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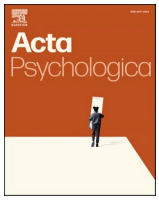

Psychometric validation of Dark Tetrad at Work scale in an Indian context

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ABSTRACT

Dark Tetrad at Work (DTW) scale is a relatively new instrument used for assessing four dark personality traits, namely; *Narcissism, Machiavellianism, Psychopathy and Sadism*. In an attempt to psychometrically validate and check its suitability for exploring dark traits among Indian employees, we carried out this two phased study. In the first phase, a total of $N = 526$ participants working in the government run businesses responded to the scale that was distributed via an online and offline approach. We performed *Exploratory Factor Analysis* (EFA) on the phase one dataset to test the factor structure and additionally ran correlations and multiple regressions to check the criterion-related validity with organizational constructs such as job burnout and flourishing. We resumed data collection after a small gap and initiated second phase of data collection acquiring a new dataset of $N = 222$ respondents. We performed *Confirmatory Factor Analysis* (CFA) on this dataset to examine and validate the factor structure obtained through exploratory factor analysis. The results from the first phase suggested a four-factor solution with best fit and significant factor loadings for all the four factors of the scale, including acceptable convergent and discriminant validity ratios. Our second phase results validated the four-factor solution highlighting good fit indices and suggesting the dark tetrad at work scale can be used to check dark traits in Indian milieu. We highlight limitations of this research and provide future research recommendations advocating translations, cross-cultural, multi-sectoral, exhaustive explorations of the scale to better comprehend the phenomenon.

1. Introduction

Human personality is a dynamic construct, and its interaction with the social and organizational environment shapes individual and group behavior (Reynolds et al., 2010). In recent years, there has been a greater emphasis on researching the impact of personality typology on workplace conduct (LeBreton et al., 2018; Marcatto et al., 2024). Among various personality models, the Dark Tetrad framework has garnered significant attention in recent times for its comprehensive approach to understanding socially undesirable personality traits (Paulhus, 2014, 2016). The Dark Tetrad framework effectively captures an individual's maladaptive behaviors and interpersonal difficulties, with each of its four distinct traits making a unique contribution to these outcomes (see Furnham et al., 2013; Koehn et al., 2019; Paulhus, 2016). Scholars have thoroughly explored *Narcissism, Machiavellianism, Psychopathy*, and *Sadism* as subclinical personality traits, analyzing their unique effects across various populations (Bonfá-Araujo et al., 2022; Furnham et al., 2013; Johnson et al., 2019; Kowalski et al., 2021; Paulhus, 2014). Although research has focused on dark tetrad traits, their specific influence within workplace environment remains insufficiently examined, highlighting the need for further research (see LeBreton et al., 2018; Thibault & Kelloway, 2020).

At the subclinical level, there are differences in how each of these four traits operate and manifest in people (Bonfá-Araujo et al., 2022; Kowalski et al., 2021). Individuals exhibiting high levels of *narcissism* demonstrate a sense of grandiosity, a strong desire for control and a sense of self-importance (DeShong et al., 2015; Furnham & Cuppello, 2024). Individuals with high degrees of *narcissism* exaggerate their achievements, reject criticism, and refuse to compromise (O'Boyle et al., 2012). Individuals showcasing *machiavellianism* manifest manipulative and deceitful tendencies, strategic exploitation to achieve personal objectives, and a disregard for the well-being of others (Jones & Paulhus, 2010; Paulhus, 2014). Whereas, *psychopathy* is described by a lack of empathy, emotional detachment, and a disregard for the rights and emotions of others (Hare & Neumann, 2008). Individuals with high levels of psychopathy may not necessarily lead unstable lifestyles but

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often exhibit impulsivity and a lack of guilt or remorse (Murphy & Vess, 2003; Williams & Paulhus, 2004).

The fourth trait, *Sadism* is characterized by a tendency to derive pleasure from inflicting cruelty in daily activities, such as bullying, purposeful humiliation, and causing misery to others (Paulhus & Jones, 2015). While *sadism* shares certain similarities with *psychopathy* (Blötner & Mokros, 2023), the brutality and delight in the suffering of others distinguishes it from other antisocial types (Sassenrath et al., 2024). In addition to measurement-related distinctions and imbuing skepticism, *sadism* and *psychopathy* are found to be distinct in terms of predictions and implications (Buckels et al., 2013; Kowalski et al., 2019; Marcatto et al., 2024; Plouffe et al., 2017). Hence, the literature supports the existence of these four traits, together conceptualized as dark tetrad and available research calls for the creation of assessment instruments to examine these traits in different settings (see Furnham et al., 2013; Koehn et al., 2019; LeBreton et al., 2018).

1.1. Dark traits and workplace context

The expression of dark personality dispositions has an impact on both individuals and their immediate surroundings (Hughes & Samuels, 2021; Jonason et al., 2012; Moshagen et al., 2018; Nickisch et al., 2020; Szabó et al., 2021), and is often explained using a social exchange perspective (O'Boyle et al., 2012). Individuals with high levels of *Machiavellianism*, for example, employ methods and manipulate others to achieve their objectives without regard for the well-being of others (Pilch & Turska, 2015). This attribute strongly predicts an individual's inclination to participate in corrupt activities (Szabó et al., 2021). *Narcissism* is linked to bullying, whereas high levels of *psychopathy* may result in aggression and disregard for societal and organizational norms (Fernández-del-Río et al., 2021; Marcatto et al., 2024). People with high levels of *psychopathy* can get involved in activities and behaviors that may even harm their organizations (Scherer et al., 2013; Szabó et al., 2022). *Sadism* may contribute to workplace bullying, including insulting and assaulting others' self-esteem (Fernández-del-Río et al., 2021; Longpré & Turner, 2024). The above mentioned studies point to the fact that all the four dark traits are found to have implications in the workplace.

Furthermore, research in the Indian context have mostly focused on the dark triad's relationship with components having work-related consequences (Khan et al., 2023; Lata & Chaudhary, 2020). According to one study, *machiavellianism* is the most important predictor of workplace incivility, with workplace spirituality mediating this relationship (Lata & Chaudhary, 2020). Moreover, recent research reveals the mediating effect of one of the dark tetrads, i.e., *psychopathy's* impact on active trolling behaviors i.e., an antisocial behavior that instigate unproductive acts (Ubaradka & Khanganba, 2024). Taken together, the sparse research from South Asia suggests that the dark tetrad's exploitative and manipulative actions generate a hazardous and toxic work environment (Khan et al., 2023). Overall, the lack of studies in workplace context reveals an important research gap and emphasizes the need for assessing the functionality of measuring tools, particularly the dark tetrad for work scale, in an Indian setting.

2. Dark Tetrad at Work (DTW) scale

Research has mostly documented the psychometric validation of the short dark tetrad scale and confirmed its four-factor structure, which is functionally stable and behaves well in non-work contexts as well (see Dinić et al., 2024; Fino et al., 2023 etc.). In contrast, the *Dark Tetrad at Work* (DTW) scale measures dark personality traits in a workplace context depending upon how these traits manifest across various organizational situations (Thibault & Kelloway, 2020). The DTW scale contains 22 items that measure each of these four dark traits (four for *machiavellianism* and six each for *narcissism, psychopathy,* and *sadism).* The original English version of scale is psychometrically sound with good test-retest reliability, predictive and construct validity (Thibault & Kelloway, 2020).

