



## Male and female face of Machiavellianism: Opportunism or anxiety?



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### ABSTRACT

The relationship between Machiavellianism and emotion management features is highly debated. In our study we try to clarify the controversial findings by highlighting the role of gender differences. Three studies with different (undergraduate and employed) participants were conducted to investigate gender differences in Machiavellianism-related personality characteristics. We used different measures of Machiavellianism and explored their connection with temperament and character traits (Study 1), with scales of six-factor (HEXACO) model of personality (Study 2), and with different types of psychopathy and narcissism (Study 3). Our results show that there are gender differences in the connection of Machiavellianism and other personality traits, and that most of the differences were found in the field of emotion management. We found that women's Machiavellianism scores were correlated with harm avoidant, anxious, vulnerable, hypersensitive features, while Machiavellianism among men was associated with risk taking, self-confidence, and an opportunistic worldview.

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## 1. Introduction

### 1.1. Machiavellianism

Machiavellianism refers to individuals' tendency to use other people as tools to maximize their personal benefits and to achieve their goals (Bereczkei, 2015; Christie & Geis, 1970; Fehr, Samsom, & Paulhus, 1992; Wastell & Booth, 2003). According to Christie and Geis (1970), Machiavellian worldview is a measurable individual-difference variable including three core domains: (1) intention and ability to use manipulative tactics, (2) cynical view of human nature and (3) disregard for conventional morality. Individuals who strongly endorse Machiavellian attitudes are usually described as callous, untrustworthy, calculating, egocentric, self-serving, exploitative and deceitful (e.g. Austin, Farelly, Black, & Moore, 2007; Christie & Geis, 1970; Fehr et al., 1992; Jones & Figueredo, 2013).

Those high in Machiavellianism exhibit flexibility and external control as a key part of their behavioral strategy when interacting with others. For example, those high in Machiavellianism intensively monitor their partners' behavior in social situations and change their tactics if the characteristics of the given situation require such a change (Czibor & Bereczkei, 2012; Jonason & Krause, 2013; Jones, 2014; Jones & Paulhus, 2009a, 2009b). Machiavellianism can also be characterized

by behavioral opportunism; individuals high in Machiavellianism are usually concerned with maximizing their own profit, without concern for the interest of their exchange-partners (Bereczkei & Czibor, 2014; Fehr et al., 1992; Gunnthorsdottir, McCabe, & Smith, 2002; Sakalaki, Richardson, & Thépaut, 2007). Overall, those high in Machiavellianism tend to exhibit a selfish and flexible behavioral style in their interactions with others.

### 1.2. Machiavellianism and other personality traits

Machiavellianism is one of three personality traits referred to as the Dark Triad – including subclinical psychopathy and subclinical narcissism – which have been studied as distinct but overlapping dimensions of exploitative personality (Paulhus & Williams, 2002). Together, the Dark Triad traits have a shared tendency towards callousness, emotional coldness, and aggressive, manipulative behavior (Furnham, Richards, & Paulhus, 2013; Paulhus & Williams, 2002). However, Machiavellianism represents a distinctive profile in the cluster of dark personality traits. Machiavellianism facilitates long-term strategizing, and lower levels of impulsivity (Jones & Paulhus, 2010, 2011; Reidy, Zeichner, & Martinez, 2008) compared to psychopathy and narcissism. Machiavellianism is also developmentally more sensitive to environmental cues than the other two traits (Vernon, Villani, Vickers, & Harris, 2008; Veselka, Schermer, & Vernon, 2011).

Several studies have also investigated the relationship between Big Five personality traits and Machiavellianism. These studies have found

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that Machiavellianism is negatively associated with Agreeableness and Conscientiousness (Austin et al., 2007; Jakobwitz & Egan, 2006; Jonason, Koenig and Tost, 2010; Jonason, Li and Teicher, 2010; Lee & Ashton, 2005; Paulhus & Williams, 2002; Vernon et al., 2008; Veselka, Schermer, & Vernon, 2012). Furthermore, studies using the HEXACO model of personality have revealed that Machiavellianism is negatively correlated with Honesty/Humility (De Vries & van Kampen, 2010; Jonason & McCain, 2012; Lee & Ashton, 2005).

The nature of the relationship between Machiavellianism and the Neuroticism trait of the Big Five personality traits, however, has been the subject of some debate. Studies using different measures of the Big Five personality traits (e.g. BFI, NEO-PI-R, IPIP scales) have variously found positive (Austin et al., 2007; Kessler et al., 2010; Monaghan, Bizumic, & Sellbom, 2016; Szijjártó & Bereczkei, 2015; Veselka et al., 2012) or no correlation (Austin et al., 2007; Jakobwitz & Egan, 2006; Lee & Ashton, 2004; Paulhus & Williams, 2002) between Machiavellianism and Neuroticism. Additionally, another study found a weak negative correlation between Machiavellianism (measured by IPIP scale) and Emotionality (HEXACO) and Neuroticism (5-Dimensional Model of Personality) respectively (De Vries & van Kampen, 2010). A more recent study found a negative association between Emotional stability (i.e., the opposite of Neuroticism; BFI-S) and Machiavellianism (German Machiavellianism Scale) among men, but weak positive association among women (Rauthmann, 2012).

### 1.3. Machiavellianism and emotion management

In addition to the conflicting findings regarding the relationship between Machiavellianism and the emotional stability factor of the five-factor personality model, the relationship between Machiavellianism and emotion management is also unclear. Research aimed at exploring the relationship between Machiavellianism and emotion management, concentrates mainly on two central topics: firstly, on the emotional intelligence of Machiavellian individuals, that is, how they process emotions and emotional information (Salovey & Mayer, 1990), and secondly, on the correlates between Machiavellianism and emotional problems: anxiety and depression.

