









**Please cite the Published Version**

Blötner, Christian , Dinić, Bojana M , Denovan, Andrew , Dagnall, Neil , Krstić, Petar , Papageorgiou, Kostas A , Trahair, Cassidy  and Plouffe, Rachel A  (2024) The Machiavelian Approach and Avoidance Questionnaire: Further Validation and Evidence of Cross-National Validity. *Journal of Personality Assessment*. pp. 1-13. ISSN 0022-3891

**DOI:** <https://doi.org/10.1080/00223891.2024.2431123>

**Publisher:** Taylor & Francis

**Version:** Published Version

**Downloaded from:** <https://e-space.mmu.ac.uk/637547/>

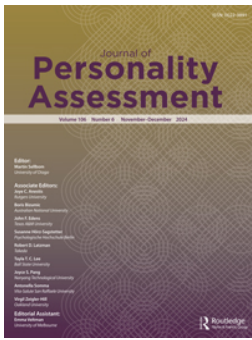
**Usage rights:**  [Creative Commons: Attribution-Noncommercial 4.0](https://creativecommons.org/licenses/by-nc/4.0/)

**Additional Information:** This is an open access article which first appeared in *Journal of Personality Assessment*

**Data Access Statement:** This study was not preregistered. Analysis scripts, datasets, and supplements can be retrieved from <https://osf.io/syrbc/>.

**Enquiries:**

If you have questions about this document, contact [openresearch@mmu.ac.uk](mailto:openresearch@mmu.ac.uk). Please include the URL of the record in e-space. If you believe that your, or a third party's rights have been compromised through this document please see our Take Down policy (available from <https://www.mmu.ac.uk/library/using-the-library/policies-and-guidelines>)



# The Machiavellian Approach and Avoidance Questionnaire: Further Validation and Evidence of Cross-National Validity

Christian Blötner, Bojana M. Dinić, Andrew Denovan, Neil Dagnall, Petar Krstić, Kostas A. Papageorgiou, Cassidy Trahair & Rachel A. Plouffe

**To cite this article:** Christian Blötner, Bojana M. Dinić, Andrew Denovan, Neil Dagnall, Petar Krstić, Kostas A. Papageorgiou, Cassidy Trahair & Rachel A. Plouffe (02 Dec 2024): The Machiavellian Approach and Avoidance Questionnaire: Further Validation and Evidence of Cross-National Validity, *Journal of Personality Assessment*, DOI: [10.1080/00223891.2024.2431123](https://doi.org/10.1080/00223891.2024.2431123)

**To link to this article:** <https://doi.org/10.1080/00223891.2024.2431123>



© 2024 The Author(s). Published with license by Taylor & Francis Group, LLC.



Published online: 02 Dec 2024.



[Submit your article to this journal](#)



Article views: 127



[View related articles](#)




[View Crossmark data](#)



This article has been awarded the Centre for Open Science 'Open Data' badge.

# The Machiavellian Approach and Avoidance Questionnaire: Further Validation and Evidence of Cross-National Validity

Christian Blötner<sup>1</sup> , Bojana M. Dinić<sup>2</sup> , Andrew Denovan<sup>3</sup> , Neil Dagnall<sup>4</sup> , Petar Krstić<sup>2</sup> ,  
Kostas A. Papageorgiou<sup>5,6</sup> , Cassidy Trahair<sup>7</sup>  and Rachel A. Plouffe<sup>8</sup> 

<sup>1</sup>Faculty of Psychology, FernUniversität in Hagen; <sup>2</sup>Department of Psychology, Faculty of Philosophy, University of Novi Sad; <sup>3</sup>School of Psychology, Liverpool John Moores University; <sup>4</sup>Department of Psychology, Manchester Metropolitan University; <sup>5</sup>School of Psychology, Queen's University Belfast; <sup>6</sup>Department of Psychology, Neapolis University; <sup>7</sup>Department of Psychology, University of Western Ontario; <sup>8</sup>School of Humanities, Social Sciences and Law, University of Dundee

## ABSTRACT

Researchers on antagonistic personality traits debate about an appropriate measurement approach to Machiavellianism. One measure intended to resolve this discourse, the Machiavellian Approach and Avoidance Questionnaire (MAAQ), distinguishes motivational aspects of Machiavellianism (<https://doi.org/10.1037/pas0001069>). Machiavellian Approach reflects strategic striving for advantages (even at others' expense), and Machiavellian Avoidance encompasses misanthropically driven prevention of loss. Using two German samples ( $n_{\text{total}} = 1,583$ ; 63% women), evidence from our first study confirmed assumed relations between both facets and disagreeableness, as well as Machiavellian approach with dominance seeking, and Machiavellian avoidance with mistrust. However, the nomological networks of Machiavellian approach and measures of subclinical psychopathy were almost identical in both samples. Thus, the MAAQ failed to sufficiently differentiate from subclinical psychopathy. In a second study, partial scalar cross-national invariance was established across samples from Germany, Canada, United Kingdom, and Serbia ( $n_{\text{total}} = 1,853$ ). Thereby, participants from Germany scored lower in Machiavellian approach compared to other samples, lower in Machiavellian avoidance compared to samples from the United Kingdom and Canada, but higher compared to the Serbian sample. Overall, findings supported cross-national equivalence of the MAAQ but undermined construct validity.

## ARTICLE HISTORY



Received 4 April 2024  
Revised 7 November 2024  
Accepted 11 November 2024

## Introduction and theoretical background

During the last two decades, many studies on the Dark Triad—comprising Machiavellianism, narcissism, and psychopathy (Paulhus & Williams, 2002)—have been conducted. These traits account for antagonistic affects, behaviors, and cognitions in everyday life (e.g., low compassion for others; exploitative tendencies; negative views of others; see Dinić & Jevremov, 2021, Kowalski et al., 2021, for overviews). For accurate evidence, researchers need valid measures of the three traits that allow examination of commonalities and differences. For instance, unlike psychopathy, Machiavellianism is supposed to be related to strategic reasoning, impulse control, and avoidance of overt aggression, but traditional measures of Machiavellianism suggest *low* impulse control and *high* tendencies to resort to violence (Blötner & Bergold, 2022; Paulhus & Williams, 2002; Vize et al., 2018). One explanation is that the trifurcated structure of the Dark Triad was not theoretically derived but as the result of the pragmatic decision to examine these traits under one umbrella. A more complimentary explanation is that Dark

Triad traits are highly multidimensional with some dimensions (e.g., vulnerable narcissism) corroborating the aversive nature of the concept, while others (e.g., grandiose narcissism) do not (Truhan et al., 2021).

New Machiavellianism scales are intended to provide a better distinction between Machiavellianism and psychopathy (e.g., Five-Factor Machiavellianism Inventory [Collison et al., 2018]; Two-Dimensional Machiavellianism Scale [Monaghan et al., 2020]). A measure for which initial evidence in favor of construct validity is available is the Machiavellian Approach and Avoidance Questionnaire (MAAQ; Blötner & Bergold, 2022). Its two facets exhibited relations with criteria that were focal to the respective conceptualizations (e.g., dishonesty, antagonism, and cynicism [both]; hope for achievement, [*Machiavellian Approach*]; mistrust, neuroticism [*Machiavellian Avoidance*]; see below for details). In line with the authors' intention to establish a better distinction from psychopathy, the nomological networks of the two facets overlapped less strongly with those of two facets of psychopathy because the former were less

**CONTACT** Christian Blötner  [christian.bloetner@fernuni-hagen.de](mailto:christian.bloetner@fernuni-hagen.de)  Faculty of Psychology, Chair of Personality, Legal Psychology and Assessment, FernUniversität in Hagen, Universitätsstr. 37, 58084 Hagen, Germany.

© 2024 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

strongly related to core features of psychopathy than earlier Machiavellianism scales (cf. Miller et al., 2017).

However, available evidence is based on analyses of only one measure of psychopathy (i.e., short form of the Self Report Psychopathy Scale-III [Gordts et al., 2017]). Notably, psychopathy measures are in no way uniform concerning their conceptual scope (Kay & Arrow, 2022) and validation is a process rather than the result of *one* study (Westen & Rosenthal, 2003). Thus, our first study deals with additional construct validation of the MAAQ. In this vein, we also contrast it with other prominent psychopathy scales.

Second, to the best of our knowledge, available evidence on the validity of the MAAQ is limited to German samples; thus, researchers have yet to apply the MAAQ to other linguistic, cultural, and national contexts. Given the importance of ensuring cross-national equivalence of psychometric properties (e.g., International Test Commission, 2017), our second study investigated cross-national invariance of the MAAQ with samples from Germany, United Kingdom, Canada, and Serbia.

### Conceptualizations of Machiavellianism

The writings of renaissance philosopher Niccolò Machiavelli inspired research on the personality trait Machiavellianism (Christie & Geis, 1970). In his most influential work, *Il Principe*, Machiavelli advocated for securing and extending positions of power and for the prevention of undesired states by being cautious in dealing with others. After constructing measurement tools to assess the construct, Christie and Geis (1970) conducted multiple studies that underlined the ruthless, strategic, and exploitative nature of Machiavellianism. However, the theoretical structure of Machiavellianism proposed by Christie and Geis—encompassing exploitative tactics, misanthropic views, and flexible morality—proved impossible to replicate and the measures lacked construct validity as evidenced by independent studies (e.g., Blötner & Bergold, 2022; Monaghan et al., 2020). Refining Christie and Geis' (1970) conceptualization of Machiavellianism, Monaghan et al. (2020) Two-Dimensional Machiavellianism Scale entails one facet that reflects the propensity to use any aversive means to achieve a goal, regardless of social norms (coined *Tactics*) and one emphasizing pessimistic, gullible, and exploitative views of humanity (coined *Views*). Low moral commitment in the sense of Christie and Geis (1970) is integral to both facets.

