



The Dark Triad of personality and unethical behavior at different times of day



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ABSTRACT

The Dark Triad of personality – narcissism, Machiavellianism, and psychopathy – is characterized by callous manipulation and social exploitation. Thus, dark personalities should be more prone to unethical behavior. Unethical behavior has been shown to vary during the course of the day with individuals displaying lower morality in the evening (Morning Morality Effect, MME). Hence, the present study investigated the association between the Dark Triad and unethical behavior as a function of time of day in an experimental design. Participants ($N = 195$) completed the study either in the morning or in the evening. In one task, participants had the choice to cheat on a fictitious partner for monetary benefit at the partner's expense. In a second task, they had the opportunity to lie about their performance for personal gain. Machiavellianism scores positively predicted unethical behavior in the first task. In the second task, psychopathy scores positively predicted lying. Neither could the MME be replicated, nor did time of day moderate the influence of the Dark Triad on unethical behavior. Thus, the present study indicates that the dark traits are differentially related to aspects of unethical behavior, such that Machiavellians display a preference for complex deception, while psychopaths engage in impulsive cheating.

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1.1. Introduction

The Dark Triad of personality (Paulhus & Williams, 2002) comprises three socially aversive and malevolent personality traits, namely narcissism, Machiavellianism, and psychopathy. Narcissism is characterized by grandiosity, entitlement, dominance, and superiority (Raskin & Hall, 1979), Machiavellianism can be described as a manipulative personality (Paulhus & Williams, 2002), and individuals with psychopathic traits have high sensation seeking and impulsivity along with callous affect and low empathy (Hare, 1985). Although offensive, the Dark Triad traits do not represent pathological concepts per se. Instead, individuals with dark personalities may very well be within the normal range of functioning (Furnham, Richards, & Paulhus, 2013).

The three traits have distinct theoretical origins. Narcissism and psychopathy were originally proposed to represent mental disorders, which found their way into mainstream personality research by the development of the Narcissistic Personality Inventory (NPI, Raskin & Hall, 1979) and the Self-Report Psychopathy (SRP) scale (Hare, 1985), respectively. The concept of Machiavellianism has a philosophical background as it is named for Niccolò Machiavelli, a politician and philosopher in the Florentine Republic around 1500. Machiavellianism emerged as a personality trait through the work of Christie and Geis

(1970), who delineated the Mach-IV as a measure of Machiavellianism. Despite their different etiologies, these personalities share common features, for example disagreeableness (Paulhus & Williams, 2002), manipulation and callousness (Jones & Figueredo, 2013), and social exploitation (Jonason, Li, & Teicher, 2010). However, they are not equivalent, but rather “overlapping but distinct constructs” (Paulhus & Williams, 2002, p. 556).

Since the original publication of the concept in 2002, the Dark Triad has gained much scientific attention. Among various outcome measures, for example workplace behavior (O'Boyle, Forsyth, Banks, & McDaniel, 2012) or mating strategies (Jonason, Li, Webster, & Schmitt, 2009), unethical behavior has been related to the dark traits: Psychopathy and Machiavellianism predicted exam copying and plagiarism, respectively (Nathanson, Paulhus, & Williams, 2006; Williams, Nathanson, & Paulhus, 2010). Baughman, Jonason, Lyons, and Vernon (2014) found that the Dark Triad, especially Machiavellianism and psychopathy, was associated with lying in an academic context, but also with dishonesty toward mates. Jonason, Lyons, Baughman, and Vernon (2014) reported that dark personalities make use of various inter- and intra-sexual deception tactics, suggesting that the Dark Triad traits reflect cheating strategies.

