



French adaptation of the Short Dark Triad: Psychometric properties and a head-to-head comparison with the Dirty Dozen



Dominick Gamache^{a,b,*}, Claudia Savard^{b,c}, Véronique Maheux-Caron^a

^a Department of Psychology, Université du Québec à Trois-Rivières, 3351 Boulevard des Forges, Trois-Rivières (Qc) G9A 5H7, Canada

^b CERVO Brain Research Centre, Institut Universitaire en Santé Mentale de Québec, 2601 de la Canardière, Québec (Qc) G1J 2G3, Canada

^c Department of Educational Fundamentals and Practices, Université Laval, 2320 rue des Bibliothèques, Québec (Qc) G1V 0A6, Canada

ARTICLE INFO

Keywords:

Short Dark Triad
Dark Triad
Dirty Dozen
Test validation
Machiavellianism
Narcissism
Psychopathy

ABSTRACT

Research on the Dark Triad (DT), a term coined to describe three socially aversive personality traits (Machiavellianism, narcissism, and psychopathy), has grown exponentially over the past years, in part due to the dissemination of two short, valid measures of the construct: the Short Dark Triad (SD3), and the Dirty Dozen (DD). The goal of this study is to report on the psychometric properties of a French adaptation of the SD3 (N = 405). Analyses include classical psychometric properties assessment, with a head-to-head comparison with the competing DD. The French SD3 showed good basic psychometric qualities. Factor structure was optimally represented by a bifactor model, as most items load both on their respective trait factor and on an overarching DT factor. There were significant, conceptually meaningful associations with measures of psychopathic traits, pathological narcissism, empathy, impulsivity, and social desirability. The SD3 showed incremental convergent validity over the DD for most variables, notably antisociality and impulsivity; however, the DD showed stronger positive association with pathological narcissism and stronger negative association with empathic concern. Overall, the French SD3 possesses sound psychometric properties, comparable with the original version. The relative merits of the SD3 and the DD for research and screening purposes are discussed.

1. Introduction

Research on undesirable or “dark” personality traits has grown exponentially over the past years, stemming from various fields (e.g., social, personality, and clinical psychology; Zeigler-Hill & Marcus, 2016). The “Dark Triad” (DT), a term coined by Paulhus and Williams (2002), has been widely accepted as an overarching concept encompassing three socially aversive personality traits. Machiavellianism describes individuals evidencing manipulateness, a callous affect, cynicism, and a strategic-calculating interpersonal orientation (Christie & Geis, 1970). Narcissism involves a grandiose sense of self-importance and entitlement, and dysfunctional self-esteem regulatory strategies. Psychopathic individuals show selfishness, lack of empathy and remorse, impulsivity, along with antisocial behaviors, and an erratic lifestyle (Jones & Paulhus, 2014). Recent evidence (McLarnon & Tarraf, 2017; Savard, Simard, & Jonason, 2017) suggests that the DT should be conceptualized both as a single, overarching factor, and as three distinct but related constructs; all three share social malevolence and antagonistic features (e.g. callous manipulation), but also distinctive features (e.g., strategic orientation for

Machiavellianism, Ego-promoting behaviors for narcissism, reckless antisocial behavior for psychopathy; Jones & Paulhus, 2014).

Two factors have contributed in large part to the fast-growing empirical scrutiny for the DT. First, maladaptive features of the DT traits and their deleterious psychosocial consequences are now well-documented (e.g., Muris, Merckelbach, Otgaar, & Meijer, 2017). A second reason has been the dissemination of short, simple, and user-friendly DT measures. Jonason and Webster introduced in 2010 a very concise measure of DT traits, the Dirty Dozen (DD), which includes 12 items (four per trait). The merits of the DD are still disputed. While it has shown adequate psychometric properties, including internal consistency, test-retest, and factor structure (e.g., Jonason & Luévano, 2013; Jonason & Webster, 2010), Miller et al. (2012) have suggested that the DD, because of its brevity, may neglect important psychopathy features pertaining to interpersonal antagonism and disinhibition. Furthermore, reported correlations with gold-standard measures of DT traits are only weak to moderate (Jonason & Webster, 2010; Miller et al., 2012).

