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APPLIED PSYCHOLOGY | RESEARCH ARTICLE

The dark triad and willingness to commit insurance fraud

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Abstract: We evaluated how the dark triad (DT) personality traits (Psychopathy, Machiavellianism, Narcissism) influence willingness to claim for insurance in an online setting. In two mTurk studies (Ns 344 and 699) we created realistic online insurance claim tasks where participants could file claims for insured household items they had supposedly broken. We predicted "fibbing" (i.e., overclaiming the item values) in these tasks using the DT traits. However, within Study 2, we included monetary incentives and situational factors relating to claiming—that is, whether the items were broken in anger, while drunk, or by sheer accident. In both studies all DT traits predicted fibbing, but the results were weak for psychopathy in Study 1, while in Study 2 psychopathy was the strongest individual predictor of fibbing. Our results help understand why certain people are willing to commit insurance fraud, and provide an opening for further interdisciplinary research on insurance and personality science.

Subjects: Cybercrime; Applied Social Psychology; Personality; Social Influence; Criminology and Delinquency

Keywords: dark triad; deception; Machiavellianism; psychopathy; narcissism; insurance fraud

ABOUT THE AUTHOR

The security group at the Computer Laboratory, Cambridge University is interested in the intersection of computers and security. I personally research human aspects of security, and online crime. My main research areas currently are: psychology of IT security (policy making, compliance with policies, effective intrusion deterrence techniques and individual differences across IT personnel, from unethical to ethical hackers, administrative and compliance officers, and others), and psychology of cyber crime (why do people comply with fraudulent requests, what behaviour modification techniques are used by scammers, how to improve resistance to crime). The present paper speaks to the issue of fraud deterrence, specifically to the deterrence of insurance fraud. To understand how to approach this question, we need to know a bit more about the potential offenders and their individual differences. At the same time, we need to be familiar with the approaches employed by the insurance industry.

David Modic

PUBLIC INTEREST STATEMENT

Insurance fraud is highly common in the developed world; in the UK alone insurers uncovered over 350 fraudulent claims daily, amounting to weekly losses of about 18 million pounds. In our paper, we look into personality science and link the "dark triad" personality traits (Machiavellianism, psychopathy, and narcissism) to willingness to commit insurance fraud. We found that individuals high in dark triad traits, most notably psychopathy, are more likely to fib in realistic online insurance claim settings. Our results help understand why some people are more willing than others to commit insurance fraud, and highlight the need for further interdisciplinary research on insurance claiming and personality psychology.

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1. General introduction

Most adult residents of the developed world are insured in one way or another. We have social, health and motor insurance, we insure our homes; and many of us insure our belongings. Personal insurance is a lucrative enterprise. For example, the Association of British Insurers (2015a) reports the UK to be the third largest insurance market in the world (and the biggest in Europe), covering approximately 25% of the nation's total net worth and employing over 3,00,000 people. As is the case with many other lucrative markets, those interested in making a quick buck by not altogether legitimate means are often motivated to act against insurance companies' guidelines.

It is not possible to estimate with certainty the exact extent of fraudulent insurance claims, but in 2014 UK insurers uncovered over 350 fraudulent claims daily, amounting to weekly losses of approximately 18 million pounds (Association of British Insurers, 2015b). As is the case in other similar types of crime (e.g., Financial fraud; Durtschi, Hillison, & Pacini, 2004; Geyer, 2010), the actual extent of insurance fraud is likely to be a lot higher. Essentially, this means that many people frequently commit insurance fraud, although the actual numbers cannot be presented.

In this paper, we look into psychological theories in personality science to gain a better understanding on people who are willing to commit insurance fraud. We focus on the so-called *dark triad* (DT) traits of personality, which refer to three undesirable characteristics of human personality: psychopathy, Machiavellianism and narcissism. Although the individual constructs have been separately studied for many decades, the unified term "dark triad" was introduced by Paulhus and Williams (2002) as a theoretical improvement over existing models of human personality (such as the Five Factor Model; Goldberg, 1992; McCrae & Costa, 1987). The DT traits are distinct but overlapping constructs that help explain a variety of behaviours typically viewed as unethical, blameworthy, deceitful, manipulative or self-centred (Lee & Ashton, 2005).

Evidence suggests that both Machiavellian (high Machs) and psychopathic individuals are callous, deceptive, amoral, and have self-interested goals (McHoskey, Worzel, & Szyarto, 1998); although it seems that high psychopathy in particular is associated also with increased trait impulsivity (Hancock, Woodworth, & Porter, 2011; Newman, 1987; see also Vize, Lynam, Collison, & Miller, in press; for a meta-analysis on the DT traits). For example, both high psychopathy and Machiavellianism positively predict essay plagiarism, which requires planning and self-control, whereas copying exam answers on the "spur of the moment" is mainly associated with high psychopathy (Williams, Nathanson, & Paulhus, 2010).