Kouchaki and Smith (2014) investigated cheating as a form of unethical behavior, but from a very different perspective: In four independent experiments, it was demonstrated that participants engaged in more unethical behavior in the afternoon compared to the morning

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hours. To explain this so-called Morning Morality Effect (MME), the authors referred to the strength model of self-regulation. According to this model, the capacity to exert self-control relies on a limited resource that depletes when demanded (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000). Self-control comprises the ability to resist temptations and the willpower to act according to moral standards. Indeed, it has been shown that the depletion of self-regulatory resources negatively affects ethical behavior (Gino, Schweitzer, Mead, & Ariely, 2011; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009). Given that many situations in daily life require self-control (Hofmann, Baumeister, Forster, & Vohs, 2012), self-control resources might diminish gradually throughout the day, resulting in a greater likelihood of self-regulatory failures, including lying or cheating, in the afternoon or evening as compared to the morning hours. In one of their experiments, Kouchaki and Smith (2014) found that lower moral awareness in the afternoon mediated the effect of time of day on cheating. Moreover, they report that moral disengagement moderated the MME such that the MME was especially evident in those with a low propensity to morally disengage.

As previous studies have demonstrated an influence of the Dark Triad and time of day on unethical behavior, the present study aimed at bringing these aspects together. Participants completed the study either in the morning or in the evening, which included a measure of Dark Triad personality traits and two tasks, in which they could cheat or lie. In contrast to previous studies, we decided to operationalize cheating and lying experimentally instead of using self-report questionnaires. It was expected that (1) individuals would be more likely to cheat or lie in the evening than in the morning, thus replicating the MME, and that (2) higher scores on Dark Triad personality traits would be associated with a higher likelihood of cheating or lying. In the original study by Kouchaki and Smith (2014), individual differences (moral disengagement) moderated the MME. As the Dark Triad should comprise a tendency to morally disengage, we also explored possible interactive effects between time of day and scores on Dark Triad personality traits. Specifically, we examined the possibility that unethical behavior in the evening would be particularly observed in individuals scoring high on Dark Triad traits or vice versa.

1.2. Methods

1.2.1. Participants

Data were collected via an online survey tool (<https://www.socsisurvey.de/>). The link to the study was distributed via social networks, local online platforms and student mailing lists. As an incentive, participants who completed the study had the chance to win one out of ten online shopping vouchers. A total of $N = 243$ participants started the survey, but data from $n = 48$ participants were excluded from analyses because they did not complete the entire study. The final sample comprised $n = 195$ participants (70.8% female, $n = 138$). Mean age was $M = 25.73$ years ($SD = 6.96$) and mean sleep duration during the past night was $M = 7.26$ h ($SD = 1.43$).

1.2.2. Measures

1.2.2.1. Short Dark Triad (SD3)

The SD3 (Jones & Paulhus, 2014) assesses the Dark Triad personality traits with 27 items (nine items per subscale). Items are scored on a five-point scale ranging from *strongly disagree* to *strongly agree*. The psychopathy subscale includes items related to impulsivity, callous manipulation and antisocial behavior. The Machiavellianism subscale includes items related to cynicism and manipulation tactics. The narcissism subscale includes items related to selfishness and a sense of grandiosity. Internal consistencies were $\alpha = .76$ (Machiavellianism), $\alpha = .68$ (narcissism), and $\alpha = .69$ (psychopathy) in the current study and, thus, comparable to those reported in the validation studies (Jones & Paulhus, 2014).

1.2.2.2. Global vigor and affect (GVA)

The GVA instrument (Monk, 1989) was used to control for participants' current vigor and affective state. It consists of eight items asking for current alertness, sadness, tension, effort, happiness, weariness, calmness, and sleepiness. Participants respond on a visual analog scale anchored *very little* (0) and *very much* (100). Global vigor is calculated with the formula $[(\text{alert}) + 300 - (\text{sleepy}) - (\text{effort}) - (\text{weary})] / 4$ and global affect with the formula $[(\text{happy}) + (\text{calm}) + 200 - (\text{sad}) - (\text{tense})] / 4$. Each formula yields a value between 0 and 100 with higher values indicating higher vigor and more positive affect, respectively.