Another measure that is largely unrelated to Christie and Geis' (1970) framework is the Five-Factor Machiavellianism Inventory (Collison et al., 2018). Using expert ratings, the scale authors sought to align theoretical contents of Machiavellianism with the Five-Factor Model of personality. Facets mirror the aversive, exploitative, and planful inclinations of Machiavellianism, but they put comparatively less emphasis on the pessimistic views of humanity emphasized by Machiavelli.

### Conceptualizations of Machiavellian Approach and Machiavellian Avoidance

The rationale for development of the MAAQ was to provide a measure that is more in line than alternative Machiavellianism

scales with what the authors interpreted as core themes of Niccolò Machiavelli's work (i.e., resource acquisition and prevention of loss). According to Blötner and Bergold (2022), resource acquisition and prevention of loss correspond to psychological approach and avoidance motives, respectively, leading them to coin their facets Machiavellian approach and Machiavellian avoidance. Like the corresponding motive systems, Blötner and Bergold assumed Machiavellian approach and avoidance to align with specific affective, behavioral, and cognitive outcomes. As per conceptualization, Machiavellian approach accounts for strategic resource striving, even at others' expense, and Machiavellian avoidance captures negative views of human nature, which favors vulnerability, hypervigilance to threat, and mistrust (Blötner & Bergold, 2022). The authors found that Machiavellian avoidance corresponds to the views facet from Monaghan et al. (2020) Two-Dimensional Machiavellianism Scale both from a conceptual (i.e., intention to explain links with mental health) and from an empirical stance because both facets are highly positively correlated and yielded almost identical nomological networks. Machiavellian approach strongly agrees with Monaghan et al.'s tactics facet concerning the theoretical conceptualization and similarities of correlations with validation criteria, but slight differences exist: For instance, the "tactics facet embodies moral flexibility and favoring exploitation or deception, whereas approach reflects manipulateness and the search for power and control" (Blötner & Bergold, 2022, p. 155). Emphasis on control may have accounted for the better separation of Machiavellian approach from disinhibited features of psychopathy when compared to tactics in the sense of Monaghan et al. (2020). Thus, Machiavellian approach also exhibits parallels with the deliberate conceptualization of Collison et al.'s (2018) Five-Factor Machiavellianism Inventory.

To address striving for resources, power, and control over others in Machiavellian approach and the misanthropic tendency to see threats everywhere in Machiavellian avoidance (Blötner & Bergold, 2022, 2023a), we expected Machiavellian approach to be positively related to dominance seeking (H1) and Machiavellian avoidance to be positively related to mistrust (H2). Blötner and Bergold (2022) posited neuroticism from the Big Five model as a core feature of Machiavellian avoidance to acknowledge hypervigilance to threat and loss. To investigate whether evidence related to the Five-Factor model extends to the respective pendant in the HEXACO model (Ashton & Lee, 2007), we hypothesized Machiavellian avoidance to be positively related to emotionality (H3).

### Disagreeableness, dishonesty, and cynicism as core correlates

Referring to the tendency of individuals high in Machiavellianism to treat others as means to an end and the endorsement of pragmatic morality, cynicism is a core correlate of Machiavellianism (e.g., Christie & Geis, 1970). Disagreeableness, low honesty-humility, and cynicism reflect what Blötner and Bergold (2022) assumed to be necessary to justify exploitation, to hold pessimistic views of humanity, and to demand power. Thus, we hypothesized Machiavellian approach and Machiavellian avoidance to be negatively

correlated with agreeableness (H4) and honesty-humility (H5) from the HEXACO model and to be positively correlated with cynicism (H6).

### Aggression and impulsivity

Theorists often treat aggressive and impulsive tendencies as key differences between Machiavellianism and psychopathy (e.g., Miller et al., 2017; Paulhus et al., 2018). More specifically, aggression and impulsivity align with the violent and disinhibited nature of psychopathy, but oppose the strategic orientation attributed to Machiavellianism in general (e.g., Christie & Geis, 1970; Collison et al., 2018). Opposing these considerations, earlier Machiavellianism measures yield consistently positive links with self-reported impulsivity and self-reported aggression (Vize et al., 2018).

Owing to neurotic tendencies ascribed to Machiavellian avoidance, Blötner and Bergold (2022) argued that this facet accounts for findings opposing theoretical reasoning such that Machiavellian avoidance triggers “emotionally laden short-term reactions to prevent a loss of control or resources” (p. 149). This is also in line with the Conservation of Resource Theory according to which perceived or actual loss leads to maladaptive outcomes (Hobfoll, 2001), such as aggression and impulsivity (for a similar reasoning for Machiavellian views, see Monaghan et al., 2020).

We expanded on Blötner and Bergold (2022) findings on impulsivity and aggression with a broader set of measures to evaluate generalizability. Specifically, we examined motor impulsivity (i.e., acting before thinking), non-planning impulsivity (i.e., lack of foresight), and attentional impulsivity (i.e., inability to focus; Patton et al., 1995) as well as proactive (i.e., unprovoked violence inflicted on another person) and reactive aggression (i.e., revenge-driven violence following real or perceived provocation; Raine et al., 2006). We hypothesized Machiavellian avoidance to be positively and more strongly related to all facets of impulsivity (H7) and both facets of aggression (H8) than Machiavellian approach.

### Overlaps with psychopathy

The Dark Triad traits are connected by aversive and exploitative tendencies. Thus, they share disagreeableness and low honesty-humility (Schreiber & Marcus, 2020), suggesting that core features of Machiavellianism (Hypotheses 4 and 5) are also related to psychopathy. However, notions regarding strategic reasoning in Machiavellianism and low foresight in psychopathy require further consideration: Machiavelli contended that successful rulers must secure their state in the first place and do whatever is necessary to this end. We argue that protecting the state (or more broadly and in social psychological terms: the in-group) also stabilizes an individual's status, that is, obtaining individual advantages by increasing the collective good. To establish the distinction between Machiavellian approach and avoidance on the one hand and psychopathy on the other while acknowledging shared elements, we expected positive correlations with psychopathy as measured with different scales (H9) but expected the facets of Machiavellianism to be less strongly related to impulsivity (H10) and aggression (H11) than different

psychopathy concepts. To further evaluate the distinction between Machiavellianism as measured with the MAAQ and psychopathy as measured with different scales, we quantified the overall agreements of the nomological networks of the two facets of Machiavellianism on the one hand and psychopathy scales on the other.<sup>1</sup> Hypotheses 1 through 11 were evaluated in Study 1.

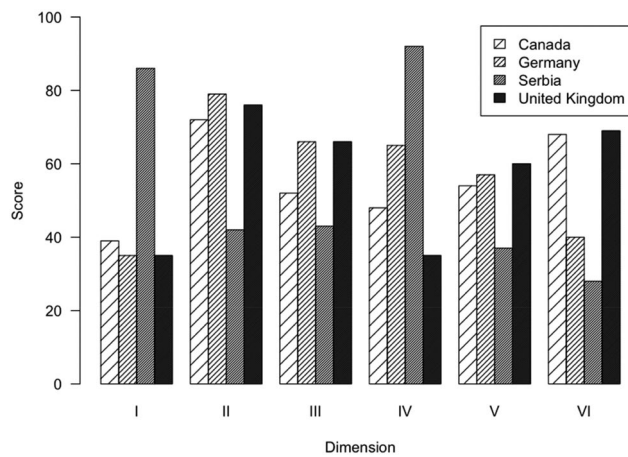
### Cross-national validity

Blötner and Bergold (2022) developed the MAAQ in German language and validated the measure using German samples, that is, in the context of a prototypical WEIRD sample (i.e., Western, Educated, Industrialized, Rich, Democratic; Henrich et al., 2010). Likewise, large differences have been found across countries with respect to their *Human Development Indices* (i.e., life expectancy, quantify of schooling, gross national income) that also affect cross-country differences in other Dark Triad traits (Jonason et al., 2020). The present study evaluated the measurement properties of the MAAQ in other languages and national contexts. Specifically, we explored cross-national validity with respect to two other Western countries with a dominant English-speaking population (Canada and United Kingdom) and one prototypically non-Western country (Serbia).

Hofstede et al. (2010) proposed a framework of dimensions to describe and compare cultures. As can be seen in Figure 1, Germany, Canada, and the United Kingdom are mostly comparable in most of the dimensions, but noteworthy differences between these three cultures occur concerning motivation toward achievement and success (i.e., focus on performance and status), for instance. Compared to Germany, United Kingdom, and Canada, Serbia is rated substantially higher in power distance (i.e., the degree to which hierarchical order is accepted from the perspective of those at the bottom of hierarchy) and lower in both individualism (i.e., emphasis on individual well-being as opposed to benefits for the in-group) and motivation toward achievement and success. These dimensions may influence manifestations of personality. It is, thus, vital to examine the cross-national validity of the MAAQ across different countries to ensure that the same construct is measured across them and to be able to meaningfully compare evidence obtained in the respective countries. To do so, in Study 2, we assessed measurement invariance of the MAAQ between German data as a reference point and data from Canada, United Kingdom, and Serbia (Putnick & Bornstein, 2016). These countries differ reasonably with respect to the domains from Hofstede et al.'s (2010) framework and Human Development Indices.

