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Abstract

This study examined the relationship between the dark triad personality traits and insomnia symptoms amongst a sample of the general-population. Four hundred and seventy-five individuals completed online measures of dark triad personality traits (SD3) and insomnia severity. Symptoms of insomnia were independently related to Machiavellianism and psychopathy, but not narcissism in univariate analyses. Moreover, linear regression analysis determined that psychopathy and sex, but not Machiavellianism, significantly predicted insomnia symptoms. These outcomes contribute to the limited research examining the dark triad personality traits in relation to symptoms of insomnia. The disturbed sleep presented amongst those high in psychopathy may be due to deficits in emotion regulation which serve to accentuate maintaining factors of insomnia (i.e. negatively toned cognitive activity).

Introduction

Insomnia is influenced by a number of predisposing, precipitating and perpetuating factors, which are behavioural, biological, environmental, or psychological in nature (Spielman, Caruso, & Glovinsky, 1987). At symptom level, insomnia is highly prevalent, affecting up to 30% of the general population (Espie, Kyle, Hames, Cyhlarova, & Benzeval, 2012; Morin, LeBlanc, Daley, Gregoire, & Merette, 2006). An individual's personality may act as a predisposing, and potentially perpetuating, factor underpinning the disorder. Indeed, literature concerning personality concurs that individuals with insomnia exhibit increased neuroticism, negative affect, social inhibition, internalization, anxious concerns, and negative components of perfectionism (Akram, Ellis, Myachykov, Chapman, & Barclay, 2017; Akram, Ellis, & Barclay, 2015; Condén, Ekselius, & Åslund, 2013; Van de Laar, Verbeek, Pevernagie, Aldenkamp, & Overeem, 2010). However, research concerning the relationship between the dark triad traits and sleep, in particular insomnia remains limited (Sabouri et al., 2016).

The dark triad personality traits are composed of three dimensions: Machiavellianism, psychopathy and narcissism (Jonason, Jones, & Lyons, 2013). Machiavellian individuals are often manipulative, callous, superficial, and strategic (rather than impulsive). Despite this, their self-presentation is usually positively orientated, as they strive to be perceived as charming and attractive in terms of personality (Jonason et al., 2013; Sabouri et al., 2016). Conversely, those high in psychopathy lack self-control, are highly impulsive, adventurous, present deficits in affect (i.e. callousness) and interpersonal antagonism. That said, both traits are associated with reduced empathy (Del Gaizo & Falkenbach, 2008), agreeableness and conscientiousness (Sabouri et al., 2016). Finally, narcissists are characterised by increased entitlement, superiority, dominance, self-love and an egocentric attitude (Jonason et al., 2013; Sabouri et al., 2016).

Only three studies to date have examined the relationship between sleep and the dark triad personality traits (Jonason et al., 2013; Rahafar, Randler, Castellena, & Kausch, 2017; Sabouri et al., 2016). Jonason and colleagues (2013) determined that an evening chronotype disposition (i.e. a

person's preferred timing of sleep and waking behaviour: Ellis, Von-Schantz, Jones, Archer, 2009) was significantly associated with Machiavellianism, psychopathy and exploitative narcissism. Here, the authors suggest individuals high in these traits to experience increased cognitive functioning during the evening which contributes to their irregular social style due to the goal of outsmarting those who perceived them as a threat (Cumins, 1999; Jonason & Webster, 2012). Similarly, Rahafar and colleagues (2017) determined that individuals with an evening chronotype disposition scored higher in Machiavellianism and psychopathy, but not narcissism, when compared to their morning chronotype counterparts. More recently, Sabouri and colleagues (2016) examined the relationship between disturbed sleep and the dark triad personality traits amongst a sample of young adults from an Iranian population. The authors demonstrated that Machiavellianism and psychopathy, but not narcissism, were related to increased reports of sleep disturbance.

Whilst the work of Sabouri and colleagues (2016) is influential in establishing relationships between dark triad traits and disturbed sleep, the presence of other potentially co-occurring physiological sleep disorders was not controlled for (e.g. sleep apnoea, narcolepsy). Moreover, considering the diminutive research to date concerning this relationship, further research is required to confirm whether disturbed sleep, in the form of insomnia symptoms, is indeed related to specific dark triad traits. As such, the present study aimed to further examine the relationship between the dark triad personality traits and symptoms of insomnia whilst accounting for symptoms of other sleep-disorders.