#### 1.3.1. Machiavellianism and emotional intelligence

Some have proposed Machiavellianism to have a positive association with emotional intelligence (EI) due to the often-successful manipulation tactics employed by those high in Machiavellianism (e.g., Jones & Paulhus, 2009a, 2009b). However, empirical investigations of this relationship found a negative correlation between trait EI and Machiavellianism (Ali, Amorim, & Chamorro-Premuzic, 2009; Austin et al., 2007; Pilch, 2008; Szijjártó & Bereczkei, 2015). This negative correlation suggests that those higher in Machiavellianism have difficulty or a decreased motivation to process the emotional states of themselves and others. Although the poor ability to express emotions may be a kind of deficit, it may actually be advantageous for deceiving and manipulating others. The inability to express and share emotions with others may help those high in Machiavellianism to conceal their emotions, along with their intentions, and in doing so, manipulate others effectively (Szijjártó & Bereczkei, 2015).

#### 1.3.2. Machiavellianism, anxiety and depression

On the other hand, lower levels of EI can also lead to less effective management of stressful situations (Schutte et al., 2001). Indeed, a greater incidence of anxiety and mood disorders has been observed among individuals with lower EI levels (Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007). However, despite the relationship between Machiavellianism and lower EI levels, the relationship between anxiety and Machiavellianism is unclear. Some studies have reported a moderate positive correlation between Machiavellianism and self-report measures of anxiety (Jones, Nickel, & Schmidt, 1979; McHoskey, Worzel, & Szyarto, 1998; Nigro & Galli,

1985; Poderico, 1987), while other studies have found no relation between them (Ali et al., 2009; Christie & Geis, 1970; Jonason, Baughman, Carter, & Parker, 2015).

Depression shows a similar pattern: while some studies have found a moderate positive correlation between Machiavellianism and depression (Bakir, Yilmaz, & Yavas, 1996; Jonason et al., 2015), other studies have found no association between these variables (Skinner, 1982). Further, another study (LaTorre & McLeod, 1978) conducted among participants with clinical depression showed that among men Machiavellianism was negatively associated with depression, while this relationship was positive among women. Together these contradictory findings demonstrate a lack of understanding of the fundamental relationship between Machiavellianism and emotion management features.

### 1.4. Gender differences in Machiavellianism

One potential explanation for these contradictory findings is that gender differences affect the emotion management features expressed by those high in Machiavellianism. This assertion is supported by the divergent relationships found between Machiavellianism and emotional stability (Rauthmann, 2012) as well as clinical depression (LaTorre & McLeod, 1978) among men and women. In general, most studies using self-report measures of Machiavellianism have found that men tend to have higher scores on Machiavellianism self-report scales than women (e.g. Ali & Chamorro-Premuzic, 2010; Jones & Paulhus, 2009a, 2009b; Linton & Wiener, 2001; McHoskey, 2001; Wilson, Near, & Miller, 1996).

Besides the gender differences in the magnitude of Machiavellianism scores, relatively few studies have been done on gender differences between Machiavellianism and other personality traits or behaviors. Studies focusing on the Dark Triad have revealed that the correlation between the Machiavellianism and empathy (Jonason, Lyons, Bethell, & Ross, 2013), forms of impulsivity (Jones & Paulhus, 2011), conscientiousness (Carter, Campbell, & Muncer, 2014) and sexual tactics (Jonason & Buss, 2012; Jonason & Kavanagh, 2010) show different patterns among male and female participants. For example, although psychopathy is an equal predictor across men and women of having ever been unfaithful to a romantic partner, Machiavellianism was only a predictor among women (Jones & Weiser, 2014). Further, some preliminary results show, that when examining the Dark Triad traits simultaneously, psychopathy is a better predictor of sociosexual behaviors in women than it is in men (Jones & de Roos, 2016).

In the light of these findings, we hypothesize that gender may moderate the relationships between Machiavellianism and emotion management, thus accounting for the contradictory results of past studies evaluating these traits (reviewed above). In the following studies we will focus on various personality correlates of Machiavellianism among men and women.

## 2. Overview of the studies

We will present three studies to investigate the gender differences in personality characteristics related to Machiavellianism. In these three studies we use different measures of Machiavellianism and explore their connection with temperament and character traits (Study 1), scales of six-factor (HEXACO) model of personality (Study 2), and the other two Dark Triad traits (Study 3). Besides undergraduate participants (Studies 1 and 3) we also worked with an employed sample (Study 2), to enlarge the generalizability of our findings. After presenting the three studies, we synthesize the results from the three studies in a model of Machiavellianism's different roots by the two genders.

### 3. Study 1

#### 3.1. Aim of the study

The aim of the current study was to investigate gender differences in association with the personality correlates of Machiavellianism. For this purpose we decided to base our research on Cloninger's psychobiological model of personality (Cloninger, Przybeck, Svrakic, & Wetzel, 1994; Cloninger, Svrakic, & Przybeck, 1993). This model differentiates between two elements of personality: temperament and character traits. Temperament factors represent inherited patterns of processing environmental information and define the characteristic patterns of automatic responses given by an individual to emotionally loaded stimuli. Temperament factors are partly innate, relatively stable throughout people's entire lives, and independent of cultural and social influence. In contrast, character factors involve individual differences that develop as a result of the interaction between temperament, family environment, and personal experience (Cloninger et al., 1994).

This model provides a promising way of assessing gender differences in Machiavellianism in three distinct ways. Firstly, it can offer a comprehensive view about differences between men and women in Machiavellianism-correlated personality traits. Secondly, it can suggest a proposition about the (innate or learned) origin of these differences. Thirdly, this psychobiological model incorporates Novelty Seeking and Harm Avoidance as temperament factors that are strictly related to risk taking, emotion regulation and emotional stability (Cloninger et al., 1994).