<sup>1</sup>Initially, we derived a specific hypothesis about the similarities of the nomological networks by means of a cutoff for the *Double-Entry Intra-class Correlation*,  $ICC_{DE} \geq 0.90$  (for technical details about the  $ICC_{DE}$ , see the Method section of Study 1). It stands to reason, however, that even smaller overlaps of the nomological networks can already indicate considerable overlaps, but there is no proper convention that classifies which levels of similarities are (not) considerable. Thus, we refrained from applying the fixed cutoff  $ICC_{DE} \geq 0.90$  as a threshold for problematic overlaps of nomological networks.





**Figure 1.** Comparisons of cultural values between the four examined nations. Note. I=Power distance; II=Individualism; III=Motivation toward achievement and success; IV=Uncertainty avoidance; V=Long term orientation; VI=Indulgence. Values retrieved from <https://www.hofstede-insights.com/country-comparison-tool>

This research was not preregistered. Data collections were approved by the Institutional Review Boards of the authors' affiliated universities. Analysis scripts, datasets, and supplements can be retrieved from <https://osf.io/syrbcl/>.

## Study 1

Study 1 provides further evidence of the validity of the German MAAQ.

## Method

### Samples

We collected data for Study 1 from a large project assessing multiple constructs. Within the project, students (Sample 1) and participants from the general population (Sample 2) completed an online survey.

**Sample 1.** A planned missingness design was employed to reduce the number of items individuals respond to by administering different measures with similar contents to different participants. Thus, each participant responded to a fixed set of measures prior to random assignment to one of three conditions with other measures. We applied multiple imputation to estimate missing information at the level of mean scores per scale. From 1,256 participants, 1,076 passed two incorporated attention checks (762 women, 301 men, 13 indicated other than binary gender;  $M_{\text{age}} = 30.8$ ,  $SD_{\text{age}} = 10.8$ ; 823 indicated being university students) and were, thus, included in subsequent analyses.

**Sample 2.** We collected Sample 2 data via a copy of the survey used for the recruitment in Sample 1 (i.e., equal design), but the participants stemmed from the general population. From 568 participants, 507 responded to the attention checks in the requested way (239 women,

266 men, two diverse;  $M_{\text{age}} = 47.9$ ,  $SD_{\text{age}} = 15.5$ ; 45 enrolled as university students).

## Measures

### Machiavellianism

The MAAQ (Blötner & Bergold, 2022) was administered in the second of the three random conditions. It assesses Machiavellian approach (McDonald's  $\omega = 0.86$  in both samples) and avoidance (McDonald's  $\omega_s = 0.82$  and  $0.83$  in Samples 1 and 2) with four items each. Participants indicated agreement to the statements on a five-point Likert scale, 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*.

### Psychopathy

Three instruments assessed psychopathy. The Levenson Self-Report Psychopathy Scale (Levenson et al., 1995; for a German adaptation see Spormann et al., 2024) measures primary (reflecting callousness, selfishness, and manipulativeness) and secondary psychopathy (reflecting antisocial behavior, impulsivity, and negative affectivity) with 16 and 10 items, respectively. McDonald's  $\omega_s$  for the total score were 0.61 and 0.65 in Samples 1 and 2, respectively. Participants responded on a four-point scale, 1 = *does not apply at all*, 2 = *does not apply*, 3 = *applies*, 4 = *strongly applies*. The Self-Report Psychopathy Scale–Fourth Edition (Paulhus et al., 2017; for a German adaptation see Mokros et al., 2016) entails 16 items each to assess erratic lifestyle, callous affect, interpersonal manipulation, and antisocial behavior. McDonald's  $\omega_s$  for the total score were 0.76 and 0.78 in Samples 1 and 2, respectively. Participants responded on a five-point scale, 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*. The Triarchic Psychopathy Measure (Patrick, 2010; for a German adaptation see Eisenbarth et al., 2012) assesses boldness (e.g., absence of fear) and meanness (i.e., callous, antisocial tendencies) with 19 items each, and disinhibition (i.e., low self-control, impulsivity) with 20 items. McDonald's  $\omega_s$  for the total score were 0.74 and 0.95 in Samples 1 and 2, respectively. Participants indicated agreement with the statements on a four-point scale, 1 = *false*, 2 = *somewhat false*, 3 = *somewhat true*, 4 = *true*. The Levenson Self-Report Psychopathy Scale appeared in all random conditions, the Self-Report Psychopathy Scale–Fourth Edition in random condition 1, and the Triarchic Psychopathy Measure in random condition 3.

### Honesty-humility, emotionality, and agreeableness

The same-named 10-item subscales from the German HEXACO-60 (Moshagen et al., 2014; original by Ashton & Lee, 2009) were presented in all random conditions to measure honesty-humility ( $\omega_s = 0.60$  and  $0.55$ ), emotionality ( $\omega_s = 0.71$  and  $0.68$ ), and agreeableness ( $\omega_s = 0.69$  and  $0.71$ ). Respondents indicated agreement to the statements on a five-point scale, 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*.

### Reactive and proactive aggression

A self-translated version of the Reactive-Proactive Aggression Questionnaire (Raine et al., 2006; presented in random condition 3) measures reactive ( $\omega_s = 0.81$  and  $0.84$ , 11 items) and proactive aggression ( $\omega_s = 0.81$  and  $0.90$ , 10 items). Frequency of employing respective forms of aggression was assessed on a three-point scale, 0 = *never*, 1 = *sometimes*, 2 = *often*.

### Mistrust

The eight-item mistrust scale from the German Aggression Questionnaire ( $\omega_s = 0.78$  and  $0.81$ ; Werner & von Collani, 2004) was presented in random condition 2 to measure mistrust. Participants indicated agreement on a five-point scale, 1 = *does not apply*, 5 = *fully applies*.

### Impulsivity

We used a short form of the Barratt Impulsiveness Scale (Patton et al., 1995, for a German adaptation see Meule et al., 2011; presented in random condition 1) to assess non-planning ( $\omega_s = 0.85$  and  $0.80$ ), motor ( $\omega_s = 0.83$  and  $0.80$ ), and attentional impulsivity ( $\omega_s = 0.74$  and  $0.70$ , five items each). Participants reported the frequency of each tendency on a four-point scale, 1 = *never/rarely*, 2 = *sometimes*, 3 = *often*, 4 = *almost always/always*.

### Cynicism

To measure cynicism, in random condition 1, we presented a German translation of the Social Cynicism Scale (Leung & Bond, 2004) as used by Blötner and Bergold (2022). The scale consists of 20 items to which participants responded on a five-point scale, 1 = *disbelief*, 2 = *strongly disbelief*, 3 = *no opinion*, 4 = *believe*, 5 = *strongly believe*. McDonald's  $\omega_s = 0.81$  and  $0.87$ .

### Dominance

The dominance subscale of the Dominance Prestige Leadership Scale (Suessenbach et al., 2019; presented in all random conditions) consists of six items that participants respond to on a six-point scale, 1 = *strongly disagree*, 2 = *disagree*, 3 = *rather disagree*, 4 = *rather agree*, 5 = *agree*, 6 = *strongly agree*, McDonald's  $\omega_s = 0.89$  and  $0.91$ .

Table S1 in the Supplement provides descriptive statistics for all measures (see <https://osf.io/syrbc/>).

### Analytic strategy

Confirmatory factor analyses using maximum likelihood estimation with robust standard errors were conducted to test the two-factor structure of the MAAQ. To this end, we used the *R* package *lavaan* (version 0.6–17; Rosseel, 2012) and applied Hu and Bentler (1999) guidelines according to which a Comparative Fit Index (CFI) higher than 0.95, a Root Mean Squared Error of Approximation (RMSEA) below 0.06, and a Standardized Root Mean Square Residual (SRMR) below 0.08 indicate good model fit. Analyses also incorporated Akaike's Information Criterion (AIC) to compare the

fit of the two-factor model to that of a single-factor model, with lower values indicating superior fit. Reporting included  $\chi^2$ -indices for completeness, but we did not consider  $\chi^2$  for evaluations because the test is overly sensitive in large samples (Chen, 2007).

We applied multiple imputation to estimate unavailable information due to design with the *R* package *mice* (version 3.16.0; van Buuren & Groothuis-Oudshoorn, 2011). Afterward, we computed bivariate correlations among mean scores. Using the *R* packages *diffcor* (version 0.8.3; Blötner, 2024) and *iccde* (version 0.3.6; Blötner & Grosz, 2024), we calculated correlation difference tests and agreements among the nomological networks of all employed scores. To acknowledge multiple testing, we employed  $\alpha = 0.001$  for correlation difference tests. The *R* package *iccde* computes the Double-Entry Intraclass Correlation ( $ICC_{DE}$ ) as an index of the similarity of the coefficients of a correlation profile. Put simply, the  $ICC_{DE}$  reflects a correlation between vectors of correlations and is robust against differences of the parameter distributions in the vectors. As stated in Footnote 1, we treated  $ICC_{DE} \geq 0.90$  as evidence of redundancy, but even smaller similarities can also be indicative of substantial overlaps.