Specifically, we aimed to determine whether: i) the dark triad personality traits of Machiavellianism, psychopathy and narcissism are independently related to symptoms of insomnia; and ii) which of the dark triad personality traits would have the greatest predictive value for insomnia symptoms after controlling for age and sex. Based on the existing literature, we hypothesised that the dark triad personality traits of Machiavellianism and psychopathy personality would be independently related

to symptoms of insomnia. Finally, considering males generally score higher for all three of the dark triad traits when compared to women (Cale & Lilienfeld, 2002; Jones & Paulhus, 2014; Tschanz, Morf, & Turner, 1998), we expected sex to also hold a degree of predictive value.

Method

Sample and Procedure

A cross-sectional online questionnaire-based study was implemented comprising of questions designed to assess the relationship between the dark triad personality traits and symptoms of insomnia. The study was approved by the [Masked for Review] University Research Ethics Committee, and all participants provided informed consent.

The survey was advertised to members of the general population through social media, 'call for participants' (website), and students from Northern UK universities through each institutions course participation scheme. Five hundred and seventy-one participants began the survey which was delivered using the Qualtrics platform (Qualtrics, Provo, UT), and 521 respondents provided complete data. Students who requested course credit were remunerated on completion. Those who indicated that they conducted shift work, suffered from a disorder of the central nervous system, were currently using medication which affects sleep, had a prior head injury or reported symptoms of a sleep disorder other than insomnia (e.g. apnoea, sleepwalking, narcolepsy, restless legs syndrome/periodic limb movement, circadian rhythm disorder) were excluded from analysis (n=46). This resulted in a final sample of 475 participants (mean age=24.40±11.46, range 18-81, 75% female; 83% White, 6% Chinese, 2% Pakistani, 2% Asian Other, 2% Indian, 3% Other; 74% student) included into the analysis. Of note, the SLEEP-50 questionnaire (Spoormaker, Verbeek, Van Den Bout, & Klip, 2005) was used to ensure the absence of a sleep/wake disorder other than insomnia. (see 'Measures' for details).

Measures

The 27-item Short Dark Triad questionnaire (SD3: Jones & Paulhus, 2014) was used to assess Machiavellianism, psychopathy and narcissism, with 9-items for each subscale. Items designed to assess each trait are scored on a 5-point likert scale ranging from 1 (disagree strongly) to 5 (agree strongly). The final score for each subscale is formed by averaging the items (Jones & Paulhus, 2014). Initial validation of the scale determined a clear factor structure and good internal consistency (Cronbach's alpha = .75 for Machiavellianism; .72 for psychopathy, .73 for narcissism: Jones & Paulhus, 2014). With that in mind, internal consistency in the current sample yielded a Cronbach's alpha of .82 for Machiavellianism, .76 for psychopathy, and .73 for narcissism.

Insomnia symptoms were assessed using The Insomnia Severity Index (ISI: Bastien, Vallières, & Morin, 2001). The ISI comprises 7 items examining the severity of insomnia symptoms over the past two weeks including difficulty initiating and maintaining sleep, and awakening too early. Items are rated on a 5-point likert scale, with total scores ranging from 0–28. Higher scores represent greater insomnia severity, with ≤7 indicating: no clinically significant insomnia; 8-14: subthreshold insomnia; 22-28: moderately clinical insomnia; 22-28: sever clinical insomnia. The ISI has good internal consistency and concurrent validity (Cronbach's alpha = .76-.78: Bastien et al., 2001) Assessment of internal consistency in the current sample yielded a Cronbach's alpha of .88.

Subscales of the SLEEP-50 (Spoormaker et al., 2005) ensured the absence of: apnoea, sleepwalking, narcolepsy, restless legs syndrome/periodic limb movement, and circadian rhythm disorder. The SLEEP-50 consists of fifty items; in the current study items relating to insomnia (assessed by the ISI) or sleep hygiene (not a sleep disorder) were omitted. The participants were asked to rate to what extent the items have been applicable in the past month (0=not at all, 4=very much). An example item is: "I am told that I wake up gasping for air". Total scores of: ≥15 indicate apnea; ≥7 sleepwalking; ≥7 narcolepsy; ≥7 restless legs syndrome/periodic limb movement; and ≥8 a circadian

rhythm disorder.