#### 3.2. Method

##### 3.2.1. Participants

One hundred and fifty undergraduates at a Hungarian University (69 males and 81 females;  $M_{age} = 22.2$  years,  $SD_{age} = 2.61$ ) participated in the study. Volunteers were recruited via opportunity sampling from different faculties of the University. They received no reward for participation. Participants were informed that participation in the study was voluntary and anonymous.

##### 3.2.2. Measures

Participants completed the Temperament and Character Inventory (Cloninger et al., 1994) and the Mach IV test (Christie & Geis, 1970).

The Temperament and Character Inventory (Cloninger et al., 1994) is designed to measure seven personality traits: four temperament traits (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and three character traits (Self-directedness, Cooperativeness, and Self-transcendence). Example items for TCI include, "I can usually accept other people as they are, even when they are very different from me." (Cooperativeness) and "My behavior is strongly guided by certain goals that I have set for my life" (Self-Directedness). Participants indicated their agreement with 240 items on a dichotomous (agree vs. disagree) response scale.

Individual differences in Machiavellianism were measured via the 20-item Mach-IV, which assesses dispositional agreement with the political philosophies espoused by Niccolò Machiavelli (Christie & Geis, 1970). Participants indicated their level of agreement with items on a 7-point Likert-type scale. This measure includes statements such as "The best way to handle people is to tell them what they want to hear". Individual item ratings were summed to a single composite score (Machiavellianism score).

#### 3.3. Results

We used independent samples *t*-tests to assess gender differences, with sex as the independent variable, and TCI scales' scores and Mach IV scores as dependent variables. In accordance with previous studies, we found significant gender differences in Mach IV scores, such that men had significantly higher scores than women. We found a marginally significant sex difference in Persistence (TCI); men scored lower than women (see Table 1).

Correlations were also examined between Mach IV and the TCI scales (Table 2). Mach IV scores correlated negatively and significantly with Reward Dependence, Self-directedness, Cooperativeness, and Self-transcendence. In contrast, Mach IV scores correlated positively and significantly with Novelty Seeking. We also found sex differences in the pattern of these correlations such that Mach IV scores only correlated significantly with Novelty Seeking and Self-transcendence among men – not women. In contrast, Reward Dependence correlated with Mach IV scores only among women. Moreover, a significant positive correlation was found between Mach IV scores and Harm Avoidance among women, but not in the total sample. Fisher's *r*-to-*z* transformation was conducted to measure the gender difference between the strength of the correlations. We found significant sex differences in the relationship of Machiavellianism and Harm Avoidance.

#### 3.4. Discussion

Using the Temperament and Character model of personality we found that on the total sample Machiavellianism was associated with two temperament traits: positively with Novelty Seeking and negatively with Reward Dependence. Novelty Seeking refers to exploratory, impulsive, frustration-avoidant and extravagant behavior and implies a connection to the dopamine system in Cloninger's model (Cloninger et al., 1993). On the other hand, Reward Dependence is defined as the tendency for a positive response to signals of (mainly social) rewards and is also associated with the functioning of the noradrenergic system. Lower scores on this scale indicate declined levels of sentimentality, social sensitivity, attachment and dependence on the approval of others.

According to character traits, on the total sample higher Machiavellianism scores were associated with lower levels of Cooperativeness and Self-directedness. These results are consistent with previous findings that those higher in Machiavellianism show more self-interest than a

**Table 1**  
Descriptive statistics and sex differences in TCI scales and Mach IV (Study 1).

	Cronbach's $\alpha$	Mean (SD)			<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
		Overall	Men	Women				
Machiavellianism	0.77	102.56 (16.39)	105.68 (16.82)	99.9 (15.63)	2.18*	148	0.03	0.36
Novelty seeking	0.80	52.55 (9.87)	53.22 (10.55)	51.99 (9.29)	0.76	148	0.45	0.12
Harm avoidance	0.91	49.27 (11.89)	49.45 (12.00)	49.11 (11.85)	0.17	148	0.86	0.00
Reward dependence	0.76	49.92 (10.61)	49.41 (11.19)	50.36 (10.13)	−0.55	148	0.59	−0.09
Persistence	0.70	50.15 (10.87)	48.45 (11.40)	51.60 (10.25)	−1.79 <sup>+</sup>	148	0.08	−0.29
Self-directedness	0.83	49.37 (9.99)	48.39 (9.39)	50.20 (10.45)	−1.11	148	0.27	−0.18
Cooperativeness	0.89	48.97 (11.27)	48.99 (11.55)	48.95 (11.09)	0.02	148	0.99	0.00
Self-transcendence	0.88	50.91 (10.80)	50.87 (10.67)	50.94 (10.98)	−0.04	148	0.97	−0.01

<sup>+</sup>  $p < 0.10$ ; two tailed.

\*  $p < 0.05$ ; two-tailed.

**Table 2**  
Pearson's correlation coefficients and z-values between Machiavellianism and TCI factors (Study 1).

	Machiavellianism			z	p
	Total sample (N = 150)	Men (N = 69)	Women (N = 81)		
Novelty seeking	0.28**	0.36**	0.17	1.23	0.22
Harm avoidance	0.09	−0.09	0.25*	−2.07*	0.04
Reward dependence	−0.24**	−0.18	−0.28*	0.63	0.53
Persistence	−0.14	−0.21	−0.03	−1.1	0.27
Self-directedness	−0.35**	−0.27*	−0.40**	0.88	0.38
Cooperativeness	−0.54**	−0.48**	−0.63**	1.31	0.19
Self-transcendence	−0.17*	−0.24*	−0.11	−0.8	0.42

\*  $p < 0.05$ ; two-tailed.

