265. <https://doi.org/10.1007/s10979-007-9103-y>.
- Wall, T. D., Sellbom, M., & Goodwin, B. E. (2013). Examination of intelligence as a compensatory factor in non-criminal psychopathy in a non-incarcerated sample. *Journal of Psychopathology and Behavioral Assessment*, 35, 450–459. <https://doi.org/10.1007/s10862-013-9358-1>.
- Wilson, D. S., Near, D. C., & Miller, R. R. (1998). Individual differences in machiavellianism as a mix of cooperative and exploitative strategies. *Evolution and Human Behavior*, 19, 203–212. [https://doi.org/10.1016/S1090-5138\(98\)00011-7](https://doi.org/10.1016/S1090-5138(98)00011-7).
- Wissing, B. G., & Reinhard, M. A. (2019). The dark triad and deception perceptions. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.01811>.
- Wright, G. R., Berry, C. J., & 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. <https://doi.org/10.3389/fnhum.2012.00087>.
- Wright, G. R., Berry, C. J., Catmur, C., & Bird, G. (2015). Good liars are neither “dark” nor self-deceptive. *PLoS One*, 10. <https://doi.org/10.1371/journal.pone.0127315>.
- Zuckerman, M., DePaulo, B. M., & Rosenthal, R. (1981). Verbal and nonverbal communication of deception. *Advances in Experimental Social Psychology*, 14, 1–59. [https://doi.org/10.1016/S0065-2601\(08\)60369-X](https://doi.org/10.1016/S0065-2601(08)60369-X).