# The Dark Triad and Honesty-Humility: A Preliminary Study on the Relations to Pornography Use

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## Abstract

The present article reports on a preliminary study exploring the relationships between Dark Triad (narcissism, Machiavellianism, psychopathy) and honesty-humility personality traits and pornography craving and deviant pornography use in a sample of 121 participants (46 men and 75 women) who completed an online survey. Narcissism and psychopathy were positively related to pornography craving and deviant pornography consumption, while honesty-humility appeared to be negatively associated with these pornography-related variables. Furthermore, the data suggested that these relationships were only present in men and not in women. While the current results should be interpreted with caution in the light of a number of limitations (i.e., small sample size, mainly well-educated participants), these results fit with the notion that men are more characterized by anti-social personality traits than women, and hence also have a greater inclination to engage in immoral and sexually deviating actions.

## Keywords

Dark Triad; narcissism; Machiavellianism; psychopathy; honesty-humility; pornography

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## Acknowledgements

# THE DARK TRIAD AND HONESTY-HUMILITY: A PRELIMINARY STUDY ON THE RELATIONS TO PORNOGRAPHY USE

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## ABSTRACT

The present article reports on a preliminary study exploring the relationships between Dark Triad (narcissism, Machiavellianism, psychopathy) and honesty-humility personality traits and pornography craving and deviant pornography use in a sample of 121 participants (46 men and 75 women) who completed an online survey. Narcissism and psychopathy were positively related to pornography craving and deviant pornography consumption, while honesty-humility appeared to be negatively associated with these pornography-related variables. Furthermore, the data suggested that these relationships were only present in men and not in women. While the current results should be interpreted with caution in the light of a number of limitations (i.e., small sample size, mainly well-educated participants), these results fit with the notion that men are more characterized by anti-social personality traits than women, and hence also have a greater inclination to engage in immoral and sexually deviating actions.

## KEYWORDS

Dark Triad; narcissism; Machiavellianism; psychopathy; honesty-humility; pornography

SINCE THE BEGINNING OF THIS CENTURY, a host of studies has appeared in the psychological literature examining personality characteristics defining the malevolent characteristics of human beings (Muris, Merckelbach, Otgaar, & Meijer, 2017). One line of research has focused on the so-called Dark Triad, which contains three specific, inter-related traits that are associated with transgressive and norm-violating behavior: (1) narcissism which is concerned with the pursuit of gratification from vanity or egocentric admiration of one's own qualities; (2) Machiavellianism which refers to a duplicitous interpersonal style, characterized by a cynical disrespect of morality and a focus on self-interest and personal gain; and (3) psychopathy which pertains to enduring antisocial behavior, diminished feelings of empathy and remorse, and disinhibited/bold behavior (Paulhus,

2014; Paulhus & Williams, 2002). An alternative line of investigation stems from lexical studies of personality-descriptive adjectives, which have revealed that the personality structure of people not only consists of the well-known Big Five (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) but also contains an additional sixth factor of honesty-humility. Honesty-humility refers to individual differences in sincerity, fairness, greed avoidance, and modesty (Ashton & Lee, 2001) and thus reflects personality features that are the precise opposite of anti-social traits. Indeed, studies have revealed substantial negative correlations between the Dark Triad traits of narcissism, Machiavellianism, and psychopathy, on the one hand, and honesty-humility on the other hand, leading to the conclusion that they represent the opposite poles on a dimension of anti-social tendencies (Book, Visser, & Volk, 2015; Hodson et al., 2018; Lee & Ashton, 2014).