Narcissism is typically associated with self-importance, entitlement, arrogance and need for admiration (Lee & Ashton, 2005; Raskin & Hall, 1979; Raskin & Terry, 1988). Narcissism has also been meta-analytically linked to counterproductive work behaviour, such as theft, sabotage, and spreading rumors about co-workers (O'Boyle, Forsyth, Banks, & McDaniel, 2012), as well as other outcomes that include a deception (Aviram & Amichai-Hamburger, 2005; Chatterjee & Hambrick, 2007); but compared with the other DT traits, its connection to manipulative or deceitful behaviour has been less prominent. Narcissism correlates with a preference for one-night stands and friends-with-benefits, but also with transgressions in long-term relationships (Campbell, 1999). Out of the three DT traits, narcissism has the least amount of overlap with the other two traits, although all three components share a self-centred bias.

While Machiavellianism, psychopathy and narcissism have been typically viewed as distinct (albeit closely related) constructs, recent evidence has questioned this view. For example, Persson, Kajonius, and Garcia (2017) argue that the three traits share too much variance to be viewed as clearly individual traits, and suggest using a compound score across all DT traits when measuring the "malevolent" aspects of human personality. Given the combined nature of the DT traits and their association with deceitful, manipulative and blameworthy behaviour, it is reasonable to presume they would all correlate with insurance claim behaviour; such as overclaiming, or claiming under

conditions where the claim would not be honoured (such as in the case of household insurance claiming for items that were broken accidentally while drunk, or intentionally while angry).

Therefore, measuring individual differences across the DT traits helps to shed light on general willingness to commit insurance fraud. In addition, because of the pervasive nature of insurance, we will achieve comparably high ecological validity. Due to reasons of confidentiality, obtaining the correlations between DT traits and actual insurance claim data is virtually impossible. Thus, we propose to evaluate insurance claim behaviour using realistic online insurance claim scenarios. We hypothesized that when analysed separately, or as a uniform construct (as suggested by Persson et al., 2017), all DT traits are positively associated with claim sizes and "fibbing" (i.e., overclaiming the value of the insured item, or likelihood of entering to file claims when the items were broken intentionally when angry, or accidentally while drunk).

2. General method

2.1. Participants and procedure

Two studies were run consecutively. Data were gathered online in both of them, using LimeSurvey. Our participants were recruited via Amazon Mechanical Turk (mTurk) and repeat participation was deterred by the use of the TurkGate,[1] and by disallowing duplicate IP-addresses from participating. Participants could take part in only one of the two studies; and had to have a 99% or higher mTurk worker approval rating. Both studies were carried out in accordance with the recommendations of the Newcastle University ethics committee, with written informed consent from all subjects in accordance with the Declaration of Helsinki.

In both studies, the participants were native English speakers living in the USA whose household income ranged from "less than US $10,000" to "more than $100,000" (the median income level was reported as "between $40,000 and $49,999"). About half of the participants held a Bachelor's degree (Study 1: 36%, Study 2: 40%) or higher (Study 1: 14%, Study 2: 11%). On average, our respondents held three different types of insurance (M_{Study1} = 2.88, M_{Study2} = 2.77), with vehicle insurance being the most frequent (Study 1: 86%, Study 2: 85%), followed by health (Study 1: 79%, Study 2: 84%) and property (Study 1: 55%, Study 2: 50%) insurance. Most participants worked in the private sector (Study 1: 35%, Study 2: 37%), followed by public sector (Study 1: 22%, Study 2: 16%) and self-employment (Study 1: 10%, Study 2: 12%). For study-specific demographic data, see the appropriate Sections.

In both studies, the survey consisted of six sequential parts:

(1) Introduction. Brief explanation of the survey structure, description of data handling, and informed consent.
(2) Demographics (age, birth gender, education, income, ethnicity, marital status, occupation, types of insurance held).
(3) Exploratory questionnaire measures[2] and the Short Dark Triad measure (Jones & Paulhus, 2014).
(4) Insurance claim task instructions (Study 1 and 2) and randomization into experimental conditions (Study 2).[3]
(5) Insurance claim task.
(6) Demand characteristics and debriefing.

3. Study 1

In Study 1 we aimed to obtain baseline information on individuals' claiming behaviour in a simple online insurance claim setting. We sought to establish the associations between the DT traits and insurance claiming behaviour when insured household items are broken purely by accident; (for a

list of items see the Supplementary Materials section), with claim sizes above the insurance company item valuation interpreted as "fibbing".

3.1. Method of study 1

3.1.1. Participants
Initially, 374 self-selected participants took part in Study 1. After removing incomplete, inappropriate and duplicate responses, we ended up with 344 participants ($N = 344$; 191 females, 146 males, 7 unreported; M_{age} = 40 years; SD_{age} = 12.4; age ranged between 18 and 75). On average, it took 16 min to fill out the survey, and the participants who completed it were paid US $0.5.