\*\*  $p < 0.01$ ; two-tailed.

willingness to cooperate (e.g. Bereczkei & Czibor, 2014; Christie & Geis, 1970; Czibor & Bereczkei, 2012; Fehr et al., 1992; Jones & Paulhus, 2009a, 2009b). Additionally, Machiavellianism has been found to be correlated with an external locus of control (Mudrack, 1990; Solar & Bruehl, 1971), which is negatively related to Self-directedness. There was a negative association between Machiavellianism and Self-Transcendence (i.e., the trait reflecting spirituality) among male. These findings suggest that a declined level of spirituality, idealism and transpersonal identification are part of the Machiavellianism profile. Potentially, the materialistic, practical way of thinking, related to a lower degree of Self-Transcendence could be a background factor of the cool-headed, rational, environment-sensitive, decision-making style characteristic of Machiavellians.

The only significant difference between the two sexes were found in the relationship between Machiavellianism and Harm Avoidance; this temperament factor showed a positive association with Machiavellianism only among women. The Harm Avoidance temperament factor represents excessive worrying, fearfulness, anxiety, fatigability, asthenia, pessimism and shyness. This factor also shows a positive association with neuroticism, and a connection to serotonergic activity (De Fruyt, Van De Wiele, & Van Heeringen, 2000). The Machiavellian profile of men and women diverged in that Machiavellianism among women was associated with several anxious features (e.g., fearfulness, worrying, fatigability and pessimism), while no similar association was found among men. These finding support our prediction that Machiavellian-related personality characteristics and behaviors are different for males and females. Further, we may postulate, based on these findings, that similar Machiavellian attitudes of men and women high in this personality trait are motivated by different processes.

## 4. Study 2

### 4.1. Aim of the study

Study 1 found differences between men and women in the personality correlates of Machiavellianism among undergraduate participants. Study 2 is aimed at obtaining a deeper understanding of this phenomenon. For this reason we choose the six-factor personality model (HEXACO) that it has recently been used to examine Machiavellianism and socially malevolent personality traits (De Vries & van Kampen, 2010; Jonason & McCain, 2012; Lee & Ashton, 2005, 2014). The facet-structures of the Honesty/Humility and of the Emotionality scales of the HEXACO, allowed us to gain a more detailed understanding about the gender differences in Machiavellianism. A larger sample of employed adults (instead of undergraduates) were utilized in this study, in order to increase the generalizability of our findings. Another difference from Study 1 to Study 2 was that Machiavellianism was measured as an element of the Dark Triad.

## 4.2. Method

### 4.2.1. Participants and procedure

As a part of a study measuring personality characteristics and work-related attitudes 256 employed adult completed HEXACO-PI-R and the Short Dark Triad Questionnaire. One hundred and eight males and 148 females ( $M_{age} = 37.12$  years,  $SD_{age} = 11.99$ ) participated voluntarily and anonymously in the study; most of them (62.5%) possessed a college- or university degree. Volunteers were recruited via opportunity sampling through different local websites and social media. They received no reward for participation.

### 4.2.2. Measures

Machiavellianism was measured using the Machiavellianism scale of the Short Dark Triad Questionnaire (SD3) (Jones & Paulhus, 2014). The SD3 is a brief measure of socially aversive personality traits: Machiavellianism (e.g. "It's wise to keep track information that you can use against people later."), Narcissism (e.g. "I have been compared to famous people."), and Psychopathy (e.g. "Payback needs to be quick and nasty."). The 27-item questionnaire uses a 5-point Likert-type scale; all of the dark personality traits are assessed by 9-items.

The 100-item HEXACO-PI-R (Lee & Ashton, 2016) is based on the six-factor model of personality. The six main personality traits measured by this instrument include: Honesty/Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience. Example items for TCI include, "I would never accept a bribe, even if it were very large." (Honesty-Humility) and "I sometimes can't help worrying about little things." (Emotionality) Each factor can be divided into four facets. Participants indicated their agreement with statements assessing these factors on a 5-point Likert-type scale.

## 4.3. Results

First, we examined sex differences using independent samples *t*-tests, with sex as the independent variable, and scales of the SD3, all six HEXACO scales, and all 24 HEXACO subscales as dependent variables. Similar to Study 1, men and women had significantly different Machiavellianism scores, such that men scored significantly higher than women. Significant difference was found also in subclinical narcissism and subclinical psychopathy: men scored higher on both scales. Gender differences were also found in many HEXACO scales and subscales (Table 3).

Subsequently, we conducted Pearson correlation analyses between Machiavellianism, narcissism, psychopathy, and HEXACO scales and subscales (Table 4). Machiavellianism showed positive correlation with the other dark personality traits. Machiavellianism scores correlated negatively with two of the HEXACO scales – Honesty-Humility, and Agreeableness – as well as with 12 of the HEXACO subscales: Sincerity, Fairness, Greed-Avoidance, Modesty, Anxiety, Sentimentality, Forgiveness, Gentleness, Flexibility, Patience, Prudence, and Aesthetic Appreciation. No significant positive correlations were found.