**Correlates of the Dark Triad and Honesty-Humility**

The Dark Triad traits and low honesty-humility may have some short-term benefits but in general are found to be associated with negative psychosocial outcomes (Muris et al., 2017; Ashton, Lee, & De Vries, 2014). In the domain of sexuality, it has been shown that narcissism, Machiavellianism, and (especially) psychopathy are positively associated with feelings of sexual desire (Jonason, Zeigler-Hill, & Okan, 2017), deviant sexual fantasies and behaviors (Baughman, Jonason, Viselka, & Vernon, 2014), infidelity and cheating (Jonason, Li, & Buss, 2010; Jones & Weiser, 2014), and exploitative and coercive behaviors (Jonason, Girgis, & Milne-Home, 2017; Jones & Olderbak, 2014; Khan, Brewer, Kim, & Munoz Centifanti, 2017). All are characteristics of short-term mating (i.e., showing less commitment and investment in a relationship with one person but placing greater emphasis in sexual activity with multiple partners) and a fast life strategy (i.e., a life style prioritizing current reproduction, facilitating short-term relationships, and seeking immediate benefits (Jonason, Koenig, & Tost, 2010). Regarding honesty-humility, research has been more limited, but the results of few available studies are in line with what has been found in the Dark Triad literature on sex-related issues, showing that low honesty-humility is associated with short-term mating and sexual quid pro quos (Lee et al., 2013), infidelity and cheating (Bourdage, Lee, Ashton, & Perry, 2007), and engagement in sexual activities with ex-partners (Mogilski & Welling, 2017).

**Pornography Use**

Due to the availability of the Internet, the use of pornography is widespread in our society (Carroll et al., 2008). It is clear that pornography use can have problematic sides (Daneback, Sevcikova, Mansson, & Ross, 2013). For example, Ross, Mansson, & Daneback (2012) found that 1.8% of women and 4.9% of men displayed an excessive and uncontrollable use of online sexual activities that was associated with negative outcomes and functional impairment (Wéry & Billieux, 2017). Some scholars have even noted that pornography use can be considered an addiction, because it relates to feelings of craving and compulsion-like behavior that can eventually disrupt one's personal life (Meerkerk, Van den Eijnden, & Garretsen, 2006). Second, pornography also has morality issues; the industry producing the materials has been linked to abuse and exploitation (Boyle, 2011), and this is especially the case with pornographic material addressing more deviant sexual themes such as sex with children, rape, and sex with animals, which are considered as illegal activities punishable by law. Moreover, there is evidence to suggest that

watching pornography may have a negative impact on people, with a variety of studies demonstrating enhancing effects on aggressive behavior (Wright, Tokunaga, & Kraus, 2016) and negative attitudes in particular of men towards women (Skorska, Hodson, & Hoffarth, 2018).

**Association Between Dark Triad/Honesty-Humility and Pornography Use**

Pornography craving and pornography consumption fit well with the stronger feelings of sexual desire (Jonason et al., 2017), and in its wake the short-term mating behavior and fast life strategy as displayed by individuals high on Dark Triad personality traits and/or low on honesty-humility (Jonason et al., 2010). So far, a handful of studies have investigated the relationship between anti-social personality traits and the consumption of pornography. Most of this work has had a specific focus on psychopathy and demonstrated that this Dark Triad member is positively associated with the use of online pornography (Visser, DeBow, Pozzebon, Bogaert, & Book, 2015; Williams, Cooper, Howell, Yuille, & Paulhus, 2009; Woong Shim, Lee, & Bryant, 2007), and is also predictive of relatively high (self-reported) arousal, especially if its content is intense, out of the mainstream, and more socially inappropriate (Paul, 2009). One other investigation specifically addressed the role of narcissism and noted that this trait also displayed a small but statistically significant positive relationship with internet pornography consumption (Kasper, Short, & Milam, 2015).

In two other investigations (Kircaburun & Griffiths, 2018; Sindermann, Sariyska, Lachmann, Brand, & Montag, 2018), all three Dark Triad traits were examined as correlates of problematic Internet use, including pornography viewing. Machiavellianism and psychopathy were consistently found as positive correlates of pornography viewing on the Internet. Further, in the Kircaburun and Griffiths (2018) study, additional (regression) analyses revealed that Machiavellianism and not psychopathy accounted for a unique and statistically significant proportion of the variance in pornography consumption. The finding that psychopathy did not make a significant contribution was probably due to the fact that the analysis also included two other anti-social traits (sadism and spitefulness) that to a large extent already covered the malign features of psychopathy.