Research demonstrates that *Dark Tetrad* traits are significant predictors of workplace deviance, with their impact moderated by factors such as organizational justice (Fernández-del-Río et al., 2022). Additionally, the predictive capacity of the Dark Tetrad for various workplace behaviors, like bullying, has been confirmed through scale validation (Marcatto et al., 2024). Several studies (Fernández-del-Río et al., 2021; Lata & Chaudhary, 2020; LeBreton et al., 2018; Longpré & Turner, 2024; Szabó et al., 2022) have examined organizational variables such as job burnout and flourishing to predict dark personalities. In fact, occupational burnout has been associated to dark traits in a handful of studies (Johnson et al., 2015; Klerks et al., 2024; Schwarzkopf et al., 2016), including connections of *machiavellianism* and *psychopathy* with all dimensions of burnout (Prusik & Szulawski, 2019). Several studies (Aghababaei & Błachnio, 2015; Chang et al., 2024; Womick et al., 2019) have indicated that thriving, also known as well-being, is found to be associated with dark traits.

Besides, it is worth noting that DTW is presently only available in English and Spanish. And, a recent Italian version shows adequate psychometric properties (Marcatto et al., 2024). Consequently, this study seeks to psychometrically examine the original English edition of the DTW scale in an Indian setting that can be categorically used for assessing dark traits of Indian employees. This endeavour will undoubtedly provide the groundwork and give contextual information for future research on manifestation of dark personality traits at Indian workplaces.

3. Methodology

3.1. Participants

We obtained data from personnel working in select government run businesses i.e. public sector organizations, namely NTPC (National Thermal Power Corporation), BHEL (Bharat Heavy Electricals Limited), Indian Railways and a couple of nationalized banks. We completed the data collection in two phases. In phase one, a sample of $N = 526$ participants from selected organizations completed the measurement instrument offline and online through a google form link circulated via social networking and professional sites (Mean age = 26.7 years, SD = 0.72). We acquired the second phase data from a total of $N = 222$ respondents using the same measurement tools. We collected data of employees serving in government run organizations from multiple sites, especially those where English was used as a primary language and preferred over Hindi during formal or informal organizational communication.

We collected data using the original English version of the scale, referencing previous studies conducted in India that successfully utilized English-language instruments (see Ahmad & Thyagaraj, 2017; Annapurna & Basri, 2024; Dahiya & Rangnekar, 2020; Dhir & Vallabh, 2025; Gupta et al., 2022; Janani & Vijayalakshmi, 2024; Kranthi et al., 2024; Singh et al., 2024; Sode et al., 2024; Sofi & Nika, 2016). Additionally, studies such as Tam et al. (2023) demonstrated the feasibility of using English scales across multiple countries, including India, where Indian participants responded comfortably to the original English version.

To further justify our decision, we reviewed research involving Indian participants proficient in and comfortable with English-language instruments. A handful of studies demonstrated the successful validation of various psychological assessment tools in the Indian context (Jain et al., 2024; Mehta et al., 2024; Roy & Sia, 2024; Sanghvi et al., 2024; Sridhar & Kuriakose, 2025). Furthermore, studies on personality research in India, such as those by Piedmont and Braganza (2015) and Baker et al. (2025), confirmed the effectiveness of employing English-language scales with English-fluent participants.

We adopted an inclusion criterion whereby the eligible participants were; a) Indian citizens employed in any government run business with a

minimum of fifty employees, and b) having a permanent rather than a temporary employment contract, and (c) preferred communication in English. After pruning and cleaning the incomplete forms, the final dataset included $n = 285$ males (54.18 %) and $n = 241$(45.81 %) females for phase one, whereas $n = 116$ males (52.27 %) and $n = 106$ females (47.73 %) for the second phase.

3.2. Measures

The original DTW scale contains a total of 22 items, of which six items measure *narcissism* (e.g., "I am much more valuable than my co-workers"), four items measure *machiavellianism* (e.g., "At work, people backstab each other to get ahead"), six measures *psychopathy* (e.g., "I don't care if my work behavior hurts others"), and remaining six measured *sadism* (e.g., "I love to watch my boss yelling at my co-workers") as rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) (Thibault & Kelloway, 2020).

As noted previously, participants were proficient and comfortable in English, which aligned with the original scale's language, leading to the decision to administer the English version (Thibault & Kelloway, 2020). We assessed reliability and other psychometric properties to check our datasets. We analyzed the reliability of each of the dark traits, i.e., *narcissism* ($\alpha = 0.76$, $\omega = 0.76$), *machiavellianism* ($\alpha = 0.63$, $\omega = 0.65$), *psychopathy* ($\alpha = 0.88$, $\omega = 0.88$), *sadism* ($\alpha = 0.90$, $\omega = 0.90$) for phase one to be in alignment with the standard cut-off criterion. The overall reliability values [$\alpha = 0.89$ and $\omega = 0.90$)] of the full scale were found be acceptable and satisfactory. For phase two, the reliability of each of the dimensions, namely *narcissism* ($\alpha = 0.76$, $\omega = 0.77$), *machiavellianism* ($\alpha = 0.59$, $\omega = 0.61$), *psychopathy* ($\alpha = 0.89$, $\omega = 0.89$) and *sadism* ($\alpha = 0.89$, $\omega = 0.89$) again came out satisfactory. Although machiavellianism produced a low reliability score, we found that such a value is sometimes deemed acceptable in reliability estimates, particularly when dealing with similar types of instruments or in comparable cultural settings (cf. Gholami Fesharaki et al., 2012; Tamura et al., 2012; Van Huy et al., 2020). The overall reliability values ($\alpha = 0.90$ and $\omega = 0.90$) came out satisfactory for the second phase dataset.

We utilized the scales of job burnout and flourishing to check for convergent and discriminant validation and included them in our research design. We deliberately chose these two scales for criterion testing because the facets of job burnout were found to be positively associated with the dark traits in a couple of studies (see Johnson et al., 2015; Klerks et al., 2024; Prusik & Szulawski, 2019; Schwarzkopf et al., 2016). To check convergent validity in our case, we used Oldenburg Burnout Inventory (Demerouti et al., 2003) consisting of 16 items measured on a 4-point Likert scale (1 = Strongly agree to 4 = Strongly disagree) that measures burnout in organizational contexts. The sample statement in the scale reads like "There are days when I feel tired before I arrive at work." The reliability checks [$\alpha = 0.83$ and $\omega = 0.84$] for the scale adhered to the acceptable norms. Similarly, flourishing or composite well-being is found to be negatively associated with the dark personality traits (Womick et al., 2019). Therefore, to assess the divergent validity in our case, we used the Flourishing scale (Diener et al., 2010) consisting of 8 items that measures flourishing at work. This scale utilized a 7-point Likert format (1 = Strongly disagree to 7 = Strongly agree). A sample item reads as "I am engaged and interested in my daily activities". The reliability scores [$\alpha = 0.87$ and $\omega = 0.88$] for this scale were acceptable as per standard cut-off criterion.