## Results

### Factor structure

Consistent with earlier studies by Blötner and Bergold (2022, 2023a), the two-factor model of the MAAQ exhibited good fit properties (see Table 1 for fit measures and Table 2 for loading patterns of the two-factor model in all samples from the present research). Furthermore, it was superior to the single-factor model, supporting the distinction between Machiavellian approach and Machiavellian avoidance.

### Construct validity

In the following, we briefly comment on our main findings. Table 3 provides the exact correlation coefficients obtained in the two samples for the two facets of Machiavellianism and different psychopathy scales with the outlined validation criteria as well as correlation differences ( $\alpha = 0.001$ ).

### Core features of Machiavellian Approach and Machiavellian Avoidance.

Supporting H1 and H2, Machiavellian approach was positively correlated with dominance seeking and Machiavellian avoidance was positively related to mistrust. Contradicting H3, Machiavellian avoidance was *negatively* correlated with emotionality. In line with H4, Machiavellian approach and Machiavellian avoidance were negatively related to agreeableness. With regards to H5 and H6, results on two samples showed mixed results. While both hypotheses were supported in Sample 1, in Sample 2 Machiavellian avoidance was not significantly correlated with honesty-humility and neither facet of Machiavellianism correlated significantly with cynicism. Therefore, H5 and H6 were partially supported.

**Table 1.** Model fit of the Machiavellian Approach and Avoidance Questionnaire across samples.

Study (sample)	$\chi^2(df)$	CFI	RMSEA	SRMR	AIC
1 (Germany, Sample 1, $n=1,076$ )					
One-factor	213.50 (20)	0.81	0.17	0.10	7,408.59
Two-factor	33.12 (19)	0.99	0.05	0.02	7,206.38
1 (Germany, Sample 2, $n=507$ )					
One-factor	137.27 (20)	0.76	0.18	0.12	3,679.81
Two-factor	11.27 (19)	1.00	0.00	0.03	3,538.04
2 (Germany, $n=500$ )					
One-factor	311.20 (20)	0.69	0.17	0.12	10,854.42
Two-factor	44.12 (19)	0.97	0.06	0.05	10,593.41
2 (United Kingdom, $n=513$ )					
One-factor	295.21 (20)	0.79	0.18	0.11	11,464.11
Two-factor	55.79 (19)	0.97	0.07	0.04	11,167.41
2 (Serbia, $n=239$ )					
One-factor	210.76 (20)	0.68	0.21	0.15	5,748.77
Two-factor	30.65 (19)	0.98	0.05	0.04	5,551.60
2 (Canada, $n=600$ )					
One-factor	284.96 (20)	0.80	0.16	0.09	14,119.68
Two-factor	95.89 (19)	0.94	0.09	0.05	13,896.23

Note. MLR estimator. CFI: comparative fit index; df: degrees of freedom. RMSEA: root mean squared error of approximation; SRMR: standardized root mean square residual; AIC: Akaike's information criterion.

**Table 2.** Standardized factor loadings of the Machiavellian Approach and Avoidance Questionnaire across samples.

Item	Study 1		Study 2							
	Germany (Sample 1 [ $n=1,076$ ]/Sample 2 [ $n=507$ ])		Germany ( $n=500$ )		United Kingdom ( $n=513$ )		Serbia ( $n=239$ )		Canada ( $n=600$ )	
	App	Av	App	Av	App	Av	App	Av	App	Av
I tend to manipulate others to get my way.	0.77/0.76		0.60		0.70		0.76		0.62	
I have a strong drive for power.	0.81/0.78		0.70		0.70		0.73		0.67	
I like to give the orders in interpersonal situations.	0.66/0.66		0.58		0.81		0.70		0.75	
I enjoy having control over other people.	0.89/0.91		0.79		0.86		0.80		0.83	
Anyone who completely trusts anyone else is asking for trouble.		0.77/0.71		0.68		0.64		0.63		0.63
If I show any weakness, other people will take advantage of it.		0.79/0.81		0.71		0.64		0.74		0.66
People are friendly to each other only because of ulterior motives.		0.70/0.75		0.60		0.78		0.77		0.68
There is something malicious in every human being. You just have to look for it.		0.64/0.67		0.55		0.72		0.66		0.66
$\rho_{\text{Approach-Avoidance}}$	0.65/0.56		0.40		0.59		0.42		0.61	

Note. App: Machiavellian Approach; Av: Machiavellian Avoidance.  $\rho_{\text{Approach-Avoidance}}$  indicates the correlation between the latent factors. All coefficients were significant at  $p < .001$ .

**Impulsivity and aggression.** Machiavellian approach was positively correlated with all facets of impulsivity in Sample 1. In Sample 2, it was positively correlated with motor impulsivity, negatively with non-planning impulsivity, and non-significantly correlated with attentional impulsivity. Across samples, in five cases, facets of impulsivity were more strongly correlated with Machiavellian approach than with Machiavellian avoidance; in case of attentional impulsivity in Sample 2, correlations did not differ significantly. Thus, findings do not support H7.

Proactive aggression was more strongly correlated with Machiavellian approach than with Machiavellian avoidance in both samples. In Sample 1, Machiavellian avoidance exhibited a stronger correlation with reactive aggression than Machiavellian approach, whereas the opposite was true in Sample 2. These findings do not support H8.

**Overlaps with psychopathy and distinct relations with core features of psychopathy.** Except the non-significant correlation between Machiavellian avoidance and the Self-



**Table 3.** Correlations of Machiavellianism Facets and Psychopathy Scales with criteria.

Correlates	Sample 1 (n = 1,076)					Sample 2 (n = 507)				
	App	Av	LSRP	SRP	TriPM	App	Av	LSRP	SRP	TriPM
Broad personality										
Honesty-humility	-0.54 <sub>S</sub>	-0.31	-0.64	-0.50	-0.43	-0.44 <sub>ST</sub>	-0.06	-0.69	-0.52	-0.52
Emotionality	-0.26 <sub>ML</sub>	-0.20 <sub>ML</sub>	-0.21	-0.48	-0.54	-0.05 <sub>ML</sub>	-0.05 <sub>ML</sub>	-0.10	-0.29	-0.32
Agreeableness	-0.37 <sub>LT</sub>	-0.26 <sub>ST</sub>	-0.39	-0.24	-0.33	-0.38 <sub>MLST</sub>	-0.22 <sub>MT</sub>	-0.40	-0.46	-0.24
Psychopathy										
LSRP	0.69 <sub>ST</sub>	0.53	—	0.72	0.67	0.54	0.29	—	0.72	0.71
SRP	0.74 <sub>L</sub>	0.57 <sub>T</sub>	0.72	—	0.60	0.60 <sub>T</sub>	0.03	0.72	—	0.61
TriPM	0.62 <sub>LS</sub>	0.40	0.67	0.60	—	0.43 <sub>M</sub>	0.46 <sub>MS</sub>	0.71	0.61	—
Aggression										
Reactive	0.34 <sub>LT</sub>	0.45	0.35	0.24	0.33	0.48 <sub>L</sub>	0.11 <sub>S</sub>	0.38	0.17	0.33
Proactive	0.44 <sub>L</sub>	0.20 <sub>S</sub>	0.44	0.21	0.53	0.18 <sub>M</sub>	0.03 <sub>M</sub>	0.45	0.33	0.61
Mistrust	0.38 <sub>L</sub>	0.64	0.42	0.47	0.28	0.34 <sub>LT</sub>	0.52 <sub>L</sub>	0.45	0.11	0.34
Impulsivity										
Non-planning	0.16 <sub>LT</sub>	-0.02	0.17	0.25	0.24	-0.10 <sub>T</sub>	-0.43	0.16	0.17	-0.12
Motor	0.32 <sub>LS</sub>	0.17	0.39	0.33	0.45	0.39 <sub>LS</sub>	-0.14 <sub>T</sub>	0.39	0.37	0.00
Attentional	0.28 <sub>S</sub>	0.45 <sub>L</sub>	0.42	0.28	0.15	0.02 <sub>MT</sub>	-0.07 <sub>MT</sub>	0.40	0.36	-0.05
Cynicism	0.29	0.42 <sub>LS</sub>	0.40	0.43	0.10	0.06 <sub>M</sub>	-0.02 <sub>M</sub>	0.45	0.37	0.46
Dominance	0.80	0.50	0.70	0.68	0.66	0.61 <sub>LST</sub>	0.30	0.67	0.65	0.66
$r_{App-Av}$	0.53					0.42				

Note. App: Machiavellian Approach; Av: Machiavellian Avoidance; LSRP: Levenson Self-Report Psychopathy Scale; SRP: Self-Report Psychopathy Scale—Fourth Edition; TriPM: Triarchic Psychopathy Measure. Subscripted M indicates that the respective correlation did not differ between the Machiavellianism facets ( $p > .001$ ). Subscripted L, S, and T indicate that the correlation between a Machiavellianism facet and a criterion was not different from the respective correlation of the LSRP, the SRP-4, and the TriPM, respectively ( $p > .001$ ). Correlations  $|rs| > 0.07$  and  $0.09$  were significant at  $p < .05$  in Samples 1 and 2, respectively.