**Aim of the Present Study**

Most of the previous work in this area has explored the relations between the Dark Triad traits and pornography consumption in general but did not explicitly address the use of more anti-social materials involving, for example, sex with younger people, sex with animals, and rape. Besides the Dark Triad, the HEXACO honesty-humility factor can be also considered as an appropriate conceptualization for studying anti-social behavior (Muris et al., 2017), but so far, no study can be found that investigated the relation between honesty-humility and pornography consumption. With these issues in mind, the present study was conducted to examine the relations between the Dark Triad traits and the honesty-humility factor, on the one hand, and pornography craving and pornography consumption, on the other hand, with a special focus on the use of deviant materials. It was hypothesized that (1) the Dark Triad traits and psychopathy in particular would be positively related to pornography craving and (deviant) pornography consumption, while (2) honesty-humility was expected to be negatively linked to these pornography-related variables. Furthermore, on the basis of previous findings, we expected (3) men to report higher levels of pornography consumption (Shaughnessy, Byers, & Walsh,

2011), higher levels of narcissism, Machiavellianism, and psychopathy (Muris et al., 2017), and lower levels of honesty-humility (Lee & Ashton, 2004) as compared to women. Finally, although a previous study by Sindermann et al. (2018) indicated that correlations between Dark Triad traits and frequency of sex-related Internet use were of a similar magnitude for men and women, we wanted to explore further (4) whether gender differences do occur when studying relations between Dark Triad/honesty-humility traits and consumption of more deviant pornographic materials.

## METHOD

### Participants and Procedure

Participants who were at least 18 years of age were invited via social media platforms to complete a survey in the English language on "The relationship between personality traits and sexual interests" using the online tool 'Qualtrics'. They received written information about the contents of the study beforehand and signed a consent form. In order to ensure their anonymity, a no point were the participants asked to provide any identifying personal information. The research project was approved by the Ethical Review Committee of Psychology and Neuroscience (ERCPN) at Maastricht University. Initially, 166 individuals agreed to participate and began to fill out the Internet-based survey, which consisted of a total of 127 items (including five questions on demographic characteristics). Forty-five participants did not finish the survey and/or left a significant amount of questions unanswered, and their data were excluded from the data analysis. The final sample of 121 participants consisted of 46 men and 75 women, who had a mean age of 25.16 years ($SD$ = 6.28, range: 18-65 years; 84% of the participants were between 18 and 28 years). Most participants were of Caucasian origin (68%; other participants came from a range of African, Asian, and Middle-Eastern countries) and in general quite well-educated: 44.6% had completed a bachelor degree; 22.3% a master degree; and 5.8% had even finished a doctorate; the remaining participants had received a high school diploma or equivalent (24.6%) or had followed vocational training (0.8%). No gender differences were found with regard to age or ethnicity, but women clearly displayed a higher educational level as compared to men, with percentages of participants having obtained a university degree being 84.0% and 56.5%, respectively [$\chi^2(1)$ = 11.07, $p$ = .001].

### Materials

**Dark Triad**. The Dark Triad traits of psychopathy, narcissism, and Machiavellianism were measured with three separate scales: the Narcissistic Personality Inventory (NPI), the MACH-IV, and the Self-Report Psychopathy Scale (SRPS).

The 40-item version of the *NPI* (Raskin & Terry, 1988) intends to measure narcissistic traits in seven domains: authority (such as, "I see myself as a good leader"); entitlement (such as, "If I ruled the world it would be a much better place"); exhibitionism (such as, "I like to be the center of attention"), exploitative (such as, "I find it easy to manipulate people"); self-sufficiency (such as, "I am more capable than other people; superiority (such as, "I think I am a special person"); and vanity (such as, "I like to look at myself in the mirror"). Each item is dichotomous and not only presents the respondent with a statement reflecting narcissism but also with a statement reflecting the exact opposite (e.g., "I see myself as a good

leader" versus "I do not see myself as a good leader"), with the instruction to endorse the most appropriate one. The final score is the sum of all 40 items, which can range from 0 to 40 and for which higher scores indicate higher levels of narcissism. The internal consistency and test-retest reliability of the NPI have been shown to be adequate, and this is particularly true for its total score (Del Rosario & White, 2005), and the scale also correlates positively and substantially with other measures of narcissism (e.g., Ackerman et al., 2011). In the present study, the NPI total score had a Cronbach's alpha of .86.