3.1.2. Materials
3.1.2.1. Dark triad of personality (DT-short). The DT-Short is a relatively new measure of the DT traits with promising psychometric properties (Jones & Paulhus, 2014). It measures Machiavellianism, psychopathy, and narcissism with nine items each. The scale uses a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Example items are "It's not wise to tell your secrets" (Machiavellianism), "People see me as a natural leader" (narcissism), and "I like to get revenge on authorities" (psychopathy). All three scales had adequate inter-item reliability as measured by Cronbach's alpha (Machiavellianism: .78; narcissism: .76 and psychopathy: .79). The Cronbach's alpha for the uniform DT scale was .85; the uniform scale was the mean score across all 27 items.

3.1.2.2. Insurance claim task. Participants were asked to decide whether to file claims for six household items they were told they accidentally broke. These items (all values were expressed in US $) were a China set ($2,000), a mirror ($1,600), a wall clock ($1,000), an iPhone 6 ($500), a lamp ($300), and a vase ($160). The images of the items are listed in the Supplementary Materials Section. We chose these items because they are relatively common and easily broken. Due to reasons of confidentiality, it is extremely difficult to determine the proportion of households that have any of the specific items insured. Usually, household items are insured in bulk in contents insurances, which were owned by about 76% of households in the UK; and the rates are similar in the USA (Association of British Insurers, 2015a). The presentation order of the higher value (china set, mirror, wall clock) and lower value items (iPhone 6, lamp, vase) was counterbalanced.

The participants were asked to use an insurance claim form ostensibly hosted on a fictitious insurance company website, but actually integrated into the survey structure. They were told to imagine their home insurance is underwritten by (fictitious) "ACME Insure". ACME was claimed to cover a variety of damages to personal property or movables caused by accidents of mishaps, with a deductible of 10% (i.e., the refund offered is at most 90% of the purchase price). Participants read the task instructions, indicated having understood them, and entered the task.

For each item, the claim task consisted of three sequential pages. On the first page, participants were shown the picture of the item they supposedly broke by accident, a brief explanation of how the accident occurred, and the purchase value of the item in US dollars. They were then asked if they would file an insurance claim in that situation. If participants opted out, they were taken directly to the next item. If they decided to file a claim, they were taken to the insurance claim web page (i.e., the second page).

The second page was designed to resemble an actual insurance claim web form (cf. Supplementary Materials section; Figure S1). There was a clear contrast in style between the insurance claim page and the other survey pages in order to increase ecological validity. The form consisted of seven fields. In terms of our aims, the most relevant item was the fourth one: "*How much do you wish to claim (in US $)?*" The amount entered had to be between 0 and 9,999. In this field, participants were also reminded of the deductible of 10%, and shown the actual sum they would be paid (i.e., [claim amount] * 0.9), if the claim was approved. Once they clicked *Submit Claim* at the bottom of the page they were transported back into the pages styled as the main survey.

On the third page, the participants were shown the picture of the item again (including its purchase price), and their responses in the claim form were recapped. Finally, they were asked to indicate on a Likert 1–7 scale how appropriate (1 = very inappropriate, 7 = very appropriate) it was to claim $X (their claim amount) for the specific item.

3.1.2.3. Dependent variable (DV). We first evaluated participants' willingness to file a claim for each individual item. Participants were generally more willing to file claims for the expensive items (china set, mirror, wall clock) than for the inexpensive ones (iPhone 6, lamp, vase). On average, the claim form was entered in 74.5% and 38.3% of the cases for the expensive and inexpensive items, respectively. A number of participants, 12.6% (*n* = 43), did not file a claim for any item. In our analyses the results did not significantly differ across the high/low value items. Thus, all the items were amalgamated for analysis. Our DV indexed whether or not the participant over-claimed the item value (i.e., *fibbed*) in one or more of the claims. *Fibbed* was a dichotomous variable indexing those participants who 1: did not fib (*n* = 310), and 2: fibbed (*n* = 34). Note that the group "did not fib" includes also participants who did not file a claim.

3.2. Results of study 1

Zero-order Pearson correlations between our variables are presented in Table 1 (with point-biserial correlation for the dichotomous DV). As expected, all DT traits were positively intercorrelated (*r*s > .41, *p*s < .001). The dichotomous *fibbed* variable was also positively correlated with all variables, most notably the uniform DT scale (point-biserial *r* = .14, *p* = .01).

Next, we entered the DT traits into logistic regression models, predicting *Fibbed* (a dichotomous variable). The first model, which included all three DT traits as predictors, was statistically nearly significant ($\chi^2_{(3)}$ = 7.35, *p* = .062, Nagelkerke R^2 = .044); however, none of the individual predictors were significant. This suggested that the effects of the individual DT traits were suppressing one another. We then examined the Variance Inflation Factor (VIF) values separately for all DT traits, which were 1.3, 1.63 and 1.6 for narcissism, psychopathy and Machiavellianism, respectively. This suggested mild (but not severe) multicollinearity between the variables.