The aforementioned limitations of the DD prompted Jones and Paulhus (2014) to develop an alternative self-report measure of DT

* Corresponding author at: Université du Québec à Trois-Rivières, Département de Psychologie, C.P. 500, Trois-Rivières, QC G9A 5H7, Canada.
E-mail address: dominick.gamache@uqtr.ca (D. Gamache).

traits, the Short Dark Triad (SD3). Slightly longer than the DD (27 vs. 12 items), its items are scored using a Likert-type format with anchors 1 (*Strongly disagree*) to 5 (*Strongly agree*). The authors report sound psychometric properties for the instrument, including factor structure and convergent validity with longer standard measures of DT traits. A head-to-head comparison between the SD3 and the DD revealed that SD3 scores generally showed stronger convergent and incremental validity in relation to longer standard measures of the DT traits (Maples, Lamkin, & Miller, 2014). Results from another study using both the SD3 and the DD to predict outcome variables related to sex, power, and money suggested that the SD3 captures more nuances of each DT construct (Lee et al., 2013). However, some cultural adaptations of the SD3 have failed to reproduce the sound psychometric properties of the original version (Geng, Sun, Huang, Zhu, & Han, 2015).

The present study aims at validating a French version of the SD3 (SD3-Fr; Handschin, Rossier, & Atitsogbe, 2016). Analyses include: (a) internal consistency and item properties based on classical test theory; (b) differences between men and women. Men are expected to score higher on all DT traits, as they are commonly associated with male-typical social and sexual strategies (Jonason & Webster, 2012); (c) factor structure using Confirmatory Factor Analysis (CFA) and Exploratory Structural Equation Modeling (ESEM). A bifactor structure, with items loading on the three underlying inter-correlated specific DT constructs and on an overarching DT construct, should provide the optimal fit, in line with results from McLarnon and Tarraf (2017); (d) convergent and discriminant validity. As some longer benchmark measures of DT constructs used in previous validation studies (e.g., the MACH-IV; Christie & Geis, 1970) are not validated in French, we chose other established measures of DT constructs, for which validated French adaptations were available; and (e) incremental convergent validity value of the French SD3 over the validated French-Canadian version of the DD (Savard et al., 2017). As the SD3 is longer than its counterpart and hence should provide a wider coverage of the key facets of DT traits, it is expected to show incremental value over the DD, especially for psychopathy, in line with Maples et al. (2014).

2. Method

2.1. Participants and procedure

A sample of 405 French-Canadian participants (325 women) aged from 18 to 76 years old ($M = 31.01$; $SD = 11.97$) was recruited through social media, online message boards, and institutional e-mail from two universities in the Province of Quebec, Canada. The only exclusion criterion was age < 18. The majority were full-time or part-time students (51.1%). Data were collected anonymously and computerized via online platforms (SurveyMonkey, LimeSurvey). All participants gave informed consent and no compensation or incentive for participation was offered. This study was approved by ethics committees from two universities (Université du Québec à Trois-Rivières and Université Laval).

2.2. Translation procedure of the SD3

Translation of the scale followed a traditional back-translation procedure (Van De Vijver, 2016). Preliminary translation of the scale from English to standard French was made by a fully bilingual member from a research team at Université de Lausanne, Switzerland, and the back-translation to English was made by another fully bilingual researcher who spent several years in the United States. Authors of the original version of the SD3 reviewed the back-translation and deemed it satisfactory, suggesting one minor change (to item 14).

2.3. Measures

In addition to the SD3 and a short sociodemographic form, six other

questionnaires were used:

The DD (Jonason & Webster, 2010; translated and validated by Savard et al., 2017) is a 12-item measure, using a nine-point Likert scale. It assesses each of the Dark Triad facets: Machiavellianism ($\alpha = .88$), Psychopathy ($\alpha = .73$), and Narcissism ($\alpha = .85$), and provides a Global score ($\alpha = .86$).

The Expanded Version of the Three-Factor Levenson Self-Report Psychopathy Scale (E-LSRP; Christian & Sellbom, 2016; translated and validated by Maheux-Caron, Gamache, Lussier, & Savard, 2017) is a 36-item self-report scored on a six-point Likert scale. The E-LSRP improved the internal consistency and construct coverage of the original 26-item version of the LSRP. It provides a global psychopathy score ($\alpha = .87$) along with three factor scores: Egocentric (e.g., narcissistic and manipulative features; $\alpha = .84$); Callous (e.g., cold-heartedness and poor empathy; $\alpha = .77$); and Antisocial (e.g., poor impulse control and antisocial behavior; $\alpha = .81$).