The *MACH-IV* (Christie & Geis, 1970) is a 20-item questionnaire for measuring the prototypical features of Machiavellianism in three domains: manipulative tactics (such as., "It is wise to flatter important people"); a cynical view of human beings (such as, "Anyone who completely trusts anyone is asking for trouble; and disregard for conventional morality (such as , "Sometimes one should take action even when one knows that it is not morally right"). All items have to be rated on a 5-point Likert scale with 1 = disagree, 2 = slightly disagree, 3 = neutral, 4 = slightly agree, and 5 = agree, and these ratings are combined in a total Machiavellianism score, which has proven to be reliable (Christie & Geis, 1970; Panitz, 1989; in the current study, Cronbach's alpha was .78) and to possess external validity (see Wilson, Near, & Miller, 1996).

*Levenson's SRPS* (Levenson, Kiehl, & Fitzpatrick, 1995) can be used to assess psychopathic traits in non-clinical samples. The measure consists of 26 items that have to be scored on a four-point Likert scale with 1 = disagree strongly, 2 = disagree somewhat, 3 = agree somewhat, and 4 = agree strongly. Scores on individual items can be combined to yield a total psychopathy score as well as subscales scores for primary psychopathy, which reflects a callous/manipulative interpersonal style (such as, "Success is based on survival of the fittest; I'm not concerned about the losers"), and secondary psychopathy, which refers to impulsivity and an antisocial life style (such as, "I find myself in the same kinds of trouble, time after time"). Because results in the present study were highly similar for primary and secondary psychopathy, we decided to only report the findings for the SRPS total score (for which Cronbach's alpha was .90). There is good support for the reliability and validity of the SRPS (Brinkley, Schmitt, Smith, & Newman, 2001; Lynam, Whiteside, & Jones, 1999; Tsang, Salekin, Coffey, & Cox, 2018).

**Honesty-Humility**. A subscale of the *HEXACO Personality Inventory-Revised* (Lee & Ashton, 2004, 2006) was used to measure individual differences in honesty-humility (H), the sixth basic personality trait that has been added to the Big Five framework of personality, which further includes emotionality (E), extraversion (X), agreeableness (A), conscientiousness (C), and openness (O); Ashton & Lee, 2001). The honesty-humility subscale that was used in the present study consisted of 16 items related to sincerity (e.g., "If I want something from a person I dislike, I will act very nicely toward that person in order to get it", reversed item), fairness (e.g., "I would never accept a bribe, even if it were very large"), greed avoidance (e.g., "I would like to live in a very expensive high-class neighborhood", reversed item), and modesty (e.g., "I am an ordinary person who is no better than others"). All items are scored on a 5-point scale ranging from 1 = strongly disagree to 5 = strongly agree, and can be combined into an honesty-humility total score, which has been demonstrated to be reliable and valid (Lee & Ashton, 2018). In the current study, reliability also appeared to be good, with an internal consistency coefficient of .84.

**Pornography Craving**. The *Pornography Craving Questionnaire* (Kraus & Rosenberg, 2014) contains 12 items measuring a strong desire (such as "I have an urge to watch porn right now"); physiological arousal (such as, "The thought of watching porn makes me sexually aroused"); lack of control (such as, "If I watched porn right now, I would have difficulty stopping"); mood changes (such as , "If I were watching porn this minute, I would feel happier; and behavioral intentions (such as, "Right now, I am making plans to watch porn") in relation to pornography. Items have to be answered on a 5-point rating scale ranging from 1 = strongly disagree to 5 = strongly agree. Ratings across all items can be combined to yield a total pornography craving score. Previous research has shown that the PCQ is a unidimensional measure that has excellent internal consistency. In this study, Cronbach's alpha was .91), good test-retest reliability, and possesses adequate validity as established by means of positive correlations with measures of passion for pornography, sexual compulsivity, and compulsive internet use (Kraus & Rosenberg, 2014).