The uniform DT scale as a sole predictor was positively associated with the likelihood of being a fibber (i.e., having claimed above the item purchase value at least once) as opposed to a non-fibber (*WALD* = 6.35, *p* = .012, *OR* = 2.2, 95% CI [1.2, 4.3]). These results were robust to including demographic variables (age, gender, income, education) into the models as covariates, as well as re-running all analyses with bootstrapped confidence intervals (using the bias-corrected accelerated method). Since iPhones are probably more common among younger participants, and thus familiarity with iPhones might differ across our participants, we re-ran all analyses by excluding the iPhone-related data. However, this did not change the results in a meaningful way.

Table 1. Correlations among Study 1 variables

Variables	M (SD)	Mach.	Psych.	Narc.	Dark Triad	Fibbed
Mach.	2.85 (.71)		.59***	.41***	.83***	.12*
Psych.	1.85 (.65)			.43***	.82***	.9
Narc.	2.50 (.69)				.76***	.13*
Dark Triad	2.80 (.55)					.14**
Fibbed (DV)	0.1 (.29)					

Notes: *p < .05; **p < .01; ***p < .001. For Fibbed, 0 = did not over-claim, 1 = over-claimed at least once. Mach. = Machiavellianism. Psych. = Psychopathy. Narc. = Narcissism. Dark Triad = The uniform DT scale. Point-biserial correlation is used for Fibbed.

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3.3. Discussion of study 1

In Study 1, we observed somewhat clear effects for the DT traits, both individually (particularly for narcissism and Machiavellianism) and as a uniform construct, in predicting willingness to commit insurance fraud. In Study 1, participants often did not claim money for the items despite knowing they were within their rights to do so. The lack of monetary incentives for filing the claims is one possible explanation. This would be in line with research by Smith and Walker (1993) showing that monetary incentives significantly influence response rates and participant behaviour.

4. Study 2

In Study 2 we re-evaluated our original hypothesis on the DT traits and claiming behaviour by increasing ecological validity and by introducing (1) monetary incentives and (2) situational factors pertaining to the motivation to rationalize fibbing. In a non-experimental context insured objects may be broken (a) accidentally; (b) as a result of an affective state (i.e., in anger); or (c) under the influence of intoxicants—for example while drunk.[4] We implemented these scenarios in a form of vignettes describing the situation. In addition, this allowed us to evaluate claiming behaviour in situations where claiming is fibbing by insurance companies' definition.

We postulate that these situational factors influence the frequency and amount of claims, quite apart from the effect of the DT traits on claiming. When individuals are able to impute their actions to outside influence (i.e., reification; Waytz, Epley, & Cacioppo, 2010), they will find it easier to rationalize cheating—unlike when they have broken the items in anger where the impetus for action is intrapersonal. Therefore, we additionally hypothesized that participants who were told that they have broken the experimental items in anger will fib less than those who have broken them while under the influence of alcohol, or accidentally.

Due to the low "fibbing" rates in Study 1 (i.e., very few participants claimed above the item values), we also decided to slightly modify the task and its instructions in Study 2 in order to increase likelihood of getting participants to fib (see below for details).

4.1. Method of study 2

4.1.1. Participants

Initially, 753 participants took part in Study 2. After removing incomplete, inappropriate and duplicate responses, we ended up with 699 participants (N = 699; 334 females, 360 males, 5 unreported; M_{age} = 32.2; SD_{age} = 10.2; age ranged between 18 and 69). On average, it took 18 min to complete the survey, and those who did it were paid US $1.22 on average ($0.5 plus an average bonus of $0.72, with a standard deviation of $0.6).

4.1.2. Design and materials

With everything else the same, the following changes were made to the experimental design and insurance task in Study 2:

(1) Participants were randomly assigned across three conditions. Before filling out the claim form, participants read one of the three vignettes describing in detail the circumstances under which the various items were broken. The items were reported to be broken either (a) accidentally, (b) in anger, or (c) while drunk. The word counts of the vignettes were held as similar as possible across the conditions and various items (for the full vignettes cf. Supplementary Materials section).

(2) For simplicity, only the expensive items (china set, wall clock, mirror) were included in the tasks as in Study 1 they were more often claimed for than the inexpensive items.

(3) The deductible was increased from 10% to 15% to better reflect real-world deductible rates in home insurance policies.