The French adaptation of the Brief Version of the Pathological Narcissism Inventory (B-PNI; Schoenleber, Roche, Wetzell, Pincus, & Roberts, 2015) translated and validated by Diguier et al. (2014) was used to measure two dimensions of pathological narcissism: Grandiosity (e.g., inflated, entitled self-image along with exploitative behaviors; $\alpha = .82$) and Vulnerability (e.g., depleted self-image, feelings of shame/anger, and interpersonal hypersensitivity; $\alpha = .89$). The 28 items are scored on a seven-point Likert scale.

The Interpersonal Reactivity Index-French Version (IRI-F; Davis, 1980; translated and validated by Gilet, Mella, Studer, Grünh, & Labouvie-Vief, 2013) is a 28-item self-report questionnaire, scored on a seven-point Likert scale. The instrument provides four subscores. Two reflect the cognitive component of empathy: Fantasy (the propensity to get involved in fictitious situations; $\alpha = .81$); and Perspective Taking (the ability to adopt other's point of view; $\alpha = .87$). Two reflect the affective component of empathy: Empathic Concern (the motivation to care about others; $\alpha = .76$); and Personal Distress (the tendency to feel discomfort in response to other's emotional distress; $\alpha = .83$).

The French adaptation of the Short UPPS-P Impulsive Behavior Scale (SUPPS-P; Lynam, Smith, Whiteside, & Cyders, 2006; translated and validated by Billieux et al., 2012) consists of a 20-item self-report questionnaire, scored on a four-point Likert scale. It provides a global impulsivity score ($\alpha = .88$) and five subscores: Urgency (experiencing strong impulses under negative affective states; $\alpha = .86$); Positive Urgency (acting recklessly under positive affective states; $\alpha = .75$); Lack of Premeditation (engaging in behaviors without pondering their consequences; $\alpha = .86$); Lack of Perseverance (being unable to stay focused on a difficult task; $\alpha = .90$); and Sensation Seeking (engaging in new/thrilling activities; $\alpha = .81$).

A brief 21-item adaptation of the Balanced Inventory for Desirable Responding (BIDR; Paulhus, 1984; French-Canadian translation and validation by D'Amours-Raymond, 2011), scored on a seven-point Likert scale, was used to assess socially desirable responding. We used Paulhus' (1984) suggested recode procedure to score items dichotomously. The instrument provides a global score ($KR-20 = .67$), and two subscores: Self-Deceptive Enhancement ($KR-20 = .59$), and Impression Management ($KR-20 = .63$).

2.4. Statistical analyses

Cronbach alphas, *t*-tests, and bivariate correlations were computed to assess internal consistency, gender differences, and convergent and discriminant validity using SPSS version 24.

In line with previous studies on SD3 factor structure, four models were tested: (1) a correlated three-factor CFA; (2) an orthogonal three-factor bifactor CFA (B-CFA); (3) an orthogonal three-factor ESEM; and (4) a three-factor bifactor ESEM (B-ESEM). All structural equation modeling analyses were performed using Mplus version 7.0 (Muthén & Muthén, 2012) with the robust weighted least square

Table 1
Descriptive statistics, sex differences, internal consistency, and inter-item correlations for the French version of the Short Dark Triad (N = 405).