Statistical Analyses

Pearson's bivariate correlational analyses examined associations between insomnia symptoms and each of the SD3 subscales. Moreover, independent samples t-tests examined sex differences for each variable. Finally, these were followed by hierarchical linear regression analyses, with insomnia symptoms as the dependent variable, to determine the predictive value of the SD3 subscales which were associated with insomnia symptoms. Specifically, age and sex were entered as predictors in step-1; and SD3 subscales in step-2. Significance was considered at the P<.05 level.

Results

Mean scores for the final sample were as follows: ISI, 9.27±5.67; Machiavellianism, 2.776±0.71; psychopathy, 2.01±0.64; and Narcissism, 2.50±0.59.

Symptoms of insomnia were independently related to Machiavellianism (r=.14,p=.002) and psychopathy (r=.15,p=.001) but not narcissism (r=-.08,p=.07). Considering this, only the subscales of Machiavellianism and psychopathy were entered into the regression analysis. Whilst no sex differences were observed in terms of insomnia symptoms (Males: 8.97±6.13; Females: 9.30±5.54; t(473)=-.0.54,p=59), males scored significantly higher in Machiavellianism (Males: 3.10±0.07; Females: 2.66±0.68; t(473)=5.92,p=.001), psychopathy (Males: 2.52±0.07; Females: 1.96±0.54; t(473)=8.83,p=.001) and narcissism (Males: 2.78±0.58; Females: 2.42±0.57; t(473)=5.57,p=.001). Linear regression analysis determined that sex and psychopathy but not Machiavellianism significantly predicted insomnia symptoms (step2: 4% total variance explained after controlling for age (step1: 0.01%variance: see Table 1). Interestingly, sex was not a significant predictor in the first step of the regression model, but became significant in step two when Machiavelianism and psychopathy were added to the model, suggesting that a suppression effect may be evident.

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Discussion

The present study examined the relationship between dark triad personality traits and symptoms of insomnia amongst a sample of the UK general population. Our results provide further evidence that specific aspects of the dark triad personality type are associated with symptoms of insomnia. Specifically, psychopathy was independently related to increased reports of insomnia symptoms whereas Machiavellianism approached significance. These outcomes are in line with recent research amongst young Iranian adults, which evidenced disturbed sleep to be related to Machiavellianism and psychopathy (Sabouri et al., 2016). However, whilst Machiavellianism and psychopathy were independently related to insomnia symptoms in the present study, regression analysis determined psychopathy and sex to be the only significant (albeit modest) predictors of insomnia symptoms.

It has been theorised that adverse cognitive-emotional processes (i.e. worry, rumination, poor coping, and diminished emotion regulation) serve to explain the relationships between the dark triad traits and disturbed sleep (Sabouri et al., 2016). Indeed, this is not surprising considering a key characteristic of insomnia is the presence of negatively toned cognitive activity, mostly in terms of worry and rumination (Harvey, 2002). Likewise, deficits in emotional stability are also characteristic of dark triad personality traits (Birkás, Gács, & Csathó, 2016; Muris, Meesters, & Timmerans, 2013; Zeigler-Hill & Vonk, 2015). Specifically, it has recently been noted that whilst individuals high in psychopathy indicate a lack of both emotional control and adaptive coping strategies, Machiavellianism appears to be related to an effort to control emotional reactions in stressful situations (Birkás et al., 2016). Considering this, one suggested pathway may be that insomnia symptoms presented amongst those high in psychopathy may be due to deficits in emotion

regulation which then serves to accentuate negatively toned cognitive activity resulting in poor-sleep.

Alternatively, the present outcomes may support the notion that increased cognitive functioning during the evening amongst those high in Machiavellianism and psychopathy facilitates the protean social style experienced, perhaps to facilitate a need to outthink/smart those who perceive them as a threat (Cumins, 1999; Jonason & Webster, 2012). In particular, this function may peak prior to sleep due to the lower detection risk and increased vigilance associated with this time which may inherently act as a protective factor (Jonason et al., 2013).