Report Psychopathy Scale—Fourth Edition in Sample 2, Machiavellian approach and Machiavellian avoidance were positively correlated with psychopathy scales, predominantly supporting H9.

Machiavellian approach and Psychopathy Scales yielded largely comparable correlations with facets of impulsivity in Sample 1. Unlike non-planning and motor impulsivity, Machiavellian avoidance exhibited a stronger correlation with attentional impulsivity than two of three psychopathy scales in Sample 1. In Sample 2, motor impulsivity was more strongly related to Machiavellian approach than to the Triarchic Psychopathy Measure; all remaining correlation differences with respect to psychopathy measures were not significant. These findings predominantly do not support H10.

In Sample 1, Machiavellian approach and psychopathy measures yielded largely comparable correlations with proactive and reactive aggression. In Sample 2, Machiavellian approach was more strongly related to proactive aggression than the Self-Report Psychopathy Scale—Fourth Edition and the Triarchic Psychopathy Measure and less strongly related to reactive aggression than any psychopathy scale. In Sample 1, reactive aggression was more strongly correlated with Machiavellian avoidance than with any psychopathy scale, but the Levenson Self-Report Psychopathy Scale and the Triarchic Psychopathy Measure were more strongly related to proactive aggression. In Sample 2, all psychopathy measures yielded stronger correlations with proactive aggression than Machiavellian avoidance. Therefore, results overall failed to support H11.

Table 4 provides indices of the similarities of the nomological networks of scores of all utilized measures for both samples. The nomological networks of Machiavellian approach and psychopathy measures observed in both samples were virtually identical,  $0.91 \leq ICC_{DE} \leq 0.99$ . In Sample 1 ( $0.88 \leq ICC_{DE} \leq 0.91$ ) but not in Sample 2 ( $0.46 \leq ICC_{DE} \leq 0.56$ ), the nomological network of Machiavellian avoidance

overlapped strongly with those of psychopathy measures. These findings raise doubts about the separability between psychopathy as measured with different scales and Machiavellian approach in particular.

## Study 2

The aim of Study 2 was to explore cross-national validity of the MAAQ.

## Method

### Samples

A Monte Carlo simulation revealed that 200 participants per group would enable reliable detection of standardized loadings in the range between 0.50 and 0.60 and a factor correlation of 0.40 in the measurement model of the MAAQ, all  $1-\beta_s \geq 0.91$ , all  $\alpha_s = 0.05$  (<https://osf.io/syrbcb/>). This set of coefficients reflects conservative estimates of parameters of the MAAQ, based on empirically observed parameter estimates from Blötner and Bergold (2022, 2023a). Thus, we recruited at least 200 participants per national sample.

**Germany.** As a reference point for the structure of the MAAQ, we used data from the original paper by Blötner and Bergold (2022, Study 2). German sample recruitment consisted of participants from universities and social media groups (107 males and 393 females;  $M_{age} = 27.60$ ,  $SD = 8.40$ , range = 18 to 74). In return for participation, students received course credits.

**United Kingdom.** From the United Kingdom, 215 males and 298 females participated ( $M_{age} = 36.57$ ,  $SD = 11.54$ , range = 18–66). Of this sample, 434 self-defined as White ethnicity, and 18, 40, and 16 self-defined as Black, Asian, and Mixed ethnicity, respectively. Five preferred to not

**Table 4.** Profile similarities among all variables involved in studies 1 ( $n=1,076$ ; below the diagonal) and 2 ( $n=507$ ; above the diagonal).

Scores	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Approach		0.63	0.91	0.94	0.95	-0.96	-0.54	-0.97	0.89	0.91	0.73	-0.37	0.37	0.29	0.94	0.92
2. Avoidance	0.86		0.46	0.52	0.56	-0.77	-0.52	-0.82	0.73	0.69	0.62	-0.61	0.28	0.09	0.69	0.49
3. LSRP	0.99	0.88		0.96	0.92	-0.99	-0.44	-0.92	0.80	0.81	0.56	-0.26	0.35	0.24	0.82	0.98
4. SRP	0.97	0.91	0.97		0.93	-0.98	-0.50	-0.94	0.84	0.86	0.66	-0.27	0.41	0.29	0.88	0.95
5. TriPM	0.94	0.90	0.94	0.97		-0.96	-0.53	-0.93	0.91	0.92	0.60	-0.38	0.31	0.16	0.90	0.96
6. Honesty-humility	-0.97	-0.96	-0.98	-0.98	-0.98		0.06	0.80	-0.91	-0.92	-0.76	-0.15	-0.61	-0.51	-0.93	-0.99
7. Emotionality	-0.74	-0.79	-0.73	-0.79	-0.83	0.40		0.14	-0.60	-0.61	-0.57	.41	-0.35	-0.22	-0.59	-0.48
8. Agreeableness	-0.86	-0.97	-0.88	-0.90	-0.91	0.75	0.57		-0.94	-0.94	-0.85	-0.08	-0.70	-0.57	-0.96	-0.93
9. Reactive aggression	0.65	0.82	0.68	0.71	0.76	-0.88	-0.81	-0.95		0.96	0.72	-0.44	0.35	0.22	0.95	0.83
10. Proactive aggression	0.70	0.83	0.71	0.76	0.81	-0.92	-0.87	-0.97	0.89		0.66	-0.45	0.36	0.21	0.97	0.85
11. Mistrust	0.65	0.88	0.67	0.72	0.73	-0.90	-0.82	-0.94	0.87	0.85		-0.37	0.63	0.46	0.76	0.57
12. Non-planning impulsivity	0.08	0.16	0.10	0.12	0.17	-0.62	-0.64	-0.65	0.28	0.35	0.21		0.18	0.23	-0.34	-0.31
13. Motor impulsivity	0.51	0.66	0.53	0.58	0.63	-0.81	-0.90	-0.89	0.82	0.85	0.78	0.53		0.90	0.45	0.31
14. Attentional impulsivity	0.54	0.76	0.57	0.61	0.66	-0.82	-0.82	-0.93	0.93	0.85	0.81	0.28	0.80		0.27	0.19
15. Cynicism	0.60	0.81	0.62	0.67	0.72	-0.88	-0.86	-0.95	0.84	0.91	0.93	0.37	0.85	0.90		0.84
16. Dominance	1.00	0.87	0.99	0.97	0.95	-0.97	-0.74	-0.87	0.67	0.71	0.67	0.11	0.53	0.58	0.62	

Note. LSRP: Levenson Self-Report Psychopathy Scale; SRP: Self-Report Psychopathy Scale-4th Edition; TriPM: Triarchic Psychopathy Measure.

disclose. Recruitment for the United Kingdom used Bilendi Ltd., an established provider of respondents for survey-based research. Bilendi collate respondents from a pool of individuals consenting to take part in survey research.

**Canada.** The Canadian sample ( $M_{\text{age}} = 19$ ,  $SD = 2.48$ , range = 18–43) comprised 203 males and 393 females (four preferred to not disclose), recruited via an undergraduate psychology course. In return for participation, students received course credits. Overall, 291 self-defined as White, 17, 176, 57, and 58 self-defined as Black, Asian, Mixed, and ‘Other ethnicity’, respectively.

**Serbia.** The Serbian participants were recruited via an undergraduate psychology course. Students received course credit for enlisting participants from the community population. Included in the Serbian sample ( $M_{\text{age}} = 40.47$ ,  $SD = 12.88$ , range = 20–70) were 85 males, 153 females, and one preferred to not disclose. Regarding ethnicity, 230 self-identified as White, and nine preferred not to say.

#### Post hoc power analysis

We conducted another Monte Carlo simulation (post hoc power analysis) based on the actual sample sizes of each national sample and the set of parameters outlined above to evaluate the power to detect these parameter estimates within each sample. All coefficients could be detected as such with a power of at least  $1 - \beta \geq 0.99$ ,  $\alpha = 0.05$ . Deviations between the target effect sizes and those obtained in the simulations were negligible ( $|\Delta_{\text{max}}| = 0.016$ ). These findings suggest that the sample sizes suffice to reliably estimate the measurement model and ensure the robustness of the set of parameters (<https://osf.io/syrbc/>).

#### Measures

The original publication of the MAAQ (Blötner & Bergold, 2022) involved German and English item translation. We used these versions for German and English-speaking samples (i.e., Germany, Canada, and the United Kingdom). The second author developed a Serbian translation. This employed back-translation performed by a professional translator. The first author of the original study confirmed that the back-translated items (from Serbian to English) aligned with original meanings. Of note, the Serbian version did not require culture-specific item adaptations (see Supplement for the Serbian version of the MAAQ).

#### Analysis plan

**Factor structure.** We assessed the factor structure of the MAAQ in each sample with confirmatory factor analyses, using the *R* package *lavaan* (version 0.6–17; Rosseel, 2012). We applied the same procedures for model evaluations as in Study 1.

**Measurement invariance.** We compared psychometric properties of the MAAQ across nations (Germany, United Kingdom, Serbia, and Canada) by means of measurement invariance evaluated with the *R* package *semTools* (version 0.5–6; Jorgensen et al., 2022). Germany represented the reference nation since the target measure was developed on the basis of German participants. Invariance testing involved tests of factor structure (configural), factor loadings (metric), and item intercepts (scalar). As per Chen’s (2007) criteria, changes of the CFI  $\leq 0.01$  and of the RMSEA  $\leq 0.015$  indicate that a particular level of invariance holds. For completeness, we reported Satorra-Bentler corrected  $\Delta\chi^2$ -indices but did not consider them for model evaluations as they suggest non-invariance even in case of negligible differences (Chen, 2007).