1.2.2.3. Message-Task

To operationalize unethical behavior we used a decision-making task (Gneezy, 2005), in which participants had the opportunity to lie in order to allegedly raise the amount of the voucher (see below). The task was slightly changed as compared to the task used by Kouchaki and Smith (2014): The payment options mentioned in our task were higher and had greater differences than those used by Kouchaki and Smith (2014) to increase the probability of cheating. Participants were told that a second player would be involved. This second player was fictitious, which the participants did not know. Participants were given two payment options. The first option was for the benefit of the second player, the second option was in favor of the participant: "Option 1: You will receive 5.00€, whereas Player 2 will receive 15.00€." and "Option 2: You will receive 7.00€, whereas Player 2 will receive 5.00€." Participants were told that the actual payment would depend on Player 2's choice. To inform Player 2 about the payment options, participants had to choose between two messages, which allegedly would be sent to fictitious Player 2. The first message was veracious, the second message variation was a lie: "Message A: Option 1 can bring you more money than Option 2." versus "Message B: Option 2 will bring you more money than Option 1." Deciding to lie was therefore clearly linked to a financial incentive in this task. In the current study, 22.1% ($n = 43$) participants chose the dishonest message option.

1.2.2.4. Matrix-Task

As a second task to operationalize unethical behavior, we used a visual search task as used by Mazar, Amir, and Ariely (2008) and Kouchaki and Smith (2014). In this task, participants were able to increase their profit level by making false statements about their performance. Participants were presented a total of 20 matrices. Each matrix contained three rows and four columns consisting of a total of 12-digit numbers with one or two decimals (Fig. 1) and was presented for 15 s. During these 15 s, participants had to find two numbers which summed up to 10. Of the 20 presented matrices, 13 were solvable. Each presentation was followed by a page, on which the participant had to indicate whether he or she had found the two numbers or not. Indicating that the matrix was solved resulted in a profit increase of 2.50€. Choosing the option "Not found" did not yield any profit increase. It was not expected

7.87	3.62	9.41
5.72	7.4	5.84
2.49	9.59	6.62
4.16	5.61	0.49

Fig. 1. Example of a matrix used in the Matrix-Task to operationalize unethical behavior.

to name or remember the two numbers after the 15 s, therefore the result was not checked, which enabled participants to cheat. The order of the matrices was programmed in a way that the first seven matrices were solvable. Afterwards, a randomly determined sequence of the remaining 13 matrices followed, which was identical for all subjects. This visual search task does not require mathematical skills or above-average intelligence (Mazar et al., 2008). The mean number of lies in the current study was $M = 1.15$ ($SD = 1.71$, range 0–7).

1.2.3. Procedure

Data were collected between 7 and 10 a.m. and 4–7 p.m. without randomized assignment, that is, participants could choose freely if they participated in the morning or in the evening. As a cover story, participants were told that the study investigated cognitive abilities at different times of day. They were also informed about the opportunity to win one out of ten online shopping vouchers and that the vouchers' value could be increased during the tasks. After providing the sociodemographic information, participants completed the GVA, the Matrix-, and the Message-Task. The SD3 was presented at the end of the survey. Finally, participants were debriefed. They were informed about the fictitiousness of the partner in the Message-Task and that the vouchers had fixed values of 57€ each.

1.2.4. Data analyses

Differences in age, sleep duration, GVA scores, and sex distribution between individuals who participated in the morning or in the evening were tested with independent t -tests and χ^2 -test, respectively. Differences in SD3 scores between men and women were compared with independent t -tests. Associations between SD3 scores and continuous variables were examined with Pearson correlation coefficients.

Logistic regression analyses were used to examine predictors of choice in the Message-Task (message A [honest] coded 0 and message B [dishonest] coded 1). Three models were run for each SD3 subscale separately with time of day, SD3 subscale and the interaction term time of day \times SD3 subscale as predictor variables. In step 2, variables that were associated with SD3 scores (sex and GVA scores, see below) were entered as covariates.