As the only study to examine the relationship between disturbed sleep and dark triad traits, Sabouri and colleagues (2016) note the country of origin (Iran) as an influencing factor for this relationship. Whilst the current outcomes are in line with their previous findings, cross-cultural studies would be required to confirm cross-cultural applicability.

The current results also support the notion that men are more likely to report greater attributes of Machiavellianism, psychopathy and narcissism when compared to women (Cale & Lilienfeld, 2002; Jones & Paulhus, 2014; Tschanz et al., 1998). However, it is well established that women are more likely to experience insomnia (Zhang & Wing, 2006). Considering the present sample was mostly limited to females, further research using a more balanced sample would be needed to clarify the role of sex as an influencing factor. Several additional limitations of the study should be noted. First, the present study consisted primarily of a student sample which limits the generalisability of the current findings. Second, whilst a relatively short survey was employed, no attention checks were used to exclude those who: experienced difficulty in concentration; or responded in a random manner. Finally, the current outcomes cannot be extrapolated to individuals meeting diagnostic criteria for insomnia.

To summarise, the present outcomes add to the limited literature concerning the relationship between aspects of personality and insomnia. In particular, shedding further light on the diminutive research examining the dark triad personality traits in relation to symptoms of insomnia. Whilst the current outcomes support the notion that Machiavellianism and psychopathy are independently related to insomnia, further research is now required to elucidate the possible pathways (e.g. cognitive arousal, emotion regulation, sex differences) underlying/mediating these relationships. Considering sleep-interventions have been successful in reducing aggressive behaviour (Heynes et al., 2006) such research would highlight the importance of assessing for co-morbid sleep disturbances amongst individuals displaying antisocial personality traits within a clinical setting.

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Abstract

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Whilst the work of Sabouri and colleagues (2016) is influential in establishing relationships between dark triad traits and disturbed sleep, the presence of other potentially co-occurring physiological sleep disorders was not controlled for (e.g. sleep apnoea, narcolepsy). Moreover, considering the diminutive research to date concerning this relationship, further research is required to confirm whether disturbed sleep, in the form of insomnia symptoms, is indeed related to specific dark triad traits. As such, the present study aimed to further examine the relationship between the dark triad personality traits and symptoms of insomnia whilst accounting for symptoms of other sleep-disorders.

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Method

Sample and Procedure

A cross-sectional online questionnaire-based study was implemented comprising of questions designed to assess the relationship between the dark triad personality traits and symptoms of insomnia. The study was approved by the [Masked for Review] University Research Ethics Committee, and all participants provided informed consent.

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Measures

The 27-item Short Dark Triad questionnaire (SD3: Jones & Paulhus, 2014) was used to assess Machiavellianism, psychopathy and narcissism, with 9-items for each subscale. Items designed to assess each trait are scored on a 5-point likert scale ranging from 1 (disagree strongly) to 5 (agree strongly). The final score for each subscale is formed by averaging the items (Jones & Paulhus, 2014). Initial validation of the scale determined a clear factor structure and good internal consistency (Cronbach's alpha = .75 for Machiavellianism; .72 for psychopathy, .73 for narcissism: Jones & Paulhus, 2014). With that in mind, internal consistency in the current sample yielded a Cronbach's alpha of .82 for Machiavellianism, .76 for psychopathy, and .73 for narcissism.

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Statistical Analyses

Pearson's bivariate correlational analyses examined associations between insomnia symptoms and each of the SD3 subscales. Moreover, independent samples t-tests examined sex differences for each variable. Finally, these were followed by hierarchical linear regression analyses, with insomnia symptoms as the dependent variable, to determine the predictive value of the SD3 subscales which were associated with insomnia symptoms. Specifically, age and sex were entered as predictors in step-1; and SD3 subscales in step-2. Significance was considered at the P<.05 level.

Results

Mean scores for the final sample were as follows: ISI, 9.27±5.67; Machiavellianism, 2.776±0.71; psychopathy, 2.01±0.64; and Narcissism, 2.50±0.59.