**Deviant Pornography Use**. A questionnaire was developed for the purpose of the present study to assess participants' frequency of pornography use and in particular the type of deviant pornographic material they had been watching. After a brief definition of pornographic material as "any kind of material aiming at creating or enhancing sexual feelings or thoughts by means of pictures or movies that fully exposed the genitals and contained explicit sexual acts," participants were first asked to rate how often they watched pornographic material (1 = less than once per month, 2 = 1-2 times per month, 3 = 1-2 times per week, 4 = 3 times per week or more) and to indicate at what age they were first exposed to pornography. Next, they were asked a series of specific questions about whether they had ever knowingly accessed pornographic material depicting (1) sex with young people under the age of 18 years; (2) sadomasochistic sex; (3) sex involving bondage and domination (4) sex with animals; (5) violent sex; (6) rape; and (7) rough sex. These questions had a dichotomous (yes/no) response format. Besides the responses to individual items, we also used the questionnaire to compute a total score of deviant pornography use by summing participants' endorsement of all seven specific items (range: 0-7; Cronbach's alpha = .75).

## RESULTS

### General Findings

Table 1 displays the general statistics for the measures that were administered in this study. As can be seen, participants had an average frequency of pornography use of 2.31 (*SD* = 1.12), which means that they watched this type of materials on a weekly to monthly basis. Note also that some of the designated deviant pornographic materials were not so uncommon: Between 34.7 and 69.4% (*n*'s between 42 and 84) of the participants reported that they had willingly accessed materials related to sadomasochism, bondage and domination, violent sex, and rough sex. Sex with young people under the age of 18 years (*n* = 18, 14.9%), sex with animals (*n* = 14, 11.6%), and rape (*n* = 19, 15.7%) were clearly less prevalent, and thus seem to represent the real forms of deviant pornography.

Men reported higher levels of pornography craving, a higher frequency of pornography consumption, an earlier age at which they started to watch pornography, and greater use of deviant forms of porn (in particular: sex with young people, vi-

olent sex, and rough sex) as compared to women. Further, men scored also statistically significant higher on all three Dark Triad traits, while women scored statistically higher on the HEXACO factor of honesty-humility (see Table 1)

Narcissism, Machiavellianism, and psychopathy were substantially and statistically significantly positively inter-correlated and each of these Dark Triad traits were statistically significantly negatively related to honesty-humility, and this was not only found in the total sample but also in the separate subsamples of men and women (see the upper part of Table 2).

Additional analyses were conducted to explore the effects of educational level on Dark Triad traits, honesty-humility, and pornography-related measures. Comparisons between participants with a university degree and those with a lower educational level were non-significant for most variables; the only exceptions were the PCQ [$t(119) = 2.51$, $p < .05$] and the age of first exposure to pornography [$t(119) = 2.52$, $p < .05$]. Participants with a higher educational level displayed lower pornography craving scores (means being 25.16, $SD = 8.93$ vs. 30.13, $SD = 11.29$) and were first exposed to pornography at a later age (means being 15.70, $SD = 3.59$ vs. 13.81, $SD = 3.73$) as compared to their lower educated counterparts. It is important to note that the effect sizes associated with these differences in educational level ($d$'s = .50 and .52) were smaller than those found for the gender differences regarding these variables ($d$'s = .65 and 1.33), which suggests that gender had more impact than educational level. Nevertheless, it was decided to perform all analyses while also controlling for educational level (partial correlations), but this did not have an effect on the outcomes of the study.