(4) Due to the low "fibbing" rates in Study 1 (i.e., very few participants claimed above the item values), the task instructions were modified. The participants were told that they had purchased the items at a specific price (from a discount shop, or similar), but were given a higher valuation by the insurance company. This valuation was the same as the item purchase value in the first experiment (US $2,000, $1,600, and $1,000 for the china set, mirror, and wall clock, respectively). The purchase value in the second experiment was ~20% lower (US $1,600, $1,300, and $800). This modification allowed us to calculate two indices of fibbing: Claims above the actual purchase value[5] *and* claims above the insurance company valuation.

(5) Monetary incentives were added to the experimental design.

4.1.2.1. Compensation and monetary incentives for fibbing. Participants' base-rate compensation was US $0.5. In addition, participants were told they would be paid 0.1% of the claimed amount (after the deductible) as a bonus, based on a randomly selected item among the ones they filed a claim for—but *only* if the claim clears. For example, if there was a claim of $1,000 ($850 after deductible) on an insured item randomly selected by us, the participant would receive a bonus of $0.85, *if* the claim cleared.

Participants were told that whether or not the claim cleared depended on *ACME Insure's* expert computer system, which would evaluate it. The system would evaluate *only* the claim (information entered on that particular form) and nothing else. Thus, participants were led to believe the system would not have knowledge of what happened when the item was broken, as would happen in an actual insurance procedure (cf. Dionne, Giuliano, & Picard, 2009). Participants were also told that the higher the claim above the valuation, the higher the chance of the claim being rejected (this being one of the internal review indicators in real-world insurance claims). Finally, participants were warned that if ACME's system caught them making an inappropriate claim, they would not only get no bonus, but their MTurker ID would be blocked from participating in the next 10 experiments run by us (we subsequently blocked seven participants in total; details are given below).

Since the maximum amount participants could claim for an item was $9,999 ($8,499 after the deductible), the maximum bonus possible was $8.49. Participants did in fact have a chance to earn a bonus as high as this, but it was low (i.e., ~1 in a 1,000 chance). We used the following a priori probabilities (unknown to the participants) in evaluating the claims and compensating participants: For claims 10–30% above the insurance company valuation, the probabilities of the claim being rejected were 9.1–23.1%. For claims 40–50% above the valuation, the probabilities were 58.6–63.3%. For claims 60–90% above the valuation, the probabilities were 87.5–97.4%. Finally, for claims at least 100% above the valuation, the probability of being caught was 99% or higher. We settled on these probabilities to increase the likelihood of obtaining a bonus spread resembling a normal distribution. The participants were not apprised of the likelihood of their claim being accepted, as that would depart from ecological validity and lead them into treating the experiment as an economic gamble.

4.1.2.2. Dark triad of personality (DT-short). The Cronbach's alpha values in Study 2 were .79, .77, and .80 for Machiavellianism, narcissism, and psychopathy, respectively; and .88 for the uniform DT scale.

4.1.2.3. Dependent variables (DVs). Of the participants, 35.3% (*n* = 247) did not file a claim for any item (*angry* condition: 48.4%; *drunk* condition: 37.8%; *control*: 20%). Only nine participants claimed above the insurance company valuation for any item (of these, seven MTurker ID's claims were rejected for making a fraudulent claim, and subsequently banned from participating in our next 10 experiments). As few participants claimed above the insurance valuation, we used claims above the actual purchase value as the index for fibbing.

We used the same DV as in Study 1 but modified it to reflect the proportion of money claimed above the *actual* item purchase value (but otherwise calculated as in Study 1; in Study

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2, the number of participants categorized as "fibbed" and "did not fib" were 256 and 443, respectively).[6]

4.2. Results of study 2

We again calculated zero-order Pearson correlations between our variables; these are presented in Table 2, separately for each experimental condition with point-biserial correlation for the dichotomous DV. All DT traits were positively intercorrelated ($rs > .29$, $ps < .001$). The dichotomous *fibbed* variable was also positively correlated with all variables, most notably the uniform DT scale, and Psychopathy, in the Angry condition (uniform DT scale: point-biserial $r = .2$, $p = .003$; Psychopathy: $r = .23$, $p < .001$). There was no statistically significant interaction between the "DT traits—Fibbed"—link and condition (Angry, Drunk, Control).

As in Study 1, we evaluated whether or not the participants claimed above the item purchase values on one or more occasions, and entered the DT traits and the (dummy-coded) categorical Vignette variable (angry, drunk, control) into logistic regression models, predicting the dichotomous *Fibbed* variable. The first model, which included all individual DT traits and the dummy-coded Vignette as predictors, was statistically significant ($\chi^2(5) = 30.9$, $p < .001$, Nagelkerke $R^2 = .059$). The main effect of Vignette was significant ($WALD = 11$, $p = .004$): Participants who had read the Angry vignette were less likely to fib than those who had read the Drunk vignette ($B = .67$, $p = .001$, $OR = 1.96$, 95% CI [1.3, 2.9]). Controlling for the other DT traits, only Psychopathy was a significant predictor of fibbing ($B = .37$, $p = .015$, $OR = 1.45$, 95% CI [1.07, 1.97]). As in Study 1, we again examined the VIF values separately for all DT traits, which were 1.22, 1.53, and 1.5 for narcissism, psychopathy, and Machiavellianism, respectively; this suggested similar levels of mild multicollinearity as in Study 1.