Linear regression analyses were used to examine predictors of the number of lies in the Matrix-Task. Three models were run for each SD3 subscale separately with time of day, SD3 subscale and the interaction term time of day \times SD3 subscale as predictor variables. In step 2, variables that were associated with SD3 scores (sex and GVA scores, see below) were entered as covariates. All regression analyses were conducted using PROCESS for SPSS (Hayes, 2013). Continuous predictor variables were mean-centered before calculating the product terms. For all statistical tests, exact p -values are reported, except when $p < .001$. p -Values of ≥ 0.05 are denoted as *ns*.

1.3. Results

1.3.1. Participant characteristics

One-hundred eleven individuals participated in the morning and 84 individuals participated in the evening. Groups did not differ in age, sleep duration, global vigor, global affect (all $t_s < 1.78$, *ns*) or sex distribution ($\chi^2_{(1)} = 1.20$, *ns*). Men scored higher than women on all three subscales of the SD3 (Machiavellianism: $M_{\text{men}} = 3.10$, $SD = 0.67$ vs. $M_{\text{women}} = 2.69$, $SD = 0.52$; psychopathy: $M_{\text{men}} = 2.31$, $SD = 0.55$ vs. $M_{\text{women}} = 1.78$, $SD = 0.49$; narcissism: $M_{\text{men}} = 2.92$, $SD = 0.55$ vs. $M_{\text{women}} = 2.69$, $SD = 0.55$; all $t_s > 2.65$, $p < .01$). Global affect was negatively correlated with scores on the Machiavellianism ($r = -.17$, $p = .02$) and psychopathy subscales ($r = -.24$, $p = .001$). Scores on the Machiavellianism subscale were positively correlated with scores on the psychopathy ($r = .49$, $p < .001$) and narcissism subscales ($r =$

$.26$, $p < .001$). Scores on the psychopathy subscale were positively correlated with scores on the narcissism subscale ($r = .31$, $p < .001$).

1.3.2. Message-Task

Machiavellianism scores predicted message choice such that higher scores were associated with a higher likelihood of selecting the dishonest message (Table 1). This effect was not moderated by time of day. Including potential covariates revealed that global vigor also predicted message choice such that a higher current vigor was associated with a lower likelihood of selecting the dishonest message (Table 1). This, however, did not influence the association between Machiavellianism and message choice. None of the other variables significantly predicted message choice.

1.3.3. Matrix-Task

Psychopathy scores predicted the number of lies such that higher scores were associated with a higher number of lies (Table 2). This effect was not moderated by time of day. Including potential covariates did not influence the association between psychopathy and number of lies and none of the other variables significantly predicted number of lies.

1.4. Discussion

The present study aimed at investigating if people are more likely to cheat or lie in the evening, if personality features, namely the Dark Triad of personality, are associated with these behaviors and if time of day and personality are interactively associated with these outcomes. Our first hypothesis referred to replicating the MME (Kouchaki & Smith, 2014). However, time of day did not affect cheating or lying in our study, that is, the MME could not be replicated. A possible reason might be that our study did not include a randomized assignment. Instead, participants chose their preferred time of participation. This might have resulted in a self-selection bias such that the depletion of the self-regulatory resource might have been less pronounced in people who decided to participate in the evening. Therefore, the MME may have not emerged, because the self-regulatory resource in individuals participating in the evening was not sufficiently depleted. However, in the original publication by Kouchaki and Smith (2014), the MME occurred no matter whether participants self-selected their preferred time of participation or were randomly assigned into the morning or afternoon session.

Previous studies have shown that motivation and success importance can compensate for self-control resource depletion (Muraven & Slessareva, 2003; Stewart, Wright, Hui, & Simmons, 2009). Given that the current sample was recruited from the investigators' social environment, their motivation and effort might have been stronger than in participants in the original study. Further, our sample – specifically in the Matrix Task – was extremely honest and thus, we had little variance in these data. However, Kouchaki and Smith (2014) demonstrated the MME in both undergraduate students and U.S. adults. Although the MME has been replicated by Kouchaki and Smith themselves, future replication studies by other research teams are necessary to determine if the MME may only occur in certain samples (e.g., may dependent on culture) or under specific circumstances.