Gender differences in correlation coefficients between Machiavellianism and some of the HEXACO scales were also found. Fisher's *r*-to-*z* transformations show, that there was a significant difference in the relationship of Machiavellianism and Emotionality. There was no significant correlation between Machiavellianism and the Emotionality scale in the total sample; however, this relationship was marginally significant and positive among women, while marginally significant and negative among men. The Sentimentality subscale of Emotionality showed a significant and negative correlation with Machiavellianism among men, but not among women. The relationship between Machiavellianism scores and scores on the Patience subscale of Agreeableness was only significant (and negative) among women. Moreover, the Social Self-Esteem subscale of Extraversion did not show a significant correlation within the whole sample, but it did correlate negatively with Machiavellianism

**Table 3**  
Descriptive statistics and sex differences in HEXACO scales and facets and SD3 scales (Study 2).

	Cronbach's $\alpha$	Mean (SD)			<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
		Overall	Men	Women				
Machiavellianism	0.79	3.20 (0.66)	3.32 (0.68)	3.12 (0.64)	−2.36*	254	0.02	0.3
Subclinical narcissism	0.7	2.64 (0.58)	2.77 (0.64)	2.55 (0.53)	−3.05**	254	0.00	−0.38
Subclinical psychopathy	0.74	1.99 (0.59)	2.25 (0.6)	1.81 (0.52)	−6.2**	254	0.00	−0.78
Honesty-humility	0.86	55.71 (10.87)	52.38 (11.26)	58.14 (9.93)	4.33**	254	0.00	−0.54
Sincerity	0.68	14.23 (3.31)	13.87 (3.26)	14.49 (3.33)	1.48	254	0.14	−0.19
Fairness	0.74	15.69 (3.88)	14.36 (4.11)	16.66 (3.41)	4.75**	204.11	0.00	−0.61
Greed-avoidance	0.80	12.17 (3.90)	11.46 (3.97)	12.69 (3.78)	2.51*	254	0.01	−0.32
Modesty	0.52	13.62 (2.95)	12.69 (3.01)	14.30 (2.72)	4.47**	254	0.00	−0.56
Emotionality	0.76	51.70 (8.31)	47.54 (7.04)	54.74 (7.85)	7.57**	254	0.00	−0.97
Fearfulness	0.52	11.18 (2.86)	10.30 (2.40)	11.83 (3.00)	4.54**	251.92	0.00	−0.56
Anxiety	0.60	13.61 (3.14)	12.88 (3.13)	14.14 (3.05)	3.22**	254	0.00	−0.41
Dependence	0.67	13.32 (3.01)	12.39 (2.66)	13.99 (3.08)	4.36**	254	0.00	−0.56
Sentimentality	0.59	13.60 (2.89)	11.97 (2.46)	14.78 (2.60)	8.75**	254	0.00	−1.11
Extraversion	0.83	55.62 (8.83)	54.55 (9.34)	56.41 (8.39)	1.17	254	0.1	−0.21
Social self-esteem	0.69	15.29 (2.82)	15.17 (2.83)	15.39 (2.81)	0.61	254	0.54	−0.08
Social boldness	0.70	12.40 (3.33)	12.52 (3.46)	12.32 (3.24)	−0.48	254	0.64	0.06
Sociability	0.48	13.24 (2.63)	12.79 (2.82)	13.57 (2.44)	2.36*	254	0.02	−0.3
Liveliness	0.77	14.69 (3.05)	14.07 (2.97)	15.14 (3.03)	2.79*	254	0.01	−0.36
Agreeableness	0.79	46.90 (8.54)	46.41 (7.30)	47.26 (9.34)	0.82	252.78	0.41	−0.10
Forgiveness	0.68	11.77 (3.26)	11.62 (2.94)	11.89 (3.49)	0.64	245	0.52	−0.08
Gentleness	0.44	12.52 (2.46)	12.18 (2.36)	12.78 (2.51)	1.94	254	0.05	−0.25
Flexibility	0.44	10.40 (2.71)	10.42 (2.50)	10.39 (2.86)	−0.07	254	0.94	0.01
Patience	0.71	12.20 (3.20)	12.19 (3.03)	12.21 (3.32)	0.04	254	0.97	−0.01
Conscientiousness	0.79	58.39 (8.11)	57.15 (8.92)	59.30 (7.37)	2.05*	203.56	0.04	−0.26
Organization	0.59	14.98 (2.87)	14.56 (3.11)	15.30 (2.65)	2.06*	254	0.04	−0.26
Diligence	0.58	15.55 (2.75)	15.30 (2.84)	15.74 (2.67)	1.29	254	0.2	−0.16
Perfectionism	0.56	14.55 (2.65)	13.84 (2.89)	15.07 (2.34)	3.63**	200.26	0.00	−0.47
Prudence	0.74	13.30 (3.15)	13.45 (3.14)	13.19 (3.16)	−0.66	254	0.51	0.08
Openness to experience	0.77	55.30 (9.29)	55.48 (8.91)	55.18 (9.59)	−0.26	254	0.8	0.03
Aesthetic appreciation	0.65	14.16 (3.59)	13.32 (3.36)	14.76 (3.63)	3.23**	254	0.00	−0.41
Inquisitiveness	0.61	14.04 (3.47)	14.82 (3.25)	13.47 (3.52)	−3.13**	254	0.00	0.4
Creativity	0.67	14.32 (3.46)	14.20 (3.29)	14.41 (3.60)	0.46	254	0.65	−0.06
Unconventionality	0.51	12.79 (2.92)	13.13 (3.01)	12.53 (2.84)	−1.62	254	0.11	0.21

\*  $p < 0.05$ ; two-tailed.

\*\*  $p < 0.01$ ; two-tailed.

scores among women, and the difference between the strength of correlation by men and women was marginally significant (Table 4).

Linear regression analyses were conducted to investigate the effect of Dark Triad traits on Emotionality scores. In order to deepen our understanding about gender differences in this relationship we made the analyses by splitting the sample by gender. Among women narcissism  $b = -0.28$ ,  $t(145) = -3.38$ ,  $p = 0.001$ , and Machiavellianism  $b = 0.22$ ,  $t(145) = 2.6$ ,  $p = 0.01$ , were significant predictors of Emotionality,  $R^2 = 0.09$ ,  $F(2, 145) = 7.16$ ,  $p = 0.001$ . Among men, none of the Dark Triad traits had significant effect on Emotionality.