We then replaced the individual DT traits with the uniform DT scale, retaining Vignette in the model, which resulted in a significant model ($WALD = 28.8$, $p < .001$, Nagelkerke $R^2 = .055$). In this model, the uniform DT scale positively predicted fibbing ($B = .64$, $WALD = 16.8$, $p < .001$, $OR = 1.89$, 95% CI [1.39, 2.6]). Next, we tested whether the interactions between any of the DT traits, or the

Table 2. Correlations among Study 2 variables separately for each condition (angry, drunk, control)

Variables	M (SD)	Mach.	Psych.	Narc.	Dark triad	Fibbed
Mach. (*Angry*)	2.96 (.75)		.59***	.38***	.83***	.122^
(*Drunk*)	2.90 (.66)		.52***	.29***	.79***	.14*
(*Control*)	2.98 (.67)		.57***	.41***	.83***	.14*
Psych. (*Angry*)	2.38 (.64)			.46***	.83***	.23**
(*Drunk*)	2.36 (.63)			.33***	.79***	.13*
(*Control*)	2.41 (.63)			.37***	.81***	.11^
Narc. (*Angry*)	3.35 (.70)				.76***	.13*
(*Drunk*)	3.26 (.66)				.71***	.04
(*Control*)	3.32 (.66)				.75***	.09
Dark Triad (*Angry*)	2.90 (.56)					.20**
(*Drunk*)	2.84 (.49)					.14*
(*Control*)	2.90 (.52)					.14*
Fibbed (*Angry*)	0.52 (.56)					
(*Drunk*)	0.62 (.48)					
(*Control*)	0.55 (.49)					

Notes: ^$p < .1$; *$p < .05$; **$p < .01$; ***$p < .001$. For Fibbed, 0 = did not over-claim, 1 = over-claimed at least once. Mach. = Machiavellianism. Psych. = Psychopathy. Narc. = Narcissism. Dark Triad = The uniform DT scale. Point-biserial correlation is used for Fibbed.

uniform DT scale, and Vignette were significant, but found no significant results (all *p*-values >.2). Thus, although the link between psychopathy and fibbing was seemingly strongest in the *Angry* condition, the DT traits seem to have mainly uniform effects on fibbing, regardless of whether the items are broken accidentally, while drunk, or in anger. As in Study 1, all of the analyses above were robust to including demographic variables (age, gender, income, education) into the models as covariates.

4.3. Discussion of study 2

Although there were no interactions between the different vignettes and DT traits, participants in Study 2 were less likely to fib (i.e., overclaim the item price on one or more occasions) when items were broken when they were angry as opposed to while drunk. Shifting the locus of control onto an external entity (alcohol in this case) putatively enabled participants to rationalize entering the claim form and claiming money, even when doing so was prohibited by the terms of service. This finding is in line with research by Room (2001) and meta-analysis by Crawford (1987), who both show that ingesting alcohol is used as an excuse for actions that cross normative boundaries in many cultures and contexts. In Study 2, controlling for the other DT traits, psychopathy emerged as the strongest individual predictor of fibbing; although due to mild multicollinearity, this result should be interpreted with caution.

5. General discussion

In two studies, by examining the DT traits of personality, we sought to shed light on willingness to commit insurance fraud in naturalistic insurance claim tasks. In Study 1, we first established a baseline for fibbing behavior in a simple online insurance claim setting, and in Study 2 we increased ecological validity by introducing monetary incentives and situational factors pertaining to the motivation and incentives for claiming and fibbing.

In both studies we confirmed that to some extent all DT traits positively predicted fibbing—and the effects were the strongest when the uniform DT scale was used as a predictor. The lack of monetary incentives in Study 1 might explain the relatively weak link between psychopathy and fibbing, and why psychopathy emerged as the strongest individual predictor of fibbing in Study 2: Individuals scoring high in psychopathy have been found to generally feel less need to deliberate (Newman, 1987), or collaborate (e.g., with experimenters; Book, Holden, Starzyk, Wasylkiw, & Edwards, 2006), look for exciting new challenges with concrete stakes, and to have difficulty putting themselves in an imaginary situation that is not directly applicable to them (Miller & Lynam, 2001; Miller, Lyman, Widiger, & Leukefeld, 2001). It is not surprising that these individuals would not be motivated to engage in a non-incentivised hypothetical insurance claim task. Conversely, in Study 2, there were clear incentives to claim higher amounts, which could have made fibbing much more attractive for individuals high in psychopathy. However, we also note that, due to issues of mild multicollinearity, the results between the individual DT traits and fibbing should be interpreted with caution. Given our findings, it is possible that the DT traits should be viewed as a uniform construct, and the observed differences between the individual traits might be unreliable.