Our study was approved by Institutional Human Ethics Committee, BITS Pilani (approval no. IHEC/BITS/A/22/2022) and the data collection was done as per the guidelines of Helsinki declaration. We first obtained informed consent from all the participants who were also given the right to withdraw from the study at any time. While adhering to the guidelines, we emphasized on the confidentiality and anonymity of the information when imparting instructions and connecting with the participants.

4. Results

We used Jamovi software (Jamovi, 2021; Revelle, 2019) for running the analyses and carried out *Exploratory Factor Analysis* (EFA) on the first phase ($N = 526$) dataset. Additionally, we ran correlations and regressions to assess the criterion-related validity and other necessary indices. Subsequently, we subjected the second phase data ($N = 222$) to a *Confirmatory Factor Analysis* (CFA) procedure for estimating various fit indices necessary to validate the structural model. The fit indices values >0.90 for *Comparative Fit Index* (CFI) and *Tucker-Lewis Index* (TLI) and <0.08 for *Root Mean Square Error of Approximation* (RMSEA) and *Standardized Root Mean Square Residual* (SRMR) indicate an acceptable fit criterion (Hooper et al., 2008; Steiger, 2007) whereas the chi-square values less than five indicate a good fit (Schumacker & Lomax, 2004).

We tested our datasets for Common Method Bias (CMB) to evaluate cross-sectional issues and potential biases. The Harman's One Factor test gave us a single factor with rotation as 'none,' the estimated CMB value of first phase dataset was about 35.5 % while the estimated CMB value of second phase dataset came out to be 35.3 %. Both values were <50 % criterion, which is considered appropriate and acceptable as per various standards (e.g., Kock, 2015; Lindell & Whitney, 2001; Podsakoff et al., 2012).

4.1. Phase I

Since previous research has shown fit values for 3-factor and 4-factor solutions (Marcatto et al., 2024; Thibault & Kelloway, 2020) (based on the Kaiser-Guttman eigenvalue >1 rule), we conducted EFA to check the model fit with three and four factor solutions. According to the fit values, the 3-factor and the 4-factor models showed significant values (see Table 1 & Table 2). However, among the two, the four-factor model showed a better fit than the three-factor model. In line with the conceptual formulation of the scale, we retained the four-factor solution and carried out further analysis for extracting factor loadings and psychometric validation.

4.1.1. Construct validation

We used exploratory factor analysis as our primary approach to examine construct validity. We analyzed the overall factor loadings of our data. We ran factor analysis for the four-factor solution as shown in Table 3. The total variance estimated through factor analysis came out to be 53.37 %, with a *Kaiser-Meyer-Olkin* (KMO) value of 0.937 (values between 0.8 and 1.0 are considered good) and *Bartlett's test of Sphericity* value ($\chi 2/df = 5311/231$, $p < .001$) fulfilling the normality assumption and suggesting significant interrelationships between the items.

The factor analysis procedure utilized the extraction method of principal axis factoring with an oblimin rotation technique. The result shows us the distribution of items among all four-factors, where all items are significantly loaded on their respective dimensions. Though there was a minor issue of cross loadings, it was not an impediment to the obtained factor structure. For e.g., the items of *machiavellianism* were cross-loaded among the items of other factors, for instance, item 7 ("I do not trust others at work"), showed loading with an item that belonged to *psychopathy* dimension. Likewise, item 8 ("At work, you always have to look out for number one") also showed cross-loading with an item of *narcissism*. The cross loadings on items 7 and 8 suggests some difficulty either in structural formulation or comprehension issues by chosen

Table 1
Three Factor Model ($N = 526$).

RMSEA	Lower	RMSEA 90 % CI	TLI	BIC	Model Test	df	p
		Upper			χ^2		
0.0477	0.0412	0.0544	0.945	−683	369	168	<0.001

Table 2
Four factor model (n = 526):

RMSEA	Lower	RMSEA 90 % CI	TLI	BIC	Model Test	df	p
		Upper			χ^2		
0.0419	0.0346	0.0492	0.958	−647	287	149	<0.001

Table 3
Exploratory factor analysis of dark tetrad at work scale- factor loadings for four factor solution (n = 526).

Items	Factor			
	1	2	3	4
1. My position at work is prestigious (Na)			0.579	
2. I am much more valuable than my co-workers (Na)			0.563	
3. I demand respect at work (Na)			0.584	
4. People always pay attention to me at work (Na)			0.637	
5. Others admire me at work (Na)			0.628	
6. I like being the center of attention at work (Na)			0.559	
7. I do not trust others at work (M)	0.575			
8. At work, you always have to look out for number one (M)			0.390	
9. At work, people backstab each other to get ahead (M)				0.576
10. At work, people are only motivated by personal gain (M)				0.515
11. I don't care if my work behavior hurts others (P)	0.741			
12. I have been told I act rashly at work (P)	0.787			
13. When I'm at work, I don't tend to think about the consequences of my actions (P)	0.489			
14. I like to mooch off my co-workers (P)	0.646			
15. I'm rather insensitive at work (P)	0.579			
16. I don't care if I accidently hurt someone at work (P)	0.718			
17. I love to watch my boss yelling at my co-workers (S)		0.419		
18. I can dominate others at work using fear (S)		0.528		
19. It's funny to watch people make mistakes at work (S)		0.895		
20. I never get tired of mocking my co-workers (S)		0.757		
21. I would laugh if I saw someone get fired (S)		0.659		
22. I have daydreams about hurting people I work with (S)		0.643		

Abbreviations: Na = Narcissism, M = Machiavellianism, P = Psychopathy, S = Sadism.
Note: 'Principal axis factoring' extraction method was used in combination with an 'oblimin' rotation.

respondents or cultural issues (see Fino et al., 2023). These cross loaded items can be suitably rephrased or altered in future for ensuring better values of fitness indices and overall construct validity.

4.1.2. Criterion validation

We then tested the criterion-related validity to further assess the functionality of the scale in the Indian context. We used the scales of job burnout (convergent validation) and flourishing (divergent validation) to check their overall correlations against the criterion of dark tetrad scale. Our analysis step included testing the criterion validation with the overall score of the Dark Tetrad, in addition to examining individual factors. Studies have demonstrated that dark traits share empirical associations to a notable extent, suggesting the presence of a "dark core" or shared underlying construct among these traits (Book et al., 2016; Moshagen et al., 2018; Muris et al., 2017; O'Boyle et al., 2012). This dark core reflects common characteristics such as manipulation, callousness, and self-centeredness, which provide theoretical justification for aggregating the traits into a composite score. Moreover, evidence suggests that using a total score can enhance predictive validity in certain contexts by capturing the common variance across dark traits (Moshagen et al., 2018). Although examining individual scores provides unique insights, the combined score offers a broader and potentially more powerful predictor of behavioral outcomes. We computed linear correlations to understand the existing association between the constructs. Besides, we also estimated multiple regression values to check the predictive strength of all the factors with selected constructs.

As shown in Table 4, the correlation matrix shows a positive relation between dark tetrad and job burnout and a negative relation with flourishing ($p < .001$). Individually, the dimensions of dark tetrad are all positively associated with each other, especially, *psychopathy* and *sadism,* with a value of $r = 0.801$($p < .001$). If one looks closely at the values, one can see that all of the factors of dark tetrad are positively related to job burnout and negatively related to flourishing. The only exception is the relationship of flourishing with *narcissism* ($r = 0.382$; $p < .001$). In other words, narcissistic behaviors tend to enhance flourishing among individuals and depicts a unique relationship.