#### 4.4. Discussion

Consistent with previous studies (De Vries & van Kampen, 2010; Jonason & McCain, 2012; Lee & Ashton, 2005) we found that Machiavellianism was negatively correlated with the Honesty/Humility and Agreeableness factors of the HEXACO model of personality. However, analyzing the correlations between Machiavellianism and the HEXACO factors separately by gender, revealed several important gender differences. The most relevant finding of our study was that among men and women the relationship between Emotionality and Machiavellianism is different. The Emotionality factor in the HEXACO model is related to emotional instability, to fear of physical danger, the experience of anxiety, a need for emotional support and a tendency towards empathy and emotional attachment to others (Lee & Ashton, 2004). When analyzed using the total sample, there was no significant correlation between Machiavellianism and the Emotionality factor. However, when the sample was separated by gender, a marginally significant, negative association between Machiavellianism and Emotionality was found among men, whereas a marginally, significant, positive association was found among women. It was also shown, that when considering

all of the Dark Triad traits, Machiavellianism (besides Narcissism) was a significant predictor of Emotionality among women, while among men none of the Dark Triad predicted Emotionality scores.

In order to obtain a more detailed understanding of the gender differences involved in the relationship between Machiavellianism and the Emotionality factor of the HEXACO, we analyzed this relationship using the facets of Emotionality scale. We found that Sentimentality was negatively associated with Machiavellianism only when male participants were examined. Further, one of the facets of the Extraversion factor – the Social Self-esteem scale – can also add to our understanding of the relationship between Machiavellianism and emotions management. Examining this sub scale, we found negative correlation between Machiavellianism and Social Self-esteem, but only among female participants.

Together, these results indicate that although the core elements of Machiavellianism (low levels of Sincerity, Fairness, Modesty and Greed-avoidance, and a decreased level of Agreeableness) are similar in both genders, the relation between Machiavellianism and emotion regulation differs between men and women. Specifically, women with higher levels of Machiavellianism have a tendency towards increased levels of emotional instability, whereas the Machiavellian worldview is manifested in a reduced level of sentimentality among men. This emotionally less stable – or more vulnerable characteristic – of women high in Machiavellianism is also exhibited in the negative correlation between social self-esteem and Machiavellianism among women. Particularly, this finding suggests that Machiavellian women feel less comfortable or confident in different social situations. On the other hand, Machiavellianism's negative correlation with sentimentality among men suggests decreased level of emotional attachment and empathic sensitivity, which can aid in emotional distancing and rational decision making.

**Table 4**  
Pearson's correlation coefficients and z-values between Machiavellianism, narcissism, psychopathy and HEXACO scales and facets (Study 2).

	Machiavellianism			z	p
	Total sample (N = 256)	Men (N = 108)	Women (N = 148)		
Subclinical narcissism	0.25**	0.16 <sup>+</sup>	0.29**	−1.07	0.28
Subclinical psychopathy	0.46**	0.43**	0.46**	−0.29	0.77
Honesty-humility	−0.49**	−0.39**	−0.54**	1.5	0.13
Sincerity	−0.38**	−0.35**	−0.38**	0.27	0.79
Fairness	−0.36**	−0.28**	−0.38**	0.88	0.38
Greed-avoidance	−0.37**	−0.29**	−0.41**	1.07	0.28
Modesty	−0.41**	−0.33**	−0.45**	1.11	0.27
Emotionality	−0.05	−0.16 <sup>+</sup>	0.14 <sup>+</sup>	−2.36*	0.02
Fearfulness	−0.02	−0.09	0.08	−1.33	0.18
Anxiety	0.15*	0.08	0.28**	−1.62	0.11
Dependence	−0.12 <sup>+</sup>	−0.17 <sup>+</sup>	−0.03	−1.11	0.27
Sentimentality	−0.17**	−0.28**	0.01	−2.32*	0.02*
Extraversion	−0.09	−0.05	−0.11	0.47	0.64
Social self-esteem	−0.11 <sup>+</sup>	0.01	−0.20*	1.66	0.99 <sup>+</sup>
Social boldness	0.01	−0.01	0.02	−0.23	0.82
Sociability	−0.07	−0.11	0.01	−0.94	0.35
Liveliness	−0.12 <sup>+</sup>	−0.05	−0.14 <sup>+</sup>	0.71	0.48
Agreeableness	−0.38**	−0.32**	−0.41**	0.81	0.42
Forgiveness	−0.32**	−0.33**	−0.31**	−0.17	0.87
Gentleness	−0.24**	−0.16	−0.27**	0.9	0.37
Flexibility	−0.33**	−0.33**	−0.34**	0.09	0.93
Patience	−0.22**	−0.06	−0.34**	2.29*	0.02*
Conscientiousness	−0.08	−0.04	−0.08	0.31	0.76
Organization	−0.06	0.02	−0.10	0.94	0.35
Diligence	−0.05	−0.02	−0.06	0.31	0.76
Perfectionism	0.04	−0.03	0.18*	−1.65	0.10
Prudence	−0.13*	−0.08	−0.18*	0.79	0.43
Openness to experience	−0.04	−0.04	−0.04	0	1
Aesthetic appreciation	−0.21**	−0.18 <sup>+</sup>	−0.20*	0.16	0.87
Inquisitiveness	0.09	0.10	0.04	0.47	0.64
Creativity	−0.05	−0.05	−0.05	0	1
Unconventionality	0.10	0.04	0.12	−0.63	0.53

<sup>+</sup>  $p < 0.10$ ; two tailed.

\*  $p < 0.05$ ; two-tailed.

\*\*  $p < 0.01$ ; two-tailed.