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Discussion

The present study examined the relationship between dark triad personality traits and symptoms of insomnia amongst a sample of the UK general population. Our results provide further evidence that specific aspects of the dark triad personality type are associated with symptoms of insomnia. Specifically, psychopathy was independently related to increased reports of insomnia symptoms whereas Machiavellianism approached significance. These outcomes are in line with recent research amongst young Iranian adults, which evidenced disturbed sleep to be related to Machiavellianism and psychopathy (Sabouri et al., 2016). However, whilst Machiavellianism and psychopathy were independently related to insomnia symptoms in the present study, regression analysis determined psychopathy and sex to be the only significant (albeit modest) predictors of insomnia symptoms.

It has been theorised that adverse cognitive-emotional processes (i.e. worry, rumination, poor coping, and diminished emotion regulation) serve to explain the relationships between the dark triad traits and disturbed sleep (Sabouri et al., 2016). Indeed, this is not surprising considering a key characteristic of insomnia is the presence of negatively toned cognitive activity, mostly in terms of worry and rumination (Harvey, 2002). Likewise, deficits in emotional stability are also characteristic of dark triad personality traits (Birkás, Gács, & Csathó, 2016; Muris, Meesters, & Timmerans, 2013; Zeigler-Hill & Vonk, 2015). Specifically, it has recently been noted that whilst individuals high in psychopathy indicate a lack of both emotional control and adaptive coping strategies, Machiavellianism appears to be related to an effort to control emotional reactions in stressful situations (Birkás et al., 2016). Considering this, one suggested pathway may be that insomnia symptoms presented amongst those high in psychopathy may be due to deficits in emotion

regulation which then serves to accentuate negatively toned cognitive activity resulting in poor-sleep.

Alternatively, the present outcomes may support the notion that increased cognitive functioning during the evening amongst those high in Machiavellianism and psychopathy facilitates the protean social style experienced, perhaps to facilitate a need to outthink/smart those who perceive them as a threat (Cumins, 1999; Jonason & Webster, 2012). In particular, this function may peak prior to sleep due to the lower detection risk and increased vigilance associated with this time which may inherently act as a protective factor (Jonason et al., 2013).

As the only study to examine the relationship between disturbed sleep and dark triad traits, Sabouri and colleagues (2016) note the country of origin (Iran) as an influencing factor for this relationship. Whilst the current outcomes are in line with their previous findings, cross-cultural studies would be required to confirm cross-cultural applicability.

The current results also support the notion that men are more likely to report greater attributes of Machiavellianism, psychopathy and narcissism when compared to women (Cale & Lilienfeld, 2002; Jones & Paulhus, 2014; Tschanz et al., 1998). However, it is well established that women are more likely to experience insomnia (Zhang & Wing, 2006). Considering the present sample was mostly limited to females, further research using a more balanced sample would be needed to clarify the role of sex as an influencing factor. Several additional limitations of the study should be noted. First, the present study consisted primarily of a student sample which limits the generalisability of the current findings. Second, whilst a relatively short survey was employed, no attention checks were used to exclude those who: experienced difficulty in concentration; or responded in a random manner. Finally, the current outcomes cannot be extrapolated to individuals meeting diagnostic criteria for insomnia.

To summarise, the present outcomes add to the limited literature concerning the relationship between aspects of personality and insomnia. In particular, shedding further light on the diminutive research examining the dark triad personality traits in relation to symptoms of insomnia. Whilst the current outcomes support the notion that Machiavellianism and psychopathy are independently related to insomnia, further research is now required to elucidate the possible pathways (e.g. cognitive arousal, emotion regulation, sex differences) underlying/mediating these relationships. Considering sleep-interventions have been successful in reducing aggressive behaviour (Heynes et al., 2006) such research would highlight the importance of assessing for co-morbid sleep disturbances amongst individuals displaying antisocial personality traits within a clinical setting.

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Table 1

Linear regression analyses with insomnia symptoms as the dependent variable; age, sex, Machiavellianism and psychopathy as predictors

Predictors	R^2	β	*t*	Sig.
Step 1	.01			
Age		-.04	-0.88	.38
Sex		.02	0.48	.63
Step 2	.04			
Age		-.02	-0.35	.72
Sex		.10	2.02	.04*
Machiavellianism		.10	1.90	.06
Psychopathy		.13	2.41	.02*

Note: * Sig at < .05, ** < .01