To deduce further interpretations, we conducted multiple regressions to see the extent of relationship between our variables. Since Indian subcontinent is a widely diverse nation, we deliberately controlled our demographic variables like age, region, educational qualification, sector, family size and marital status to avoid unnecessary confounding despite having obtained information on them. Table 5 depicts the predicting power (R and R^2 values) of dark tetrad dimensions on job burnout as a criterion variable when controlled for demographics.

According to the values shown in Table 5, *narcissism* and *machiavellianism* significantly predict job burnout, with *machiavellianism* having a positive beta value of 0.302 ($p < .001$) and *narcissism* having a negative beta value of −0.264 ($p < .001$).

Whereas, in Table 6, when dark tetrad dimensions are predicting flourishing, *narcissism* and *psychopathy* significantly predicts flourishing with the estimated beta values of 0.792 ($p < .001$) and − 0.438($p < .001$) respectively. Again, like correlational values, *narcissism* is the only dark personality facet that has a negative impact on job burnout and a positive impact on flourishing. Overall, the dark tetrad at work scale confirms it positive association with job burnout and negative association with flourishing, thereby suggesting satisfactory criterion validity.

4.2. Phase II

We carried out CFA on the second phase dataset ($N = 222$). The second phase data was specifically collected to test and verify the four-factor solution through the CFA procedure (see Fig. A). Since we resorted to and accepted a four-factor solution of DTW scale for Phase-1, we continued with the same model with the second phase dataset. The fit indices for the four-factor model (N = 222) gave us the following fit values: $\chi^2 = 351$, df = 203, $p < .001$; CFI = 0.93; TLI = 0.92; RMSEA =0.05; SRMR = 0.07) (see Table 7) suggesting a moderate model fit for the four-factor solution (Fig. 1).

We ran correlations with second phase dataset to re-check the criterion-related validity using the job burnout and flourishing scales as used in Phase-I. Table 8 depicts the correlation matrix showcasing a positive and significant relationship between the dark tetrad and its four constituent facets; *narcissism*, *machiavellianism*, *psychopathy*, and *sadism*. The scale shows an overall positive association with job burnout with a significant value of $r = 0.184$ ($p < .01$). Even the constituting factors of dark tetrad are all positively associated with each other, especially *psychopathy* and *sadism*, with a significant value of $r = 0.769$ ($p < .001$). Moreover, only *psychopathy* and *sadism* are positively related to job burnout ($r = 0.224$; $p < .001$) and negatively related to flourishing ($r = −0.302$; $p < .001$) respectively. *Narcissism* is again behaving the way it behaved during first phase analysis wherein it is positively related to flourishing and negatively related to job burnout.

Table 4
Correlation matrix (n = 526).

	1	2	3	4	5	6	7
1. DTW	–						
2. NAR	0.474***	–					
3. MAC	0.639***	0.359***	–				
4. PSY	0.877***	0.125**	0.437***	–			
5. SAD	0.875***	0.157***	0.372***	0.801***	–		
6. JB	0.230***	−0.096*	0.194***	0.261***	0.258***	–	
7. F	−0.119**	0.382***	−0.01	−0.293***	−0.230***	−0.357***	–

Abbreviations: DTW (Dark Tetrad at Work), NAR (Narcissism), MAC (Machiavellianism), PSY (Psychopathy), SAD (Sadism), JB (Job Burnout), F (Flourishing).
* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 5
Regression values of dark tetrad dimensions predicting job burnout (n = 526).

	Model 1		
	R	R^2	Adjusted R^2
Fit measures	0.355	0.126	0.109

Predictor	Estimate	SE	t	p
Intercept	36.0388	2.5704	14.021	<0.001
NAR	−0.2641	0.0582	−4.541	<0.001
MAC	0.3027	0.0894	3.384	<0.001
PSY	0.0816	0.0663	1.23	0.219
SAD	0.1422	0.0702	2.026	0.043

Controlled variables: age, marital status, family size, education, region, sector.

Table 6
Regression values of dark tetrad dimensions predicting flourishing (n = 526).

	Model 2		
	R	R^2	Adjusted R^2
Fit Measures	0.539	0.291	0.277

Predictor	Estimate	SE	t	p
Intercept	43.5914	3.4806	12.524	<0.001
NAR	0.792	0.0788	10.056	<0.001
MAC	−0.0064	0.1211	−0.0525	0.958
PSY	−0.4387	0.0898	−4.8833	<0.001
SAD	−0.0812	0.095	−0.8641	0.388

Controlled variables: age, marital status, family size, education, region, sector.

Table 7
CFA indices of the second phase dataset (n = 222):

Statistic	Value
Test for chi-square	
χ^2	351
df	203
p	<0.001
Fit measures	
RMSEA	0.0573
RMSEA 90 % CI (Lower)	0.0471
RMSEA 90 % CI (Upper)	0.0673
CFI	0.932
TLI	0.922
SRMR	0.0755

5. Discussion

The study of dark personality traits and their impact in various work contexts is a dynamic and compelling area of research. Despite its growing relevance and significance, there has been limited investigation into how these traits manifest and their consequences in the Asian region, particularly within the Indian workforce. This research gap underscores the urgent need for standardized tools to assess the prevalence and impact of dark personality traits within the Indian context. Motivated by this gap, our study aims to psychometrically validate and assess the applicability of the Dark Tetrad at Work (DTW) scale for Indian workplaces. While prior validation studies exist on shorter forms and other measures like the Dirty Dozen (e.g., Dinić et al., 2024;Fino et al., 2023; Marcatto et al., 2024), the psychometric validation of the DTW scale across diverse cultural contexts demands research attention.

The DTW scale, originally designed to measure the four dark traits, i.e. narcissism, psychopathy, sadism, and machiavellianism, in workplace settings, yielded insightful results in our first phase. Our exploratory factor analysis revealed moderately strong factor loadings for narcissism, psychopathy, and sadism, with a four-factor structure that aligns with previous research (Marcatto et al., 2024; Thibault & Kelloway, 2020). Fit indices such as the CFI value above 0.90 and RMSEA at 0.04 further supported the model's robustness. However, the machiavellianism factor presented an interesting challenge, with two items showing cross-loadings onto other factors. This may reflect cultural or social variations in the expression of these traits, as personality traits often vary depending on the cultural context (Thibault & Kelloway, 2020). Additionally, the cross-loadings could suggest a lack of clarity in respondents' understanding of machiavellianism or that the work environment did not allow for the full expression of this trait. Further exploration of such cross-cultural differences and potential refinements in the scale's wording or structure may be necessary for better contextualization (Fino et al., 2023).

Importantly, our study demonstrated that the DTW scale exhibited strong criterion-related validity, in line with previous research on dark personalities in workplace settings (Hughes & Samuels, 2021; Nickisch et al., 2020). The regression analyses revealed that dark traits, particularly machiavellianism, psychopathy, and sadism, positively predict job burnout and negatively predicted flourishing, and these findings are consistent with prior studies that highlight the harmful effects of dark traits on employee well-being (Khan et al., 2023). These results align with the broader literature suggesting that toxic work environments, fuelled by exploitative behaviors linked to the *Dark Tetrad*, contribute to diminished employee well-being and hinder flourishing (Aghababaei & Błachnio, 2015).