## 5. Study 3

The aim of the current study is to integrate these findings more deeply into the Dark Triad model. In Study 3 we explored the relationship between Machiavellianism and other dark personality traits separately for males and females. In order to gain a more detailed perspective, we used measurements which differentiated between subtypes of psychopathy (i.e., primary and secondary) and narcissism (i.e., grandiose and vulnerable).

### 5.1. Method

#### 5.1.1. Participants

One hundred undergraduates (52 males and 48 females;  $M_{\text{age}} = 21.34$  years,  $SD_{\text{age}} = 2.39$ ) participated in the study. Volunteers were recruited via opportunity sampling from different faculties of a Hungarian University.

#### 5.1.2. Measures

Beside the Mach-IV scale, participants completed the Levenson Self-report Psychopathy Scale, the Narcissistic Personality Inventory and the Hypersensitive Narcissism Scale.

The Levenson Self-report Psychopathy Scale (LSRP, Levenson, Kiehl, & Fitzpatrick, 1995) is a 26-item self-report measure, exploring behavioral and personality attributes commonly associated with psychopathy in non-clinical samples. Responses are given on a 4-point Likert scale.

The LSRP scale assesses two factors of psychopathy: primary and secondary psychopathy. The primary psychopathy scale aims to assess selfishness, callous and manipulative attitudes and behaviors (e.g. "Success is based on survival of the fittest; I am not concerned about the losers.") while secondary psychopathy scale is related to antisocial behavior, self-defeating lifestyle and impulsivity (e.g. "Love is overrated.").

The Narcissistic Personality Inventory (NPI, Raskin & Hall, 1979) is a 40-item forced choice instrument assessing subclinical, grandiose narcissism. Participants choose between two statements such as: "When people compliment me I sometimes get embarrassed." and "I know that I am good because everybody keeps telling me so." Higher scores on this scale indicate attention-seeking, self-focus, interpersonal exploitativeness and extreme vanity (Millon & Davis, 1996).

The Hypersensitive Narcissism Scale (HSNS, Hendin & Cheek, 1997) is a 10-item (e.g. "My feelings are easily hurt by ridicule or the slighting remarks of others.") questionnaire, measuring vulnerable narcissism: hypersensitivity, vulnerability, and entitlement. Responses are given on a 4-point Likert-type scale.

## 5.2. Results

We conducted the same analyses as in Study 1 and Study 2. To examine sex differences, we used independent samples *t*-tests, with sex as the independent variable, and LSRP, NPI, HSNS and Mach IV scores as dependent variables. Consistent with the findings in the first two studies, we found a significant effect of sex for Mach IV scores, such that men had significantly higher scores than women. We also found sex differences among the other dependent variables. Men scored significantly higher than women on (grandiose) Narcissism, Psychopathy, primary Psychopathy, and secondary Psychopathy (Table 5).

Then, we conducted Pearson correlation analyses between Mach IV and the other personality variables (Table 6). Mach IV scores correlated positively and significantly with all the other measures: Psychopathy, Primary Psychopathy, Secondary Psychopathy, Narcissism, and Hypersensitive Narcissism. Similarly to Study 1 and Study 2, sex differences were found in the pattern of the correlations. Mach IV scores correlated significantly with Grandiose Narcissism only among men, but not among women. Conversely, Hypersensitive Narcissism correlated with Mach IV scores only among women. Fisher's *r*-to-*z* transformation showed, that the difference between the strengths of correlations was significant in both cases (Table 6).

## 5.3. Discussion

The results using our entire sample were consistent with previous findings (e.g. Paulhus & Williams, 2002) such that Machiavellianism was significantly, positively associated with primary and secondary psychopathy and also with vulnerable and hypersensitive narcissism. Further, a stronger correlation was found between Machiavellianism and primary psychopathy rather than with secondary psychopathy; the association was also stronger between Machiavellianism and grandiose narcissism rather than with vulnerable narcissism.

The gender-based analyses also revealed unique associations for men and women. Men and women exhibited different patterns of associations between Machiavellianism and the two types of Narcissism. Specifically, a significant, positive correlation between Machiavellianism and grandiose Narcissism was only found among men. In contrast, among women, there was a significant, positive relationship between Machiavellianism and the vulnerable, hypersensitive form of Narcissism.

Overall, these findings suggest that men high in Machiavellianism are better characterized by self-aggrandizing, boisterous, vain and interpersonally exploitative attitudes. On the other hand, women high in Machiavellianism are characterized by defensiveness, anxiety, introversion and vulnerability to different stressors.

**Table 5**  
Descriptive statistics and sex differences in Mach IV, NPI, HSNS and LSRP scores (Study 3).

	Cronbach's $\alpha$	Mean (SD)			<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
		Overall	Men	Women				
Machiavellianism	0.79	96.86 (15.05)	99.90 (14.59)	93.56 (15.00)	2.14*	98	0.04	0.43
Psychopathy	0.84	49.93 (9.64)	53.29 (9.89)	46.29 (7.96)	3.88**	98	0.00	0.78
Primary psychopathy	0.87	32.35 (7.88)	35.12 (8.37)	29.35 (6.08)	3.96**	93	0.00	0.79
Secondary psychopathy	0.58	18.94 (3.70)	19.71 (3.49)	18.10 (3.77)	2.21*	98	0.03	0.44
Narcissism	0.82	16.50 (6.37)	17.56 (6.67)	15.35 (5.88)	1.75 <sup>+</sup>	98	0.08	0.35
Vulnerable narcissism	0.61	26.83 (5.22)	27.48 (4.99)	26.13 (5.43)	1.3	98	0.2	0.26

<sup>+</sup>  $p < 0.10$ ; two tailed.\*  $p < 0.05$ ; two-tailed.\*\*  $p < 0.01$ ; two-tailed.