While we could not conclusively show that the effect of DT traits on willingness to commit insurance fraud differs depending on situational factors, our results allude to a difference between conditions where insured items are broken in anger or while drunk. Namely, individuals with high psychopathic tendencies were somewhat more willing to commit insurance fraud if they had broken the items while angry, as compared with while drunk or by pure accident. Future research should look into how situational and affective components in fraudulent behaviour interact with the DT traits; for example, it is possible that situations that elicit anger or frustration increase the likelihood of fraudulent behaviour especially in individuals with high psychopathy. This is in line with recent research showing that being rejected in conjunction with negative emotions increases dishonest behaviour (van Der Zee, Anderson, & Poppe, 2016).

There were a few limitations in our studies. Despite our best efforts, the stakes for our participants were still relatively low. Our participants knew they were only taking part in an experiment, and thus we cannot claim that they behaved in a manner they would when they would actually be filling out insurance claims for personally owned household items. However, without having access to actual insurance claim data (which is technically not feasible for privacy reasons), our approach is arguably as realistic as possible. Moreover, in our studies, insurance type was limited to home insurance with respect to the dependent variables. Our future research plans include evaluating more types of insurance (for example automotive, and health). Insurance fraud in those contexts is more elaborate, as shown by, for example (Dionne et al., 2009); but not trivial to implement in experimental setting. Finally, fraudulent insurance claims are a relatively low-probability event (which was also confirmed in our experiments). This calls for relatively large sample sizes and often results in skewed variable distributions. However, analysing low probability events is still possible via non-parametric, bootstrapped, or logistic regression models, as we did in the present article. Finally, our insurance claim tasks and dependent variables differed slightly between our Studies; in Study 2, we used a modified definition for "fibbing" due to the low amount of participants who fibbed in Study 1. This could in part explain the discrepancy of the results between our Studies. However, despite these differences, we found support for our hypotheses.

In conclusion, we showed that the DT traits are associated with insurance claiming and fibbing behaviour, both individually and as a uniform construct. Our results contribute to extant knowledge on what types of individuals commit fraud and why. We also showed that the DT as a uniform trait, instead of individual DT traits, shows the best predictive power in an insurance fraud context.

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Notes
1. http://gideongoldin.github.io/TurkGate/.
2. The specifics of these measures are presented in the Supplementary Materials section. The results concerning these scales will be reported elsewhere.
3. Both studies included also an additional experimental manipulation that is not reported in this article. The manipulation was aimed at deterring the participants from "fibbing" in the claim forms. Details of these manipulations are presented in the supplementary materials. The main results presented in the current article were robust to adding these manipulations in the statistical models as fixed factors of no interest; there were also no significant interactions between the covariates of interest (demographics and the DT traits) and the deterrence manipulations.
4. Breaking insured items while intoxicated might also be accidental or unintentional, whereas breaking items in anger can be considered intentional. However, from the perspective of insurance companies, claims are typically honored only when the items are broken accidentally (or unintentinally) and while clearheaded.
5. If participants knew they could repurchase the item at a specific price (the purchase value), claiming more than that price from the insurance company is akin to fibbing.
6. However, we also performed a t-test (with bootstrapped confidence intervals, using the bias corrected accelerated method) comparing the overall DT scores of the 9 participants who claimed above the insurance company valuation (*super-fibbers*) to the rest of the sample. The

"super-fibbers" group scored higher ($M = 3.22$, $SD = 0.28$) then the rest of the participants ($M = 2.87$, $SD = 0.52$): t (8.75) = −3.57, $p = .006$ (Levene's test was violated and equal variances was not assumed).

References

Association of British Insurers. (2015a). *UK insurance long tern savings key facts 2015*. Retrieved from ABI: https://www.abi.org.uk/~/media/Files/Documents/Publications/Public/2015/Statistics/Key%20Facts%202015.pdf

Association of British Insurers. (2015b). You could not make it up, but they did. Savings for honest customers as insurers expose £3.6 million worth of insurance frauds every day [Press release]. Retrieved from https://www.abi.org.uk/News/News-releases/2015/07/You-could-not-make-up-Savings-honest-customers-insurers-expose-3-6-million-worth-insurance-frauds

Aviram, I., & Amichai-Hamburger, Y. (2005). Online infidelity: Aspects of dyadic satisfaction, self-disclosure, and narcissism. *Journal of Computer-Mediated Communication, 10*(3).