A particularly intriguing finding in our study was the relationship between narcissism and workplace outcomes. Contrary to conventional expectations, narcissism was negatively associated with job burnout and positively associated with flourishing, suggesting that narcissists may experience more positive outcomes in the workplace compared to non-narcissistic individuals. This finding echoes similar observations in

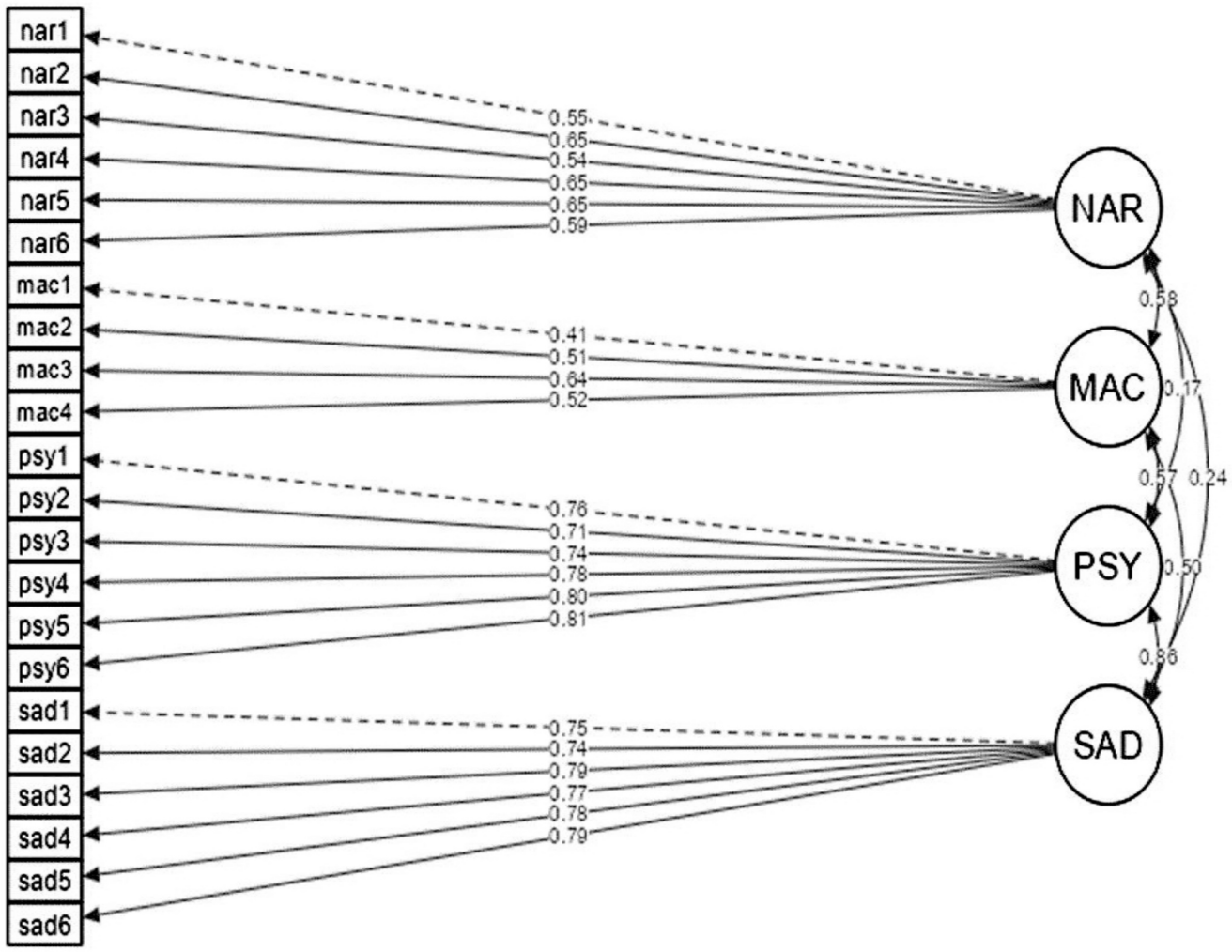

Fig. 1. Confirmatory factor structure for the four-factor solution (n=222).
Source: Author's construction

Table 8
Correlational matrix for the second phase dataset (n = 222):

	1	2	3	4	5	6	7
1. DTW	–						
2. NAR	0.499***	–					
3. MAC	0.656***	0.397***	–				
4. PSY	0.864***	0.133*	0.443***	–			
5. SAD	0.878***	0.206**	0.402***	0.769***	–		
6. JB	0.184**	−0.116	0.117	0.224***	0.219**	–	
7. F	−0.107	0.379***	0.081	−0.302***	−0.221***	−0.357***	–

* p < .05.
** p < .01.
*** p < .001.

Italian research, where narcissism was positively related to productive workplace behaviors and negatively associated with counterproductive behaviors (Marcato et al., 2024). This highlights the complex, multidimensional nature of narcissism, which warrants further investigation in future studies (Ackerman et al., 2011).

The second phase of our study further corroborated these findings through confirmatory factor analysis, which confirmed the sound psychometric properties of the scale and demonstrated a strong theoretical fit (Fino et al., 2023; Marcatto et al., 2024). The correlation analysis in this phase yielded consistent results in line with the first phase, reinforcing the reliability and validity of the DTW scale for the Indian workforce. As observed earlier, machiavellianism, psychopathy, and sadism were negatively correlated with flourishing and positively correlated with job burnout, further establishing the scale's criterion validity (Hughes & Samuels, 2021; Nickisch et al., 2020). Narcissism continued to show a positive relationship with flourishing, a pattern observed across both phases. This finding aligns with previous literature that highlights the potential for narcissism to foster adaptive outcomes under certain work contexts (Marcato et al., 2024; Ackerman et al., 2011).

6. Limitations and future scope

Even though the study was carried out in a two phased manner to overcome problems related to adaptation, cross-sectional nature of data, sampling and similar issues, it is not immune to limitations. *First*, the cross-sectional mode of data collection for this research creates limitations in causal or temporal directions. We believe that a full scale data collection from most populous country having a largest workforce would be a herculean task. However, with the help of an appropriate measurement tool, norms can be developed by taking cross-sectional cohorts over a period of time. *Second*, the sampling procedure was not absolutely random and done in a snowballing fashion for both online and offline respondents. This approach could seriously hamper generalization of the findings to the broader populations, especially the online responses. *Third*, we cannot rule out the possibility of obtaining biased responses owing to social desirability, which should be taken care of in the future expansion and adaptations of the measurement tool. It is because of these reasons findings should be interpreted with a word of caution, and special care need to be taken for how the facets behave in a particular context. For instance, narcissism has behaved uniquely in this research and high scores on this trait suggests its sensitivity to social desirability concerns. Previous studies have also found some of these concerns (Kowalski et al., 2018; Thibault & Kelloway, 2020; Marcato et al., 2024). We believe this might be an alternate explanation for how the traits were having cross-loadings on few items (see Fino et al., 2023).