## 6. General discussion

Across three studies we found that women higher in Machiavellianism tended to be more harm avoidant, anxious, vulnerable, and hyper-sensitive, whereas men higher in Machiavellianism tended to be more risk-taking, self-confident, non-sentimental, impatient, and have an opportunistic worldview.

Our findings suggest, that while the Machiavellian attitudes are highly similar among the two sexes, the development of these attitudes into specific behavioral patterns may result from different psychological processes. Machiavellian individuals are likely to adhere to gendered strategies, although only very few studies have been done in this respect. The majority of studies have revealed that while distributions of men's and women's Mach scores largely overlap, women's mean scores are lower than men's (Jonason, Lyons, Baughman, & Vernon, 2014; Paulhus & Williams, 2002). Furthermore, sex differences may canalize Machiavellian world view and thinking into different routes of manipulation. We suppose that men with low emotional instability, high self-confidence, emotionally cold character and a tendency towards risk taking behavior can benefit the Machiavellian attitudes insofar as gaining advantages from and in interpersonal relationships. In accordance, a study found that men who were high in psychopathy and Machiavellianism may enact a risky life-style (Jonason, Slomski, & Partyka, 2012). This is probably due to men's stronger competitive tendency, which is partly due to the evolutionary forces (Low, 2000). Men generally take greater risks and more often exhibit noncompliant behavior in order to gain resources. It is possible, however, that differences between sexes lie not so much in the frequency of manipulation but rather in its style (Wilson et al., 1996). Men are more likely to prefer more overt, assertive and violent forms of manipulation while women rather resort to covert, restrained and concealed deceptive tactics such as casual rumors and gossiping.

Women with anxious, harm avoidant, socially sensitive characteristics can use Machiavellian strategy as a tool to decrease their vulnerability of being exploited by others. Women were found to pursue strategic manipulation in the range of tactics used to minimize unwanted commitment (Jonason & Buss, 2012). Since women reliably score higher on empathy than men do (Baron-Cohen & Wheelwright, 2004), their behavior may be facilitated by social sensitive values, such as harm

avoidance (Jonason, Strosser, Kroll, Duineveld, & Baruffi, 2014). Harm avoidance may also be related to telling lies because lying can be used to deceive others for decreasing the costs of manipulation. Whereas the number of lies had a positive relationship with Machiavellianism (and psychopathy), higher Machiavellianism was linked to telling lies for no reason in women but not in men (Jonason, Lyons, Baughman, & Vernon, 2014).

Both men and women seem to use various devices of manipulation, due to the differences in cognitive and social abilities, such as empathy, competitiveness, and emotional intelligence. In general, an important part of Machiavellian strategy may be a cost/benefit analysis of the possible behavioral outputs (Bereczkei, Szabo, & Czibor, 2015). Machiavellian individuals are flexible (Bereczkei, 2015), and focus on expedient routes to their long-term goals (Jones, 2016). Although Machiavellian individuals manipulate and engage in "cheater" strategies (i.e., Wilson et al., 1996) much like other Dark Triad traits, they do so in a cautious (Jones & Paulhus, 2017) and strategic way (Bereczkei, Deak, Papp, Perlaki, & Orsi, 2013). We suppose, that Machiavellian worldview and strategy can be advantageous for men and women for different reasons. Future studies of gender differences among socially aversive personality traits may facilitate a deeper understanding of the development of Machiavellian social attitudes and behavior.

## 7. Limitations

While these studies yielded some new and interesting findings, they also suffer from several limitations. Firstly, two of the three studies relied on undergraduate samples, and most of the employed participants of Study 2 were also highly educated, reducing the generalizability of these results somewhat. Secondly, the sample-sizes were moderate, particularly in Study 3, which could also decrease the reliability of our findings. Despite the modest sample size, we found quite strong associations in Study 3. Thirdly, we used self-reported measures, and did not control for social desirability effects, which may be particularly influential when measuring socially malevolent traits. Nonetheless, the anonymity of the testing situations across all of our studies may have decreased the effect of socially desirable responding. Fourthly, we used different scales (Mach IV in Studies 1 and 3, and SD3 in Study 2) to measure Machiavellianism which can also affect the generalizability

**Table 6**  
Pearson's correlation coefficients and z-values between Mach IV, LSRP, NPI and HSNS scores (Study 3).

	Machiavellianism			<i>z</i>	<i>p</i>
	Total sample ( <i>N</i> = 100)	Men ( <i>N</i> = 52)	Women ( <i>N</i> = 48)		
Psychopathy	0.69**	0.72**	0.63**	0.81	0.42
Primary psychopathy	0.64**	0.66**	0.58**	0.63	0.53
Secondary psychopathy	0.48**	0.49**	0.42**	0.43	0.67
Grandiose narcissism	0.31**	0.44**	0.08	1.9 <sup>+</sup>	0.05
Vulnerable narcissism	0.25*	0.05	0.41**	-1.87 <sup>+</sup>	0.05

<sup>+</sup>  $p < 0.10$ ; two tailed.\*  $p < 0.05$ ; two-tailed.\*\*  $p < 0.01$ ; two-tailed.

of our findings. Fifthly, the internal consistencies of some of the facets used in Study 2 were relatively low. To counteract this however, we concentrated more on the findings for the reliable scales and facets. And finally, in these studies emotion regulation was deduced from personality measures instead of being measured directly. Therefore, further studies could profitably investigate gender differences in the relationship between Machiavellianism and specific emotion regulation abilities.

In sum, the present paper found that self-reported gender matters when it comes to patterns of personality associated with Machiavellianism. We found across three studies that Machiavellian expression is different for men and women, with women high in Machiavellianism expressing more trait anxiety and men high in Machiavellianism expressing more self-confidence. These findings should encourage future researchers to focus on differential patterns of association for Dark Triad traits with respect to gender.

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