**Table 1: Descriptive Statistics of Dark Triad Traits, Honesty-Humility, Pornography Craving, and (Deviant) Pornography Use for the Total Sample and for Men and Women Separately**

| | Total sample (*N* = 121) | Men (*n* = 46) | Women (*n* = 75) |
|---|---|---|---|
| | *M* (*SD*) or % | *M* (*SD*) or % | *M* (*SD*) or % |
| NPI Narcissism | 11.74 (6.89) | 14.09 (8.34) | 10.29 (5.39)** |
| SRPS Psychopathy | 50.15 (11.27) | 55.91 (12.79) | 46.61 (8.54)*** |
| MACH-IV Machiavellianism | 56.05 (9.74) | 60.43 (9.69) | 53.36 (8.80)*** |
| HEXACO PI-R Honesty/humility | 56.07 (10.77) | 53.41 (11.85) | 57.71 (9.77)* |
| PCQ Pornography craving | 26.47 (9.81) | 30.46 (11.36) | 24.03 (7.86)** |
| Frequency of pornography use | 2.31 (1.12) | 3.22 (0.84) | 1.75 (0.87)*** |
| Less than once per month | 32.2 | 4.3 | 49.3 |
| 1-2 times per month | 24.0 | 13.0 | 30.7 |
| 1-2 times per week | 24.8 | 39.1 | 16.0 |
| 3 times per week or more | 19.0 | 43.5 | 4.0 |
| Age of first exposure to pornography (in years) | 15.20 (3.71) | 12.74 (1.95) | 16.71 (3.73)*** |
| Deviant pornography use[1] | 2.34 (1.90) | 3.02 (1.83) | 1.92 (1.83)** |
| Sex with young people | 14.9 | 23.9 | 9.3* |
| Sadomasochistic sex | 35.5 | 43.5 | 30.7 |
| Bondage and domination sex | 52.1 | 63.0 | 45.3 |
| Sex with animals | 11.6 | 17.4 | 8.0 |
| Violent sex | 34.7 | 50.0 | 25.3** |
| Rape | 15.7 | 21.7 | 12.0 |
| Rough sex | 69.4 | 82.6 | 61.3* |
| Real deviant pornography use[2] | 0.42 (0.80) | 0.63 (1.06) | 0.29 (0.56)† |

*Note.* [1] Sum of all seven items, [2] Sum of the three items (i.e., sex with young people, sex with animals, rape) for which frequency was lower than 25% in the total sample as well as in men/women. PCQ = Pornography Craving Questionnaire.
For gender differences, † $p$ = .05, * $p$ < .05, ** $p$ < .01, *** $p$ < .001.

### Relations between Dark Triad and honest-humility traits and pornography-related variables

As can be seen in the lower part of Table 2, in the total sample, all Dark Triad traits were statistically significantly and positively correlated with pornography craving as indexed by the PCQ [$r$'s(121) between .29 and .39], whereas a negative correlation was found between honesty-humility and pornography craving [$r$(121) = -.44]. Importantly, when looking at the correlations of both genders separately, these statistically significant correlations were only present in men [Dark Triad traits: $r$'s(46) between .37 and .51; honesty-humility: $r$(46) = -.66] but not in women.

In the total sample, correlations with pornography use frequency showed the expected pattern: Machiavellianism and psychopathy were positively related to pornography consumption [both $r$'s(121) being .25], whereas a negative correlation was found with honesty-humility [$r$(121) = -.20], implying that participants higher on these dark traits and lower on honesty-humility more often viewed pornography than those lower on these dark traits and high on honesty-humility. Further, statistically significant negative correlations were found between narcissism and psychopathy [$r$'s(121) being -.18 and -.19, respectively] and age of first exposure to pornography, while a statistically significant positive correlation was noted for honesty-humility [$r$(121) = .22]. Thus, those higher on these dark traits and lower on honesty-humility reported they had started to watch pornography at an earlier age. However, note also that all these correlations completely disappeared when the data on men and women were analyzed separately, suggesting that these findings in the total sample were due to the co-variance of gender differences in personality traits and frequency of pornography use and age of first exposure.

In the total sample, deviant pornography use was statistically significantly and positively correlated with narcissism [$r$(121) = .20] and statistically significantly and negatively linked to honesty-humility [$r$(121) = -.25]. When computing the correlations for men and women separately, it was found that only the link with deviant pornography use and honesty-humility remained statistically significant, but that this merely appeared to be the case in men [$r$(46) = -.53] and not in women [$r$(75) = .03]. Thus, only men lower on honesty-humility reported to have watched pornographic materials with a deviant content.