In spite of a few limitations, a major strength of this research is testing the newly developed instrument in a totally new cultural context. We checked and partially comprehended the expression of dark personality traits on a section of Indian employees. The psychometric properties obtained through this research can be a primer for future research studies and would also play an important and useful role during cross-cultural comparisons and understanding how dark personalities operate and manifest in different cultural contexts (see Fino et al., 2023). This validation study would also be considered as a starting point for carrying out translation (e.g. Hindi) and other adaptations of the dark tetrad scale and checking its penetration and presence in samples not captured through this study. This investigation can also guide future research on expansion, extension and incorporating multiple approaches, like external perspective evaluation, and the inclusion of qualitative methodology (e.g., Furnham & Cuppello, 2024). This research paves the way for an in-depth exploration of the dark tetrad traits, their prevalence and manifestation from vocational perspective. We believe this study may later be used as a reference criterion for other cross-cultural psychometric validations in similar contexts.

7. Conclusion

Our study provides first hand evidence of the *Dark Tetrad at Work* (DTW) scale with its psychometric validity and utility in an Indian context. The robust psychometric properties obtained in our context imply that the scale functions as effectively as it does in the original context (Thibault & Kelloway, 2020). Considering the toxic work environment (Khan et al., 2023) prevalent in contemporary organizations, this study establishes the utility of the dark tetrad tool that can be used effectively by the organizations to screen out employees for various human resource functions such as recruitment, selection and training. With its potential relationships with variables such as job burnout and flourishing, the dark tetrad tool can be leveraged to reduce instances of burnout and enhance organizational effectiveness and happiness. The application of this research emphasizes the development and implementation of effective interventions programs to control the negative impact of dark personality traits in workplace scenarios. The assessment of the dark tetrad in the initial stages could help formulate decisions in talent acquisition, human resource development policies and leadership programs. In all, identifying and understanding dark personalities in the Indian workplaces would be a stepping stone in developing healthy and productive workplaces.

CRediT authorship contribution statement

Akash Dubey: Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization. **Rajneesh Choubisa:** Supervision, Formal analysis, Conceptualization. **Jerin V. Philipose:** Validation, Methodology, Formal analysis.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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Data availability

Data will be made available on request.

References

Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment, 18*(1), 67–87. https://doi.org/10.1177/1073191110382845

Aghababaei, N., & Błachnio, A. (2015). Well-being and the dark triad. *Personality and Individual Differences, 86*, 365–368. https://doi.org/10.1016/j.paid.2015.06.043

Ahmad, A., & Thyagaraj, K. S. (2017). An empirical comparison of two brand personality scales: Evidence from India. *Journal of Retailing and Consumer Services, 36*, 86–92. https://doi.org/10.1016/j.jretconser.2017.01.006

Annapurna, R., & Basri, S. (2024). The influence of emotional intelligence and behavioural biases on mutual fund churning frequency: Evidence from India. *Acta Psychologica, 248*, Article 104426. https://doi.org/10.1016/j.actpsy.2024.104426

Baker, H. K., Kathpal, S., & Akhtar, A. (2025). The big 5 personality traits and investment biases: The role of financial literacy. *Review of Behavioral Finance, 17*(1), 172–197. https://doi.org/10.1108/RBF-07-2023-0169

Blötner, C., & Mokros, A. (2023). The next distinction without a difference: Do psychopathy and sadism scales assess the same construct? *Personality and Individual Differences, 205*, Article 112102. https://doi.org/10.1016/j.paid.2023.112102

Bonfá-Araujo, B., Lima-Costa, A. R., Hauck-Filho, N., & Jonason, P. K. (2022). Considering sadism in the shadow of the dark triad traits: A meta-analytic review of the Dark Tetrad. *Personality and Individual Differences, 197*, Article 111767. https://doi.org/10.1016/j.paid.2022.111767

Book, A., Visser, B. A., Blais, J., Hosker-Field, A., Methot-Jones, T., Gauthier, N. Y., … D'Agata, M. T. (2016). Unpacking more "evil": What is at the core of the Dark Tetrad? *Personality and Individual Differences, 90*, 269–272. https://doi.org/10.1016/j.paid.2015.11.009

Buckels, E. E., Jones, D. N., & Paulhus, D. L. (2013). Behavioral confirmation of everyday sadism. *Psychological Science, 24*(11), 2201–2209. https://doi.org/10.1177/0956797613490749

Chang, Y. T., Chan, Y. C., & Chen, H. C. (2024). Relationship between Dark Tetrad and affective well-being: Dark comic style as a mediator. *Personality and Individual Differences, 216*, Article 112402. https://doi.org/10.1016/j.paid.2023.112402

Dahiya, R., & Rangnekar, S. (2020). Validation of satisfaction with life scale in the Indian manufacturing sector. *Asia-Pacific Journal of Business Administration, 12*(3/4), 251–268. https://doi.org/10.1108/APJBA-03-2019-0045

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment, 19*(1), 12–23. https://doi.org/10.1027//1015-5759.19.1.12

DeShong, H. L., Grant, D. M., & Mullins-Sweatt, S. N. (2015). Comparing models of counterproductive workplace behaviors: The five-factor model and the dark triad. *Personality and Individual Differences, 74*, 55–60. https://doi.org/10.1016/j.paid.2014.10.001

Dhir, S., & Vallabh, P. (2025). Do social relationships at work enhance creativity and innovative behavior? *Role of psychological safety. Acta Psychologica, 253*, Article 104751. https://doi.org/10.1016/j.actpsy.2025.104751

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research, 97*(2), 143–156. https://doi.org/10.1007/s11205-009-9493-y

Dinić, B. M., Buckels, E. E., & Kovačević, N. (2024). The Short Dark Tetrad (SD4): Measurement invariance across Serbian and Canadian samples and further validation. *European Journal of Psychological Assessment. Advance online publication.*. https://doi.org/10.1027/1015-5759/a000864

Fernández-del-Río, E., Castro, Á., & Ramos-Villagrasa, P. J. (2022). Dark Tetrad and workplace deviance: Investigating the moderating role of organizational justice perceptions. *Frontiers in Psychology, 13, Article 968283*. https://doi.org/10.3389/fpsyg.2022.968283

Fernández-del-Río, E., Ramos-Villagrasa, P. J., & Escartín, J. (2021). The incremental effect of dark personality over the big five in workplace bullying: Evidence from perpetrators and targets. *Personality and Individual Differences, 168*, Article 110291. https://doi.org/10.1016/j.paid.2020.110291

Fino, E., Popușoi, S. A., Holman, A. C., Iliceto, P., & Heym, N. (2023). Dimensionality, factorial invariance, and cross-cultural differential item functioning of the Short Dark Tetrad (SD4) in Italian, Romanian, and UK samples. *European Journal of Psychological Assessment. Advance online publication.*. https://doi.org/10.1027/1015-5759/a000775

Furnham, A., & Cuppello, S. (2024). Correlates of the Dark Tetrad. *Acta Psychologica, 245*, Article 104222. https://doi.org/10.1016/j.actpsy.2024.104222

Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The dark triad of personality: A 10 year review. *Social and Personality Psychology Compass, 7*, 199–216. https://doi.org/10.1111/spc3.12018

Gholami Fesharaki, M., Talebiyan, D., Aghamiri, Z., & Mohammadian, M. (2012). Reliability and validity of" job satisfaction survey" questionnaire in military health care workers. *Journal of Military Medicine, 13*(4), 241–246. http://eprints.bmsu.ac.ir/id/eprint/1108.