	Classical test theory			Inter-item correlations								
	M	SD	ISC	1	2	3	4	5	6	7	8	9
Machiavellianism ($\alpha = .80$, $M = 24.01$, $SD = 5.64$, $t_{sex} [404] = 5.38$, $p < .001$, Hedges' $g = 0.67$)												
1	3.69	0.92	.37		.18	.19	.24	.31	.33	.33	.18	.14
2	1.81	0.92	.55			.35	.25	.51	.46	.25	.35	.35
3	2.66	0.97	.47				.39	.38	.31	.25	.25	.24
4	3.27	1.05	.44					.42	.35	.27	.13	.16
5	2.21	1.12	.68						.64	.35	.37	.33
6	2.29	1.22	.64							.35	.34	.33
7	3.22	1.00	.46								.27	.26
8	1.62	0.69	.41									.21
9	3.27	1.10	.40									
Narcissism ($\alpha = .64$, $M = 24.53$, $SD = 4.62$, $t_{sex} [404] = 1.70$, $p = .09$, Hedges' $g = 0.21$)												
10	3.19	0.98	.35		.41	.19	.22	.26	.16	.10	.06	.04
11	2.60	1.07	.45			.22	.25	.22	.31	.15	.22	.03
12	2.08	0.92	.40				.34	.18	.18	.25	.22	.04
13	2.57	1.04	.46					.20	.16	.27	.38	.01
14	3.06	0.98	.30						.02	.14	.12	.14
15	2.30	1.04	.28							.10	.23	-.02
16	2.37	1.07	.28								.16	-.02
17	2.26	1.12	.34									-.05
18	4.16	0.74	.04									
Psychopathy ($\alpha = .75$, $M = 17.36$, $SD = 5.24$, $t_{sex} [404] = 5.78$, $p < .001$, Hedges' $g = 0.70$)												
19	1.75	0.91	.55		.30	.37	.38	.31	.40	.27	.22	.30
20	2.17	1.05	.31			.16	.25	.14	.13	.28	.17	.08
21	1.56	0.76	.44				.29	.31	.40	.13	.11	.30
22	1.76	0.99	.50					.42	.30	.22	.19	.26
23	2.65	1.19	.47						.43	.11	.19	.31
24	2.27	1.11	.47							.14	.13	.28
25	1.62	1.07	.32								.23	.14
26	1.80	1.08	.34									.39
27	1.78	0.94	.44									

Note. ISC = Item-scale correlations (corrected). A five-point Likert scale (1 = *Totally disagree*; 5 = *Totally agree*) was used. Bolded correlations significant at $p < .01$, two-tailed. *Italicized* correlations significant at $p < .05$, two-tailed.

estimator (WLSMV), which is better suited to the ordered-categorical nature of Likert scales (Beauducel & Herzberg, 2006). In both B-CFA and B-ESEM, all indicators were allowed to load on a global factor (Dark Triad) and on a specific a priori factor. Following previous recommendations (Morin, Arens, Tran, & Caci, 2016), we used a target rotation for ESEM and B-ESEM models, which restricts all cross-loadings associated with adjacent constructs to be as close to zero as possible, whereas all of the main loadings are freely estimated.

Adequate model fit was determined using the χ^2 goodness-of-fit index, alongside with sample-size independent fit indexes (e.g., Hu & Bentler, 1999): the comparative fit index (CFI; $> .90$), the Tucker-Lewis index (TLI; $> .90$), and the root mean square error of approximation (RMSEA; $< .06$). Nested model comparisons of fit improvement were evaluated using the Mplus DIFFTEST function ($MD\Delta\chi^2$; Asparouhov & Muthén, 2006; Muthén, 2004).

3. Results

Internal consistency was good for the global scale ($\alpha = .83$), and ranged between fair and good for subscales (Machiavellianism $\alpha = .80$;

Narcissism $\alpha = .64$; Psychopathy $\alpha = .75$; see Table 1). One item from the Narcissistic scale (item 18) had a conspicuously high level of endorsement and a very low corrected item-scale correlation figure; therefore it was removed for factor analyses. Men scored higher than women on Psychopathy and Machiavellianism, with no significant difference for Narcissism. As expected and previously demonstrated (McLarnon & Tarraf, 2017), the correlated three-factor CFA poorly fitted the data (see Table 2). The B-ESEM model had the best fit-to-data (see Fig. 1) compared to the B-CFA ($MD\Delta\chi^2 = 217.70$; $df = 46$; $p < .001$), and the orthogonal three-factor ESEM models ($MD\Delta\chi^2 = 119.23$; $df = 23$; $p < .001$). However, many Machiavellianism (2, 6, 8, 9) and Psychopathy (19–25) items loaded more on the global DT factor than on their specific factor, while item 10 loaded negatively on the DT factor.