Our second hypothesis was that Dark Triad traits would be associated with a higher likelihood of unethical behavior. In contrast to previous studies, we did not rely on self-reports or fictitious scenarios, but operationalized cheating and lying situations. Although it has been shown that dark personalities report using various tactics of social influence (Jonason & Webster, 2012), we found that Machiavellianism and psychopathy were differentially related to cheating and lying in our two tasks. The Message-Task included a fictitious partner and a sophisticated cover story, requiring a high amount of cognitive effort. In this task, Machiavellianism positively predicted cheating. The Matrix-Task, in

Table 1
Results of logistic regression analyses predicting message choice in the Message-Task.

N = 195	Step 1				Step 2			
	B	SE	p	95% CI	B	SE	p	95% CI
<i>Machiavellianism</i>								
Time of day	0.23	0.36	ns	−0.47, 0.94	0.13	0.39	ns	−0.63, 0.88
Machiavellianism	0.68	0.30	.02	0.09, 1.28	0.98	0.36	.01	0.27, 1.70
Time of day × Machiavellianism	−0.06	0.60	ns	−1.24, 1.12	0.01	0.65	ns	−1.27, 1.29
Sex	–	–	–	–	−0.55	0.45	ns	−1.43, 0.34
Global affect	–	–	–	–	−0.01	0.01	ns	−0.03, 0.02
Global vigor	–	–	–	–	−0.02	0.01	.02	−0.04, −0.00
<i>Psychopathy</i>								
Time of day	0.16	0.35	ns	−0.53, 0.85	0.06	0.37	ns	−0.67, 0.78
Psychopathy	0.10	0.31	ns	−0.51, 0.72	0.00	0.37	ns	−0.73, 0.74
Time of day × psychopathy	0.48	0.62	ns	−0.73, 1.69	0.54	0.64	ns	−0.72, 1.79
Sex	–	–	–	–	−0.12	0.45	ns	−1.00, 0.77
Global affect	–	–	–	–	−0.01	0.01	ns	−0.03, 0.01
Global vigor	–	–	–	–	−0.02	0.01	.04	−0.04, −0.00
<i>Narcissism</i>								
Time of day	0.23	0.35	ns	−0.46, 0.92	0.15	0.37	ns	−0.59, 0.88
Narcissism	0.40	0.31	ns	−0.22, 1.02	0.52	0.34	ns	−0.14, 1.18
Time of day × narcissism	0.20	0.64	ns	−1.06, 1.45	0.12	0.66	ns	−1.18, 1.42
Sex	–	–	–	–	−0.23	0.41	ns	−1.04, 0.58
Global affect	–	–	–	–	−0.01	0.01	ns	−0.03, 0.01
Global vigor	–	–	–	–	−0.02	0.01	.04	−0.04, −0.00

Notes. Significant predictors are printed in boldface.

contrast, animated participants to lie via a quick and simple click, which was related to higher scores on psychopathy. Indeed, it has been shown that psychopathy is closely related to dysfunctional impulsivity stemming from poor self-regulation (Jones & Paulhus, 2011). In a study by Baughman et al. (2014), who investigated self-reported lying frequency, all three Dark Triad traits were associated with lying. However, this association was entirely attributable to psychopathy and Machiavellianism. Consistent with our findings, Baughman et al. (2014) report that Machiavellianism was related to planning and constructing original and detailed deception.

In line with previous findings, narcissism did not predict unethical behavior in the current study. A possible explanation might be that narcissism is the “brightest”, that is, the least malicious, among the Dark

Triad traits (Rauthmann & Kolar, 2012, 2013). Moreover, Jonason and Tost (2010) found low self-control in psychopaths and to some extent in Machiavellians, but not in narcissists. Taken together, these results suggest that among the dark personalities, narcissists might be least susceptible to moral disengagement.