Gupta, M. D., Basu, A., & Thakurta, R. (2022). Re-examining the relationship between interpersonal reactivity index sub-scales and mental well-being: Implications of the pandemic. *Acta Psychologica, 228*, Article 103621. https://doi.org/10.1016/j.actpsy.2022.103621

Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology, 4*, 217–246. https://doi.org/10.1146/annurev.clinpsy.3.022806.091452

Hooper, D., Coughlan, J., & Mullen, M. (2008). Evaluating model fit: A synthesis of the structural equation modelling literature. In proceedings of the 7th European conference on research methodology for business and management studies (pp. 195–200).

Hughes, S., & Samuels, H. (2021). Dark desires: The Dark Tetrad and relationship control. *Personality and Individual Differences, 171*, Article 110548. https://doi.org/10.1016/j.paid.2020.110548

Jain, A., Pandey, M. K., & Rao, T. S. S. (2024). Development and validation of the premenstrual dysphoric disorder scale in Indian females. *Indian Journal of Psychiatry, 66*(10), 929–937. https://doi.org/10.4103/indianjpsychiatry.indianjpsychiatry_354_24

Janani, M., & Vijayalakshmi, V. (2024). Arts as a driver of agility: A mixed-method inquiry. *Acta Psychologica, 251*, Article 104640. https://doi.org/10.1016/j.actpsy.2024.104640

Johnson, L. K., Plouffe, R. A., & Saklofske, D. H. (2019). Subclinical sadism and the dark triad: Should there be a Dark Tetrad? *Journal of Individual Differences, 40*, 127–133. https://doi.org/10.1027/1614-0001/a000284

Johnson, V. A., Beehr, T. A., & O'Brien, K. E. (2015). Determining the relationship between employee psychopathy and strain: Does the type of psychopathy matter? *International Journal of Stress Management., 22*, 111–136. https://doi.org/10.1037/a0038817

Jonason, P. K., Slomski, S., & Partyka, J. (2012). The dark triad at work: How toxic employees get their way. *Personality and Individual Differences, 52*(3), 449–453. https://doi.org/10.1016/j.paid.2011.11.008

Jones, D. N., & Paulhus, D. L. (2010). Differentiating the dark triad within the interpersonal circumplex. In L. M. Horowitz, & S. Strack (Eds.), *Handbook of interpersonal psychology: Theory, research, assessment, and therapeutic interventions* (pp. 249–267). Wiley.

Khan, H. S. U. D., Cristofaro, M., Chughtai, M. S., & Baiocco, S. (2023). Understanding the psychology of workplace bullies: The impact of Dark Tetrad and how to mitigate it. *Management Research Review.*. https://doi.org/10.1108/MRR-09-2022-0681

Klerks, M., Dumitrescu, R., & De Caluwé, E. (2024). The relationship between the dark triad and academic burnout mediated by perfectionistic self-presentation. *Acta Psychologica, 250*, Article 104499. https://doi.org/10.1016/j.actpsy.2024.104499

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (ijec), 11*(4), 1–10.

Koehn, M. A., Okan, C., & Jonason, P. K. (2019). A primer on the dark triad traits. *Australian Journal of Psychology, 71*(1), 7–15. https://doi.org/10.1111/ajpy.12198

Kowalski, C. M., Di Pierro, R., Plouffe, R. A., Rogoza, R., & Saklofske, D. H. (2019). Enthusiastic acts of evil: The assessment of sadistic personality in polish and Italian populations. *Journal of Personality Assessment, 102*(6), 770–780. https://doi.org/10.1080/00223891.2019.1673760

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*, Article 103455. https://doi.org/10.1016/j.actpsy.2021.103455

Kowalski, C. M., Rogoza, R., Vernon, P. A., & Schermer, J. A. (2018). The dark triad and the self-presentation variables of socially desirable responding and self-monitoring. *Personality and Individual Differences, 120*, 234–237. https://doi.org/10.1016/j.paid.2017.09.007

Kranthi, A. K., Rai, A., & Showry, M. (2024). Linking resonant leadership and learning organizations: The role of psychological empowerment as a mediator in faculty members among higher educational institutions in India. *Acta Psychologica, 248*, Article 104365. https://doi.org/10.1016/j.actpsy.2024.104365

Lata, M., & Chaudhary, R. (2020). Dark triad and instigated incivility: The moderating role of workplace spirituality. *Personality and Individual Differences, 166*, Article 110090. https://doi.org/10.1016/j.paid.2020.110090

LeBreton, J. M., Shiverdecker, L. K., & Grimaldi, E. M. (2018). The dark triad and workplace behavior. *Annual Review of Organizational Psychology and Organizational Behavior, 5*(1), 387–414. https://doi.org/10.1146/annurev-orgpsych-032117-104451

Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology, 86*(1), 114–121. https://doi.org/10.1037/0021-9010.86.1.114

Longpré, N., & Turner, S. (2024). Dark Tetrad at Work: Perceived severity of bullying, harassment, and workplace deviance. International Journal of Offender Therapy and Comparative Criminology, 0(0). doi:https://doi.org/10.1177/0306624X241236715.

Marcatto, F., Di Blas, L., Ferrante, D., Hipel, I., & Kelloway, K. (2024). Validation of the Italian version of the Dark Tetrad at Work scale. *PLoS One, 19*(2), Article e0298880. https://doi.org/10.1371/journal.pone.0298880

Mehta, P., Vyas, M., & Shah, N. (2024). A validation study of the Bolton forgiveness scale (BFS-15) in India. *Mental Health and Social Inclusion, 28*(6), 1163–1172. https://doi.org/10.1108/MHSI-02-2024-0029

Moshagen, M., Hilbig, B. E., & Zettler, I. (2018). The dark core of personality. *Psychological Review, 125*(5), 656–688. https://doi.org/10.1037/rev0000111

Muris, P., Merckelbach, H., Otgaar, H., & Meijer, E. (2017). The malevolent side of human nature: A meta-analysis and critical review of the literature on the dark triad (narcissism, Machiavellianism, and psychopathy). *Perspectives on Psychological Science, 12*(2), 183–204. https://doi.org/10.1177/1745691616666070

Murphy, C., & Vess, J. (2003). Subtypes of psychopathy: Proposed differences between narcissistic, borderline, sadistic, and antisocial psychopaths. *Psychiatric Quarterly, 74*, 11–29. https://doi.org/10.1023/a:1021137521142

Nickisch, A., Palazova, M., & Ziegler, M. (2020). Dark personalities–dark relationships? An investigation of the relation between the Dark Tetrad and attachment styles. *Personality and Individual Differences, 167*, Article 110227. https://doi.org/10.1016/j.paid.2020.110227

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

Paulhus, D. L. (2014). Toward a taxonomy of dark personalities. *Current Directions in Psychological Science, 23*(6), 421–426. https://doi.org/10.1177/0963721414547737

Paulhus, D. L. (2016). The Dark Tetrad of personality. In V. Zeigler-Hill, & T. Shackelford (Eds.), *Encyclopedia of personality and individual differences*. Cham: Springer. https://doi.org/10.1007/978-3-319-28099-8_1059-1.