## Results

### Confirmatory factor analysis

The one-factor solution revealed unsatisfactory fit across nations. The two-factor model, in turn, exhibited good fit and high loadings across samples (Tables 1 and 2).

### Measurement invariance across nations

The configural invariance model exhibited good fit (Table 5). Changes of descriptive fit indices indicated metric invariance. Differences between the fit measures of the metric and scalar models, however, exceeded Chen's (2007) recommended thresholds. Freeing the equality constraints for items 2 and 3 in the German sample (for item wording, see Table 2) enabled us to establish partial scalar invariance across nations.

### Latent mean comparisons

Given that partial scalar invariance could be established, we computed latent mean comparisons (Teo et al., 2016). Germany was the reference group, with latent means fixed to zero (Hong et al., 2003). Participants from the United Kingdom and Canada scored lower in Machiavellian approach ( $M_s = -0.68$  and  $-0.31$ , respectively) and Machiavellian avoidance than the German reference sample ( $M_s = -0.24$  and  $-0.87$ ). In contrast, participants from the Serbian sample scored higher in Machiavellian approach ( $M = 0.28$ ) and lower in Machiavellian avoidance ( $M = -0.27$ , all  $p_s \leq .005$ ).<sup>2</sup>

## General discussion

Our two studies evaluated construct validity and cross-national measurement invariance of the Machiavellian Approach and Avoidance Questionnaire (Blötner & Bergold, 2022). In Study 1, we employed alternative measures of core criteria of Machiavellian approach and Machiavellian avoidance as posited by Blötner and Bergold (2022) and a larger set of psychopathy measures against which the MAAQ was expected to exhibit discriminant validity. In Study 2, we examined measurement invariance across four nations. In summary, several findings militated against construct validity of the MAAQ, especially with respect to the distinction from psychopathy. Furthermore, we established partial scalar invariance across nations.

**Table 5.** Cross-national invariance of the Machiavellian Approach and Avoidance Questionnaire.

Model	$\chi^2$	S-B $\Delta\chi^2$	df	CFI	$\Delta$ CFI	RMSEA	$\Delta$ RMSEA
Configural	264.40	—	76	0.96	—	0.07	—
Metric	297.05	32.93	94	0.96	-0.003	0.07	-0.005
Scalar	589.23	282.27	112	0.90	0.058	0.10	0.028
Scalar (partial)	340.30	42.03	106	0.95	-0.007	0.06	0.001

Note.  $N_s = 500, 513, 239$ , and  $600$ . S-B  $\Delta\chi^2$ : Satorra-Bentler  $\Delta\chi^2$ ; df: degrees of freedom; CFI: comparative fit index; RMSEA: root mean square error of approximation. All models and model comparisons were significant at  $p < .05$ .

<sup>2</sup>The results were similar when using alternative German samples as reference points (i.e., Samples 1 and 2 from the present Study 1; samples from Blötner & Bergold, 2022, Study 1; Blötner & Bergold, 2023a).

## Construct validity

### Assumed core features

Evidence on core features such as dominance seeking (Machiavellian approach; H1), mistrust (Machiavellian avoidance; H2), and agreeableness (both; H4) agree with our hypotheses and with other Machiavellianism frameworks. The relations with the latter criteria reflect typical characteristics of highly Machiavellian individuals such as search for power, the perception of humanity as inherently evil, and antagonistic tendencies (Christie & Geis, 1970; Collison et al., 2018; Monaghan et al., 2020). Although low honesty-humility (H5) and high cynicism (H6) are intended to reflect deceptive, exploitative, egotistic, misanthropic, and pragmatic features of Machiavellianism, rendering them central correlates in different conceptualizations of this construct (e.g., Christie & Geis, 1970; Collison et al., 2018; Monaghan et al., 2020), both were virtually unrelated to Machiavellianism in Sample 2. Descriptive statistics were comparable between the two samples, ruling out systematic sample differences. Furthermore, the correlations of the scores before and after imputing missing values did not differ substantially, ruling out analytical artifacts. Likewise, data collection took place under identical conditions in both samples, ruling out context effects from assessment. Therefore, we cannot explain the null links with the stated core features of Machiavellianism.

The inclination of those high in Machiavellian avoidance to see threats everywhere led Blötner and Bergold (2022) to conclude neurotic tendencies in individuals high in this trait. They noted that previous measures could not explain positive links of Machiavellianism with neuroticism, depression, and other phenomena reflecting negative affect, which implicitly emerge from Machiavelli's recommendation to be careful with interpersonal trust (for an exception, see Monaghan et al., [2020] concept of Machiavellian views). For instance, Collison et al.'s (2018) Five-Factor Machiavellianism Inventory does not consider a facet reflecting contents of Machiavellianism embodying vigilance to exploitation by others and the resultant emotional instability. Evidence from the present study, thus, *appears* to contradict our hypothesis H3 because Machiavellian avoidance was *negatively* related to emotionality, which is the HEXACO trait most closely related to Big Five-neuroticism. Importantly, emotionality reflects *externalized* emotions, whereas neuroticism reflects *internalized* emotions (e.g., Ashton & Lee, 2007). Specifically, negative views of humanity and mistrust of others inherent to Machiavellian avoidance are incompatible with features of emotionality, such as dependency on others and a need for consolation. It makes sense that mistrust of others is related to a preference to *hide* weakness from those who could exploit it. Thus, negative links with emotionality and positive ones with neuroticism are plausible because internalizing emotions (i.e., high neuroticism) and non-externalization of emotions (i.e., low emotionality) both reflect disguised vulnerability. In line with this, a meta-analysis found overall Machiavellianism to be positively related to neuroticism but negatively to emotionality (Schreiber & Marcus, 2020).

### **Impulsivity, aggression, and psychopathy**

Evidence for differential construct validity with respect to psychopathy largely suggest that Machiavellian approach and different psychopathy measures reflect similar contents. As such, the present findings align with earlier studies that concluded that Machiavellianism and psychopathy reflect different shades of the same entity (e.g., Glenn & Sellbom, 2015; Miller et al., 2017). Considering evidence opposing our reasoning about Machiavellianism and impulsivity, Jones (2017) and Miller et al. (2017) referred to the difficulties related to constructing items that assess low conscientiousness independently from low agreeableness. Similarly, it can be argued that admitting impulsive tendencies is rather socially undesirable (Jones, 2017; Monaghan et al., 2020). Studies using behavioral paradigms to measure impulsivity (e.g., Malesza & Kalinowski, 2021; Nott & Walker, 2021) found either weak or no significant relationship between overall Machiavellianism and impulsivity. Thus, links between Machiavellianism and impulsivity differ, contingent on whether impulsivity was measured via self-report or via behavioral tasks, and it appears to be promising to utilize behavioral paradigms of impulsivity to disentangle specific facets of Machiavellianism from psychopathy.

Blötner and Bergold (2022) outlined the specific relations between Machiavellian approach and the behavioral approach system and between Machiavellian avoidance and the behavioral inhibition system. That said, the behavioral approach system is particularly related to proactive aggression, whereas the behavioral inhibition system is related to reactive aggression (Parker et al., 2022; Pederson et al., 2018). Arguably, proactive aggression can be a means to a desired end (Raine et al., 2006) and thus, serves the motivation toward resource acquisition ascribed to Machiavellian approach (Blötner & Bergold, 2022). In line with this, at the bivariate level, Machiavellian approach was more strongly positively related to physical bullying in school (i.e., goal-oriented aggression) than Machiavellian avoidance (Blötner & Bergold, 2023b). To explain this inclination, Blötner and Bergold (2023b) argued that overt violence *can* be related to Machiavellian approach under specific circumstances, but researchers have yet to examine these circumstances in detail. The present findings, however, suggest an *unconditional* tendency of individuals high in Machiavellianism to resort to violence, analogous to that ascribed to psychopathy (Paulhus et al., 2018).

Since the Dark Triad was supposed to resemble aversive personality traits (Paulhus & Williams, 2002), positive correlations between Machiavellianism and psychopathy scales are reasonable. Except for the correlation between Machiavellian avoidance and the Self-Report Psychopathy Scale—Fourth Edition ( $r=0.03$ ), all psychopathy scales were positively and highly correlated with the two Machiavellianism facets. Inspections of imputation plots and scatter plots did not indicate technical issues in the imputations or a non-linear relation between Machiavellian avoidance and the Self-Report Psychopathy Scale—Fourth Edition. Besides, the psychopathy scale yielded correlations with other criteria that agree with expectations on psychopathy.

However, the nomological network of Machiavellian approach and psychopathy scales showed higher similarities than expected. The indices of agreements approached those obtained by Miller et al. (2017) for the agreement between overall scores of Machiavellianism and psychopathy,  $ICC_{DE} \approx 0.97$ . In Blötner and Bergold (2022) original study, the agreements of the nomological network of Machiavellian approach with those of two facets of psychopathy were smaller,  $ICC_{DEs} = 0.65$  and  $0.81$ . However, Blötner and Bergold (2022) employed short scales for the assessment of physical aggression and facets of impulsivity, suggesting limited conceptual breadth that may have attenuated correlations when compared to the more extensive assessment in the present study. Furthermore, agreements of the nomological networks strongly depends on the criteria employed, whereby Blötner and Bergold also included criteria more closely resembling Machiavellianism. The fact that many validation criteria assessed in the present research are crucial for psychopathy and Machiavellianism alike (e.g., agreeableness, honesty-humility, dominance, cynicism; Glenn & Sellbom, 2015; Kay & Arrow, 2022; Kowalski et al., 2021) may have affected indices of profile agreement, but we would not have expected such extreme overlaps.