Book, A. S., Holden, R. R., Starzyk, K. B., Wasylkiw, L., & Edwards, M. J. (2006). Psychopathic traits and experimentally induced deception in self-report assessment. *Personality and Individual Differences, 41*, 601–608. doi:10.1016/j.paid.2006.02.011

Campbell, W. K. (1999). Narcissism and romantic attraction. *Journal of Personality and Social Psychology, 77*, 1254–1270. doi:10.1037/0022-3514.77.6.1254

Chatterjee, A., & Hambrick, D. C. (2007). It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. *Administrative Science Quarterly, 52*(3), 351–386. doi:10.2189/asqu.52.3.351

Crawford, A. (1987). Attitudes about alcohol: A general review. *Drug and Alcohol Dependence, 19*, 279–311. doi:10.1016/0376-8716(87)90017-2

Dionne, G., Giuliano, F., & Picard, P. (2009). Optimal auditing with scoring: Theory and application to insurance fraud. *Management Science, 55*, 58–70. doi:10.1287/mnsc.1080.0905

Durtschi, C., Hillison, W., & Pacini, C. (2004). The effective use of Benford's law to assist in detecting fraud in accounting data. *Journal of Forensic Accounting, 5*, 17–34.

Geyer, D. (2010). Detecting fraud in financial data sets. *Journal of Business and Economics Research, 8*, 75–83.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment, 4*, 26–42. doi:10.1037/1040-3590.4.1.26

Hancock, J. T., Woodworth, M. T., & Porter, S. (2011). Hungry like the wolf: A word-pattern analysis of the language of psychopaths. *Legal and Criminological Psychology, 18*, 101–114. doi:10.1111/j.2044-8333.2011.02025.x

Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment, 21*, 28–41. doi:10.1177/1073191113514105

Lee, K. B., & Ashton, M. C. (2005). Psychopathy, Machiavellianism, and Narcissism in the Five-Factor Model and the HEXACO model of personality structure. *Personality and Individual Differences, 38*, 1571–1582. doi:10.1016/j.paid.2004.09.016

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81–90. doi:10.1037/0022-3514.52.1.81

McHoskey, J. W., Worzel, W., & Szyarto, C. (1998). Machiavellianism and psychopathy. *Journal of Personality and Social Psychology, 74*, 192–210. doi:10.1037/0022-3514.74.1.192

Miller, J. D., Lyman, D. R., Widiger, T. A., & Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions: Can the Five-Factor Model adequately represent psychopathy? *Journal of Personality, 69*, 253–276. doi:10.1111/1467-6494.00144

Miller, J. D., & Lynam, D. (2001). Structural models of personality and their relation to antisocial behavior: A meta-analytic review. *Criminology, 39*, 765–798. doi:10.1111/j.1745-9125.2001.tb00940.x

Newman, J. P. (1987). Reaction to punishment in extra-verts and psychopaths: Implications for the impulsive behavior of disinhibited individuals. *Journal of Research in Personality, 21*, 464–480. doi:10.1016/0092-6566(87)90033-x

O'Boyle, J., Forsyth, D. R., Banks, G. C., & McDaniel, M. A. (2012). A meta-analysis of the Dark Triad and work behavior: A social exchange perspective. *Journal of Applied Psychology, 97*(3), 557–579. doi:10.1037/a0025679

Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality, 36*, 556–563. doi:10.1016/s0092-6566(02)00505-6

Persson, B. N., Kajonius, P. J., & Garcia, D. (2017). Revisiting the structure of the Short Dark Triad. *Assessment*. Advance online publication. doi:10.1177/1073191117701192

Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*, 890–902. doi:10.1037/0022-3514.54.5.890

Raskin, R. N., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological Reports, 45*, 590. doi:10.2466/pr0.1979.45.2.590

Room, R. (2001). Intoxication and bad behaviour: Understanding cultural differences in the link. *Social Science & Medicine, 53*, 189–198. doi:10.1016/s0277-9536(00)00330-0

Smith, V. L., & Walker, J. M. (1993). Monetary rewards and decision cost in experimental economics. *Economic Inquiry, 31*, 245–261. doi:10.1111/ecin.1993.31.issue-2

Van Der Zee, S., Anderson, R., & Poppe, R. (2016). When lying feels the right thing to do. *Frontiers in Psychology, 7*, 734. doi:10.3389/fpsyg.2016.00734

Vize, C. E., Lynam, D. R., Collison, K. L., & Miller, J. D. (2018). Differences among dark triad components: A meta-analytic investigation. *Personality Disorders: Theory, Research, and Treatment, 9*(2), 101-111.

Waytz, A., Epley, N., & Cacioppo, J. T. (2010). Social cognition unbound: Insights into anthropomorphism and dehumanization. *Current Directions in Psychological Science, 19*, 58–62. doi:10.1177/0963721409359302

Williams, K. M., Nathanson, C., & Paulhus, D. L. (2010). Identifying and profiling scholastic cheaters: Their personality, cognitive ability, and motivation. *Journal of Experimental Psychology: Applied, 16*, 293–307. doi:10.1037/a0020773

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