Paulhus, D. L., & Jones, D. N. (2015). Measures of dark personalities. In J. A. Schwartz, K. J. J. P. W. Smith, & L. M. Horowitz (Eds.), *Measures of personality and social psychological constructs* (pp. 562–594). Academic Press.

Piedmont, R. L., & Braganza, D. J. (2015). Psychometric evaluation of responses to the NEO-PI-3 in a multi-ethnic sample of adults in India. *Psychological Assessment, 27*(4), 1253–1263. https://doi.org/10.1037/pas0000135

Pilch, I., & Turska, E. (2015). Relationships between Machiavellianism, organizational culture, and workplace bullying: Emotional abuse from the target's and the perpetrator's perspective. *Journal of Business Ethics, 128*(1), 83–93. https://doi.org/10.1007/s10551-014-2081-3

Plouffe, R. A., Saklofske, D. H., & Smith, M. M. (2017). The assessment of sadistic personality: Preliminary psychometric evidence for a new measure. *Personality and Individual Differences, 104*, 166–171. https://doi.org/10.1016/j.paid.2016.07.043

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539–569. https://doi.org/10.1146/annurev-psych-120710-100452

Prusik, M., & Szulawski, M. (2019). The relationship between the Dark Triad personality traits, motivation at work, and burnout among HR recruitment workers. *Frontiers in Psychology, 10*, 1290. https://doi.org/10.3389/fpsyg.2019.01290

Revelle, W. (2019). Psych: Procedures for psychological, psychometric, and personality research [R package]. https://cran.r-project.org/package=psych.

Reynolds, K. J., Turner, J. C., Branscombe, N. R., Mavor, K. I., Bizumic, B., & Subašić, E. (2010). Interactionism in personality and social psychology: An integrated approach to understanding the mind and behaviour. *European Journal of Personality, 24*(5), 458–482. https://doi.org/10.1002/per.782

Roy, S., & Sia, S. K. (2024). The development and primary validation of employee green behavior scale. *Journal of Asia Business Studies, 18*(3), 784–800. https://doi.org/10.1108/JABS-10-2023-0437

Sanghvi, P., Mehrotra, S., Das, S. K., & Sharma, M. K. (2024). Barriers to seek professional help for mental health scale: Development and psychometric validation. *Indian Journal of* Psychological Medicine, 0(0). doi:https://doi.org/10.1177/02537176241256480.

Sassenrath, C., Keller, J., Stöckle, D., Kesberg, R., Nielsen, Y. A., & Pfattheicher, S. (2024). I like it because it hurts you: On the association of everyday sadism, sadistic pleasure, and victim blaming. *Journal of Personality and Social Psychology, 126*(1), 105–127. https://doi.org/10.1037/pspp0000464

Scherer, K. T., Baysinger, M., Zolynsky, D., & LeBreton, J. M. (2013). Predicting counterproductive work behaviors with sub-clinical psychopathy: Beyond the five factor model of personality. *Personality and Individual Differences, 55*(3), 300–305. https://doi.org/10.1016/j.paid.2013.03.007

Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling* (2nd ed.). Psychology Press.

Schwarzkopf, K., Straus, D., Porschke, H., Znoj, H., Conrad, N., Schmidt-Trucksäss, A., & von Känel, R. (2016). Empirical evidence for a relationship between narcissistic

personality traits and job burnout. *Burnout Research, 3*(2), 25–33. https://doi.org/10.1016/j.burn.2015.12.001

Singh, S., Subramani, A. K., David, R., & Jan, N. A. (2024). Workplace ostracism influencing turnover intentions: Moderating roles of perceptions of organizational virtuousness and authentic leadership. *Acta Psychologica, 243*, Article 104136. https://doi.org/10.1016/j.actpsy.2024.104136

Sode, R., Chenji, K., & Vijayaraghavan, R. (2024). Exploring workplace spirituality, mindfulness, digital technology, and psychological well-being: A complex interplay in organizational contexts. *Acta Psychologica, 251*, Article 104601. https://doi.org/10.1016/j.actpsy.2024.104601

Sofi, S. A., & Nika, F. A. (2016). Measurement of personality through modified instrument: A study of young consumers of India. *Asia-Pacific Journal of Management Research and Innovation, 12*(2), 155–168. https://doi.org/10.1177/2319510X16680656

Sridhar, A., & Kuriakose, H. (2025). Role of psychological well-being, quality of life, and distress tolerance in caregivers of the geriatric population: An Indian exploratory study. *Working with Older People, 29*(1), 57–65. https://doi.org/10.1108/WWOP-03-2024-0015

Steiger, J. H. (2007). Understanding the limitations of global fit assessment in structural equation modeling. *Personality and Individual Differences, 42*(5), 893–898. https://doi.org/10.1016/j.paid.2006.09.017

Szabó, Z. P., Kun, A., Balogh, B. E., Simon, E., & Csike, T. (2022). Dark and strong?! The associations between dark personality traits, mental toughness and resilience in Hungarian student, employee, leader, and military samples. *Personality and Individual Differences, 186*, Article 111339. https://doi.org/10.1016/j.paid.2021.111339

Szabó, Z. P., Simon, E., Czibor, A., Restás, P., & Bereczkei, T. (2021). The importance of dark personality traits in predicting workplace outcomes. *Personality and Individual Differences, 183*, Article 111112. https://doi.org/10.1016/j.paid.2021.111112

Tam, K. P., Chan, H. W., & Clayton, S. (2023). Climate change anxiety in China, India, Japan, and the United States. *Journal of Environmental Psychology, 87*, Article 101991. https://doi.org/10.1016/j.jenvp.2023.101991

Tamura, Y., Seki, K., Usami, M., Taku, S., Bontje, P., Ando, H., & Ishikawa, Y. (2012). Cultural adaptation and validating a Japanese version of the readiness for interprofessional learning scale (RIPLS). *Journal of Interprofessional Care, 26*(1), 56–63. https://doi.org/10.3109/13561820.2011.595848

Thibault, T., & Kelloway, E. K. (2020). The Dark Tetrad at Work. *Human Performance, 33*(5), 406–424. https://doi.org/10.1080/08959285.2020.1802728

Ubaradka, A., & Khanganba, S. P. (2024). The differential effect of psychopathy on active and bystander trolling behaviors: The role of dark tetrad traits and agreeableness. *Scientific Reports, 14*(1), 9905. https://doi.org/10.1038/s41598-024-60203-6

Van Huy, N., Thu, N. T. H., Anh, N. L. T., Au, N. T. H., Phuong, N. T., Cham, N. T., & Minh, P. D. (2020). The validation of organisational culture assessment instrument in healthcare setting: Results from a cross-sectional study in Vietnam. *BMC Public Health, 20*, 1–8. https://doi.org/10.1186/s12889-020-8372-y

Williams, K. M., & Paulhus, D. L. (2004). Factor structure of the self-report psychopathy scale (SRP-II) in non-forensic samples. *Personality and Individual Differences, 37*(4), 765–778. https://doi.org/10.1016/j.paid.2003.11.004

Womick, J., Foltz, R. M., & King, L. A. (2019). "Releasing the beast within"? Authenticity, well-being, and the Dark Tetrad. *Personality and Individual Differences, 137*, 115–125. https://doi.org/10.1016/j.paid.2018.08.022