### **Cross-national measurement invariance**

Results supported partial scalar cross-national measurement invariance. Two items measuring Machiavellian approach showed non-invariant intercepts (item 2: “I have a strong drive for power”; item 3: “I like to give the orders in interpersonal situations”). The German and English items of the MAAQ were derived from existing scales and published translations of them. Reasons for nonequivalence are difficult to determine but could be due to translation and/or contextual reasons (International Test Commission, 2017). For instance, alternative German translations with slightly different meanings are reasonable, which may have affected endorsement rates (i.e., item intercepts).

Furthermore, Serbian society demonstrates higher collectivism compared to the other included countries (Hofstede Insights, 2024; see also Figure 1), emphasizing the role of in-group connections. From the four examined countries, the *Democracy Index* (The Economist Intelligence Unit, 2023) rates Serbia as the country in which authoritarian ruling is most strongly endorsed. Under these circumstances, a zero-sum attitude may arise (Jonason et al., 2020) and foster tendencies related to caring for one’s in-group in the sense of the writings of Niccolò Machiavelli. On average, participants from the United Kingdom and Canada (vs. Germany) scored lower on Machiavellian approach. Hofstede et al. (2010) framework rates Germany and the United Kingdom at similar levels in terms of a motivation toward achievement and success, whereas Canada is rated lower than German culture. In this vein, Blötner and Bergold (2022) framework mentions motivation to goal achievement as a driver for Machiavellian approach. At the same time, it must be noted that data collection in the United Kingdom targeted the general population, whereas German and Canadian participants were



recruited at universities. Thus, differences in the willingness to achieve high-status goals (i.e., Machiavellian approach) may have been driven by differences in the educational backgrounds covered across samples. Unlike Machiavellian approach, the dimensions from Hofstede et al. (2010) framework do not reflect contents related to Machiavellian avoidance. Thus, more research is required with respect to why Machiavellian avoidance is more strongly endorsed in Germany than in the other countries.

### Limitations and future directions

The present studies have potential limitations. First, age ranges across samples were comparatively narrow. Second, given the descriptive statistics on the utilized measures, it stands to reason that individuals scoring very high in Machiavellianism and/or psychopathy were not sufficiently represented in our samples. Both limitations limit the generalizability of our findings. Third, membership of a social group does not necessarily mean individual identification with the values imposed by the respective nation or culture. Future research should consider the adoption of values by a person rather than mere group membership. Fourth, methodological effects arising from use of self-report data potentially affected construct validation. In many cases, self-report measures are more strongly related to self-report measures on distinct constructs than behavioral measures. This occurs because of common method effects and specific situational affordances that (co-)determine concrete behavior (cf. Dang et al., 2020). Consistent with this, early studies by Christie and Geis (1970) found overall Machiavellianism to be related to aggressive conduct only when punishment is unlikely. However, laboratory-based research on aggression in Machiavellianism is scarce (Hyatt et al., 2019). Following the conceptualization of Machiavellian approach as the more playful and strategic facet of Machiavellianism, future studies should evaluate in detail the relations with behaviorally assessed aggression and impulsivity, depending on the availability of (short- or long-term) advantages and the likelihood of punishment. Thus, from a conceptual stance, efforts about the separation between Machiavellianism and psychopathy may profit from employing additional data sources, but also from consideration of longitudinal designs.

### Conclusion

The present research suggests that the factor structure of the MAAQ is stable across different kinds of samples (i.e., the proposed structure holds both in student samples and samples from the general population) and across nations (i.e., partial scalar measurement invariance). Many findings addressing construct validity, in turn, militate against the separation of Machiavellian approach from subclinical psychopathy, and hypotheses on several assumed core features of Machiavellian approach and Machiavellian avoidance could not be supported (Sample 2 in particular). Arguably, sample compositions differed, but modalities of data collection did not. Thus, findings in favor or against construct

validity of the MAAQ may also depend on differences in demographic variables, suggesting that future studies should address the moderating effects of demographics in relations between facets of Machiavellianism and criteria. In a similar vein, considering the established partial scalar measurement invariance across nations, a comprehensive validation of the MAAQ in other language and national contexts is justified but still pending.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

### Funding

This study was partially supported by an Internal Research Grant (protocol number #373\_2023\_15) of the University of Hagen.

### Open scholarship



This article has earned the Center for Open Science badge for Open Data. The data are openly accessible at <https://osf.io/syrbcl/>.

### ORCID

Christian Blötner <http://orcid.org/0000-0001-7415-4756>

Bojana M. Dinić <http://orcid.org/0000-0002-5492-2188>

Andrew Denovan <http://orcid.org/0000-0002-9082-7225>

Neil Dagnall <http://orcid.org/0000-0003-0657-7604>

Petar Krstić <http://orcid.org/0009-0001-2731-7345>

Kostas A. Papageorgiou <http://orcid.org/0000-0001-6458-9158>

Cassidy Trahair <http://orcid.org/0000-0002-1625-0843>

Rachel A. Plouffe <http://orcid.org/0000-0003-0393-9008>

### Data availability statement

This study was not preregistered. Analysis scripts, datasets, and supplements can be retrieved from <https://osf.io/syrbcl/>.

### References

- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, 11(2), 150–166. <https://doi.org/10.1177/1088868306294907>
- Ashton, M. C., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment*, 91(4), 340–345. <https://doi.org/10.1080/00223890902935878>
- Blötner, C. (2024). *Diffcor: Fisher's z-tests concerning difference of correlations* (R package version 0.8.3). CRAN. <https://cran.r-project.org/package=diffcor>.
- Blötner, C., & Bergold, S. (2022). To be fooled or not to be fooled: Avoiding and approaching facets of Machiavellianism. *Psychological Assessment*, 34(2), 147–158. <https://doi.org/10.1037/pas0001069>
- Blötner, C., & Bergold, S. (2023a). It is double pleasure to deceive the deceiver: Machiavellianism is associated with producing but not necessarily with falling for bullshit. *The British Journal of Social Psychology*, 62(1), 467–485. <https://doi.org/10.1111/BJSO.12559>
- Blötner, C., & Bergold, S. (2023b). The Machiavellian bully revisited: A closer look at differences and processes of Machiavellian bullying and cyberbullying perpetration. *Aggressive Behavior*, 49(6), 568–579. <https://doi.org/10.1002/ab.22095>