Our third hypothesis was that time of day and Dark Triad personality may be interactively related to unethical behavior. For example, Gunia, Barnes, and Sah (2014) argue that unethical behavior cannot simply be explained by individual characteristics or a given situation. Instead, the interplay between personal and situational features (person × situation fit) may determine whether people behave unethically or not. However, this idea was not supported in the current study. Thus, results suggest that the unethical behavior displayed by individuals scoring high on

Table 2
Results of linear regression analyses predicting the number of lies in the Matrix-Task.

N = 195	Step 1				Step 2			
	B	SE	p	95% CI	B	SE	p	95% CI
<i>Machiavellianism</i>								
Time of day	−0.07	0.25	ns	−0.56, 0.42	−0.11	0.26	ns	−0.62, 0.40
Machiavellianism	0.16	0.21	ns	−0.25, 0.57	0.10	0.23	ns	−0.35, 0.56
Time of day × Machiavellianism	0.11	0.42	ns	−0.71, 0.93	0.06	0.43	ns	−0.78, 0.90
Sex	–	–	–	–	0.49	0.29	ns	−0.09, 1.07
Global affect	–	–	–	–	0.01	0.01	ns	−0.01, 0.03
Global vigor	–	–	–	–	−0.00	0.01	ns	−0.02, 0.01
<i>Psychopathy</i>								
Time of day	−0.11	0.25	ns	−0.59, 0.38	−0.12	0.25	ns	−0.62, 0.38
Psychopathy	0.51	0.22	.02	0.07, 0.94	0.55	0.25	.03	0.05, 1.05
Time of day × psychopathy	0.17	0.44	ns	−0.69, 1.03	0.10	0.44	ns	−0.77, 0.97
Sex	–	–	–	–	0.24	0.30	ns	−0.36, 0.84
Global affect	–	–	–	–	0.01	0.01	ns	−0.00, 0.03
Global vigor	–	–	–	–	−0.00	0.01	ns	−0.02, 0.01
<i>Narcissism</i>								
Time of day	−0.08	0.25	ns	−0.58, 0.41	−0.15	0.26	ns	−0.67, 0.36
Narcissism	0.06	0.22	ns	−0.38, 0.50	−0.09	0.23	ns	−0.55, 0.36
Time of day × narcissism	−0.52	0.46	ns	−1.42, 0.39	−0.62	0.46	ns	−1.54, 0.29
Sex	–	–	–	–	0.55	0.28	ns	−0.01, 1.10
Global affect	–	–	–	–	0.01	0.01	ns	−0.01, 0.03
Global vigor	–	–	–	–	−0.00	0.01	ns	−0.02, 0.01

Notes. Significant predictors are printed in boldface.

Machiavellianism and psychopathy appears to be unaffected by momentary circumstances such as time of day.

While the procedure used in the current study may have high ecological validity, future studies are needed on the MME or daytime-dependent behaviors of dark personalities using randomized assignment to experimental conditions. Another limitation may be that potential confounding variables like motivation or cognitive abilities were not assessed, which may relate to personality styles or may change throughout the day. However, we did control for current vigor and affect, which did not influence our findings. This is consistent with the results of Kouchaki and Smith (2014), who excluded changes in affective states as an alternative explanation for the MME. Finally, the current sample consisted predominantly of highly academically educated female university students. Thus, our sample may have had high self-regulatory skills not affected by time of day. Although sex was unrelated to task performance, it would be desirable to investigate more heterogeneous samples (regarding age, education, etc.) in future studies.

According to the present study, unethical behavior can be considered a function of personality, namely Machiavellianism and psychopathy, and, to some extent, a matter of reduced mental vigor. We conclude that the Dark Triad traits are differentially related to aspects of unethical behavior, such that Machiavellians display a preference for complex deception, while psychopaths engage in impulsive cheating. This adds to a better understanding of how dark personalities interact with their social environment.

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