When considering the use of pornography that was really deviant (i.e., materials related to illegal activities including sex with young people, sex with animals, and rape), the results in the total sample revealed statistically significant and positive correlations with all three Dark Triad traits [$r$'s(121) between .19 and .25] and a statistically significant negative correlation with honesty-humility [$r$(121) = -.30]. Again, separate analysis conducted for both genders indicated that these links were merely present in men: narcissism [$r$(46) = .32], psychopathy [$r$(46) = .39], and honesty-humility [$r$(46) = -.45]. Thus, in particular men higher on narcissism and psychopathy and lower on honesty-humility more frequently reported to have willingly accessed materials with such aberrant content.

**Table 2: Pearson Correlations† Among Dark Triad Traits, Honesty-Humility and Pornography-Related Variables as Found in the Total Sample and for Men (Left Values Between Parentheses) and Women Right Values Between Parentheses), Separately**

| | NPI Narcissism | MACH-IV Machiavellianism | SRPS Psychopathy | HEXACO Honesty-humility |
|---|---|---|---|---|
| MACH-IV Machiavellianism | .45*** (.46***/.35**) | | | |
| SRPS Psychopathy | .56*** (.70***/.26*) | .75*** (.76***/.68***) | | |
| HEXACO PI-R Honesty-Humility | -.54*** (-.60***/-.43**) | -.66*** (-.65***/-.63***) | -.73*** (-.80***/-.66***) | |
| PCQ Pornography craving | .39*** (.44**/.18) | .29** (.37*/.04) | .39*** (.51**/.04) | -.44*** (-.66***/-.15) |
| Pornography use Frequency | .16 (-.24/.19) | .25** (-.05/.09) | .25** (-.05/.02) | -.20* (-.07/-.12) |
| Age of first exposure | -.18* (.12/-.15) | -.16 (-.19/.11) | -.19* (-.02/.05) | .22* (.17/.15) |
| Deviant | .20* (.18/.10) | .17 (.22/-.02) | .15 (.25/-.14) | -.25** (-.53***/.03) |
| Real deviant | .25** (.32*/.03) | .19* (.25/-.02) | .25** (.39**/-.14) | -.30** (-.45**/-.05) |

*Note.* $N = 121$ for the total sample, $n = 46$ for men and $n = 75$ for women. NPI = Narcissistic Personality Inventory, SRPS = Self-Report Psychopathy Scale, PI-R = Personality Inventory-Revised, PCQ = Pornography Craving Questionnaire. †Highly similar results were obtained when using Spearman correlations. * $p < .05$, ** $p < .01$, *** $p < .001$

Given the substantial overlap among Dark Triad and honesty-humility traits, we also conducted hierarchical regression analysis to identify the strongest predictor of pornography-related variables. The analysis with pornography use frequency and age of first exposure to pornography yielded non-significant models in both men and women, implying that none of the Dark Triad and honesty-humility traits accounted for a significant proportion in the variance of these variables. In men, the models predicting pornography craving [$F(1,44) = 33.35$, $p < .001$], deviant pornography use [$F(1,44) = 17.53$, $p < .001$], and real deviant pornography use [$F(1,44) = 10.87$, $p < .01$] were statistically significant. In all models, it was honesty-

humility that emerged as the strongest unique predictor accounting for respectively 43%, 29%, and 20% of the total variance in these pornography-related variables. In women, the pertinent models were non-significant.

## DISCUSSION

This preliminary study examined the relations between Dark Triad and honesty-humility personality traits and pornography craving and pornography use. In line with our hypotheses, Dark Triad traits, especially psychopathy (cf. Paul, 2009; Visser et al., 2015; Williams et al., 2009; Woong et al., 2007) and narcissism (cf. Kasper et al., 2015), were positively related to pornography craving and deviant pornography consumption, while honesty-humility was negatively associated with these pornography-related variables. Follow-up analyses suggested that these relationships were only present in men and not in women. This gender difference aligns well with what has been noted elsewhere in the literature, namely that "men are more strongly embodied by dark personality traits than women" (Jonason et al., 2017; p. 180) meaning that men with these features are more strongly inclined to engage in short-term mating behavior, a fast life strategy, and morally condemnable actions than women.