- Blötner, C., & Grosz, M. P. (2024). *Iccde: Computation of the double-entry intraclass correlation* (R package version 0.3.6). CRAN. <https://cran.r-project.org/package=iccd>.
- Collison, K. L., Vize, C. E., Miller, J. D., & Lynam, D. R. (2018). Development and preliminary validation of a five factor model measure of Machiavellianism. *Psychological Assessment, 30*(10), 1401–1407. <https://doi.org/10.1037/pas0000637>
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling, 14*(3), 464–504. <https://doi.org/10.1080/10705510701301834>
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. Academic Press.
- Dang, J., King, K. M., & Inzlicht, M. (2020). Why are self-report and behavioral measures weakly correlated? *Trends in Cognitive Sciences, 24*(4), 267–269. <https://doi.org/10.1016/j.tics.2020.01.007>
- Dinić, B. M., & Jevremov, T. (2021). Trends in research related to the Dark Triad: A bibliometric analysis. *Current Psychology, 40*(7), 3206–3215. <https://doi.org/10.1007/s12144-019-00250-9>
- Economist Intelligence Unit. (2023). *Democracy index 2023*. <https://www.eiu.com/n/campaigns/democracy-index-2023/>.
- Eisenbarth, H., Castellino, N., Alpers, G. W., Kirsch, P., & Flor, H. (2012). *The German version of triarchic psychopathy measure* (Unpublished Report). University of Regensburg.
- Glenn, A. L., & Sellbom, M. (2015). Theoretical and empirical concerns regarding the Dark Triad as a construct. *Journal of Personality Disorders, 29*(3), 360–377. [https://doi.org/10.1521/pedi\\_2014\\_28\\_162](https://doi.org/10.1521/pedi_2014_28_162)
- Gordts, S., Uzieblo, K., Neumann, C., Van den Bussche, E., & Rossi, G. (2017). Validity of the Self-Report Psychopathy Scales (SRP-III full and short versions) in a community sample. *Assessment, 24*(3), 308–325. <https://doi.org/10.1177/1073191115606205>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *The Behavioral and Brain Sciences, 33*(2–3), 61–83. <https://doi.org/10.1017/S0140525X0999152X>
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology, 50*(3), 337–421. <https://doi.org/10.1111/1464-0597.00062>
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind* (3rd ed.) McGraw-Hill.
- Hofstede Insights. (2024). *Country comparison tool*. <https://www.hofstede-insights.com/country-comparison-tool>.
- Hong, S., Malik, M. L., & Lee, M. K. (2003). Testing configural, metric, scalar, and latent mean invariance across genders in sociotropy and autonomy using a non-Western sample. *Educational and Psychological Measurement, 63*(4), 636–654. <https://doi.org/10.1177/0013164403251332>
- Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Hyatt, C. S., Zeichner, A., & Miller, J. D. (2019). Laboratory aggression and personality traits: A meta-analytic review. *Psychology of Violence, 9*(6), 675–689. <https://doi.org/10.1037/vio0000236>
- International Test Commission. (2017). *The ITC guidelines for translating and adapting tests*. <http://www.intestcom.org/>.
- Jonason, P. K., Żemojtel-Piotrowska, M., Piotrowski, J., Sedikides, C., Campbell, W. K., Gebauer, J. E., Maltby, J., Adamovic, M., Adams, B. G., Kadiyono, A. L., Atitsogbe, K. A., Bundhoo, H. Y., Bălăţescu, S., Bilić, S., Brulin, J. G., Chobthamkit, P., Del Carmen Dominguez, A., Dragova-Koleva, S., El-Astal, S., ... Yahiaev, I. (2020). Country-level correlates of the Dark Triad traits in 49 countries. *Journal of Personality, 88*(6), 1252–1267. <https://doi.org/10.1111/jopy.12569>
- Jones, D. N. (2017). Machiavellianism. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of personality and individual differences* (pp. 1–9). Springer.
- Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., Rosseel, Y., Miller, P., Quick, C., Garnier-Villareal, M., Selig, J., Boulton, A., Preacher, K., Coffman, D., Rhemtulla, M., Robitzsch, A., Enders, C., Arslan, R., Clinton, B., Panko, P., Merkle, E., Chesnut, S., Byrnes, J., ... Johnson, A. R. (2022). *SemTools: Useful tools for structural equation modeling* (R package version 0.5–6). CRAN. <https://CRAN.R-project.org/package=semTools>.
- Kay, C. S., & Arrow, H. (2022). Taking an elemental approach to the conceptualization and measurement of Machiavellianism, narcissism, and psychopathy. *Social and Personality Psychology Compass, 16*(4), e12662. <https://doi.org/10.1111/spc3.12662>
- Kowalski, C. M., Rogoza, R., Saklofske, D. H., & Schermer, J. A. (2021). Dark Triads, tetrads, tents, and cores: Why navigate (research) the jungle of dark personality models without a compass (criterion)? *Acta Psychologica, 221*, 103455. <https://doi.org/10.1016/j.actpsy.2021.103455>
- Leung, K., & Bond, M. H. (2004). Social axioms: A model for social beliefs in multicultural perspective. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (vol. 36, pp. 119–197) Elsevier.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology, 68*(1), 151–158. <https://doi.org/10.1037//0022-3514.68.1.151>
- Malesza, M., & Kalinowski, K. (2021). Dark Triad and impulsivity – an ecological momentary assessment approach. *Current Psychology, 40*(8), 3682–3690. <https://doi.org/10.1007/s12144-019-00320-y>
- Meule, A., Vögele, C., & Kübler, A. (2011). Psychometrische Evaluation der deutschen Barratt Impulsiveness Scale – Kurzversion (BIS-15) [Psychometric evaluation of the German Barratt Impulsiveness Scale – Brief Form (BIS-15)]. *Diagnostica, 57*(3), 126–133. <https://doi.org/10.1026/0012-1924/a000042>
- Miller, J. D., Hyatt, C. S., Maples-Keller, J. L., Carter, N. T., & Lynam, D. R. (2017). Psychopathy and Machiavellianism: A distinction without a difference? *Journal of Personality, 85*(4), 439–453. <https://doi.org/10.1111/jopy.12251>
- Mokros, A., Geiger, M., Olderbak, S., & Wilhelm, O. (2016). *Self-Report Psychopathy Scale (SRP): German version* [Unpublished manuscript]. University of Ulm.
- Monaghan, C., Bizumic, B., Williams, T., & Sellbom, M. (2020). Two-dimensional Machiavellianism: Conceptualization, theory, and measurement of the views and tactics dimensions. *Psychological Assessment, 32*(3), 277–293. <https://doi.org/10.1037/pas0000784>
- Moshagen, M., Hilbig, B. E., & Zettler, I. (2014). Faktorenstruktur, psychometrische Eigenschaften und Messinvarianz der deutschsprachigen Version des 60-Item HEXACO Persönlichkeitsinventars [Factor structure, psychometric properties and measurement invariance of the German version of the 60-item HEXACO Personality Inventory]. *Diagnostica, 60*(2), 86–97. <https://doi.org/10.1026/0012-1924/a000112>
- Nott, D., & Walker, B. R. (2021). The Dark Tetrad in the prediction of self-reported and behavioural risk-taking. *Australian Journal of Psychology, 73*(4), 569–577. <https://doi.org/10.1080/00049530.2021.1955224>
- Parker, K. M., Farrell, N., & Walker, B. R. (2022). The impact of reinforcement sensitivity theory on aggressive behavior. *Journal of Interpersonal Violence, 37*(5–6), NP3084–NP3106. <https://doi.org/10.1177/0886260520948144>
- Patrick, C. J. (2010). Operationalizing the triarchic conceptualization of psychopathy: Preliminary description of brief scales for assessment of boldness, meanness, and disinhibition [Unpublished manual]. Department of Psychology, Florida State University. <https://patricknslab.psy.fsu.edu/wiki/images/b/b1/TriPM.pdf>.
- Patton, J. H., Stanford, M. S., & Barratt, E. S. (1995). Factor structure of the Barratt Impulsiveness Scale. *Journal of Clinical Psychology, 51*(6), 768–774. [https://doi.org/10.1002/1097-4679\(199511\)51:6<768::AID-JCLP2270510607>3.0.CO;2-1](https://doi.org/10.1002/1097-4679(199511)51:6<768::AID-JCLP2270510607>3.0.CO;2-1)
- Paulhus, D. L., Curtis, S. R., & Jones, D. N. (2018). Aggression as a trait: The Dark Tetrad alternative. *Current Opinion in Psychology, 19*, 88–92. <https://doi.org/10.1016/j.copsyc.2017.04.007>
- Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2017). *The SRP 4: Self-Report Psychopathy Scale* (Fourth Edition). Multi-Health Systems.
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism and psychopathy. *Journal of Research in Personality, 36*(6), 556–563. [https://doi.org/10.1016/S0092-6566\(02\)00505-6](https://doi.org/10.1016/S0092-6566(02)00505-6)
- Pederson, C. A., Fite, P. J., & Bortolato, M. (2018). The role of functions of aggression in associations between behavioral inhibition and activation and mental health outcomes. *Journal of Aggression,*

- Maltreatment & Trauma*, 27(8), 811–830. <https://doi.org/10.1080/10926771.2017.1370053>
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, 41, 71–90. <https://doi.org/10.1016/j.dr.2016.06.004>
- Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., Stouthamer-Loeber, M., & Liu, J. (2006). The Reactive–Proactive Aggression Questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behavior*, 32(2), 159–171. <https://doi.org/10.1002/ab.20115>
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2), 1–36. <https://doi.org/10.18637/jss.v048.i02>
- Schreiber, A., & Marcus, B. (2020). The place of the “Dark Triad” in general models of personality: Some meta-analytic clarification. *Psychological Bulletin*, 146(11), 1021–1041. <https://doi.org/10.1037/bul0000299>
- Spormann, S. S., Dericioğlu, D. C., Blötner, C., Hofmann, M. J., Mokros, A., Schmitz, F., & Schneider, S. (2024). *Validation of the German Levenson Self-Report Psychopathy Scale* [Unpublished manuscript]. University of Hagen.
- Suessenbach, F., Loughnan, S., Schönbrodt, F. D., & Moore, A. B. (2019). The dominance, prestige, and leadership account of social power motives. *European Journal of Personality*, 33(1), 7–33. <https://doi.org/10.1002/per.2184>
- Teo, T., Cheung, H. Y., & Kam, C. C. S. (2016). Validation of a Chinese version of the Psychological Sense of School Membership (C-PSSM): Tests of measurement invariance and latent mean differences. *Current Psychology*, 35(1), 83–91. <https://doi.org/10.1007/s12144-015-9350-x>
- Truhan, T. E., Wilson, P., Möttus, R., & Papageorgiou, K. A. (2021). The many faces of dark personalities: An examination of the Dark Triad structure using psychometric network analysis. *Personality and Individual Differences*, 171, 110502. <https://doi.org/10.1016/j.paid.2020.110502>
- van Buuren, S., & Groothuis-Oudshoorn, K. (2011). Mice: Multivariate imputation by chained equations in R. *Journal of Statistical Software*, 45(3), 1–67. <https://doi.org/10.18637/jss.v045.i03>
- Vize, C. E., Lynam, D. R., Collison, K. L., & Miller, J. D. (2018). Differences among Dark Triad components: A meta-analytic investigation. *Personality Disorders*, 9(2), 101–111. <https://doi.org/10.1037/per0000222>
- Werner, R., & von Collani, G. (2004). *Deutscher Aggressionsfragebogen. Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS)*. <https://doi.org/10.6102/zis52>
- Westen, D., & Rosenthal, R. (2003). Quantifying construct validity: Two simple measures. *Journal of Personality and Social Psychology*, 84(3), 608–618. <https://doi.org/10.1037/0022-3514.84.3.608>