Interestingly, honesty-humility emerged as a stronger predictor of pornography craving and deviant pornography use than narcissism, Machiavellianism, and psychopathy. This result is in keeping with Lee et al. (2013) who noted that the honesty-humility factor of the HEXACO model had better predictive value for adverse outcomes, including sex-related issues such as short-term mating, socio-sexual behavior, and sexual "quid pro quos", than the Dark Triad traits. This may well have to do with the fact that Dark Triad traits are measured in a rather explicit way (Muris et al., 2017; Watts, Waldman, Smith, Poore, & Lilienfeld, 2017). People with these traits often tend to present themselves in a disguised and more positive way by underreporting the darker features of their personality, thereby undermining the validity of scales such as the NPI, MACH-IV, and SRPS. The HEXACO honesty-humility scale is in this regard subtler and therefore has better potential to evade socially desirable responses (Muris et al., 2017).

No statistically significant relationships were found between Dark Triad and honesty-humility personality traits and the frequency of pornography consumption and the reported age at which participants had started to watch such materials. This might be due to the fact that in contemporary times exposure to (non-deviant) pornography is a widespread and normative phenomenon (Carroll et al., 2008), that often occurs unintentionally – even during the childhood years (Ybarra & Mitchell, 2005), and is not necessarily associated with anti-social traits. This is also confirmed by the result that some of the items in our deviant pornography list (e.g., bondage and domination sex, rough sex, sadomasochism) were less aberrant as expected in the sense that they had been knowingly accessed by a substantial proportion of the participants.

The present study yielded a number of general findings that have also been noted in previous studies. The first result pertains to the inter-correlations among the Dark Triad traits and between these traits and honesty-humility, which indicates that they all assess strongly allied features (Furnham, Richards, Rangle, & Jones, 2014; Muris et al., 2017; Paulhus & Williams, 2002). Second, there were statistically significant gender differences in narcissism, Machiavellianism, psychopathy, and honesty-humility (Muris et al., 2017; Lee & Ashton, 2004), all of

which were indicative that men score higher on antisocial personality traits than women, and which is also in line with observations that men are more often diagnosed with an antisocial personality disorder (Cale & Lilienfeld, 2002) and more frequently engage in violence, delinquency, and crime (Rowe, Vazsonyi, & Flannery, 1995) as compared to women. Third, as documented in earlier research (Shaughnessy et al., 2011), men appeared to display higher levels of pornography craving and pornography consumption and a lower age at which they first viewed pornographic materials than women.

Admittedly, this study suffers from a number of limitations. To begin with, we relied on a web-based questionnaire that was distributed via social media platforms. Obviously, such an online approach has several disadvantages (e.g., sampling issues, response bias; Wright, 2005), but at the same time also has potential when examining atypical topics (McInroy, 2016). The sample was also relatively small and there were almost twice as many women as compared to men. In addition, most were in their twenties and well-educated, all of which call the representativeness of the study population into question. Further, deviant pornography use was measured with a self-constructed questionnaire asking participants to indicate whether they had ever willingly accessed a number of pornographic materials with an aberrant content. Instead of the dichotomous (yes/no) response format, it would have been more sensitive if we had measured the exact frequency and/or, for example, the level of sexual arousal or sense of power that was associated with watching such materials. Finally, the study solely relied on self-report. While pornography consumption typically occurs in private and hence is difficult to assess in a more objective way, it would have been preferable if we had employed another person's report on participants' antisocial personality traits.

In spite of these shortcomings, the present findings align well with our hypothesis that people with antisocial personality traits display higher levels of pornography craving and are more inclined to access deviant pornographic materials on the Internet, which fits well with increasing empirical evidence showing that these persons have a fast life strategy flavored by sexually deviating and morally inappropriate actions.

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