Convergent validity was assessed through bivariate correlations, and multiple regression analyses complemented correlational analyses by showing which SD3 traits were the best predictor for each variable. Results from Table 3 show multiple significant and conceptually meaningful correlations between SD3 subscales and external criteria. Results from multiple regression analyses using the SD3 traits as

Table 2
Goodness-of-fit statistics for the models estimated on the Short Dark Triad.

Models	WLSMV χ^2 (df)	CFI	TLI	RMSEA [90% CI]
Correlated three-factor CFA	938.806* (296)	.859	.845	.073 [.068–.078]
B-CFA	655.152* (273)	.916	.900	.059 [.053–.064]
Orthogonal three-factor ESEM	553.257* (250)	.933	.914	.055 [.049–.061]
B-ESEM	426.671 (227)	.956	.937	.047 [.040–.053]

Note. CFA: confirmatory factor analysis; B-CFA: Bifactor confirmatory factor analysis; B-ESEM: Bifactor exploratory structural equation modeling; WLSMV: Robust weighted least square estimator; χ^2 = WLSMV chi square; df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval.

* $p < .001$.

predictors show that Machiavellianism and Psychopathy were both significant predictors of the E-LSRP total score and some of its subscales. SD3 Narcissism was the strongest predictor of B-PNI grandiose narcissism. Psychopathy was the best predictor of IRI-F low Perspective-Taking, while Machiavellianism was the strongest predictor of low Empathic Concern. Finally, Psychopathy was the strongest predictor of all SUPPS-P scores.

To test for the incremental convergent validity of SD3 factors over their DD counterparts, we used the same procedure as [Maples et al. \(2014\)](#): we created residualized DT scores for each DD and SD3 trait by computing a regression for each scale (e.g., SD3 Machiavellianism) on their counterpart scale (e.g., DD Machiavellianism). Each residualized score represents the variance in each DT scale not shared with its counterpart. Residuals were then correlated with convergent validity variables. Correlations were compared using the Fisher r -to- z transformation (two-tailed, $p < .05$). Results from [Table 3](#) reveal that SD3 Machiavellianism and Psychopathy showed incremental convergent validity in comparison with their DD counterparts with respect to their associations with external constructs, with a few notable exceptions: SD3 Machiavellianism showed weaker associations with grandiosity, and SD3 Psychopathy showed weaker associations with the E-LSRP Callous and the IRI-F Empathic Concern scales. SD3 Narcissism was inferior to DD Narcissism in two out of four comparisons (the other two were nonsignificant).

4. Discussion

The main purpose of the study was to report on the psychometric properties of the French adaptation of the Short Dark Triad. We also wanted to determine to what extent the SD3-Fr has incremental validity

over a competing measure of the DT in its French version, the Dirty Dozen.

Internal consistency coefficients were quite similar to the original English version ([Jones & Paulhus, 2014](#)) for the Machiavellianism and Psychopathy subscales. However, it was lower and below generally accepted standards for the Narcissism scale. Problematic figures were observed for item 18, as levels of endorsement were unusually high while corrected item-scale correlation was strikingly low. These problems may be rooted in the translation from the original scale, as the translated item may not convey the entitlement and social dominance implied in the original formulation (“I insist on getting the respect that I deserve”). Indeed, the retained translation may have been understood by respondents as normative self-assertion. Future work on the scale should begin with a revision of this item.

As expected, men's endorsement of Machiavellianism and psychopathic traits was higher than women's, in accordance with a recent meta-analytic review on the DT ([Muris et al., 2017](#)) and with general findings on externalizing psychopathology (e.g., [Cale & Lilienfeld, 2002](#)). Significant differences were not found for Narcissism ($p = .09$), a result that was not attributable to a lack of statistical power, as a sample size of 412 (only slightly above our sample size of $N = 405$) would have been sufficient to detect a significant difference at power = .80, $\alpha = .05$, two-tailed, based on effect sizes ($d = 0.34$) reported by [Jones and Paulhus \(2014\)](#).

Results from factor analyses support previous research ([McLarnon & Tarraf, 2017](#)) about the superiority of a B-ESEM model for the SD3. This model proposes that SD3 items are both indicators of a general, unified factor reflecting the DT, as well as indicators of specific factors reflecting Machiavellianism, narcissism, and psychopathy. Many items loaded more strongly on the DT factor than on their respective

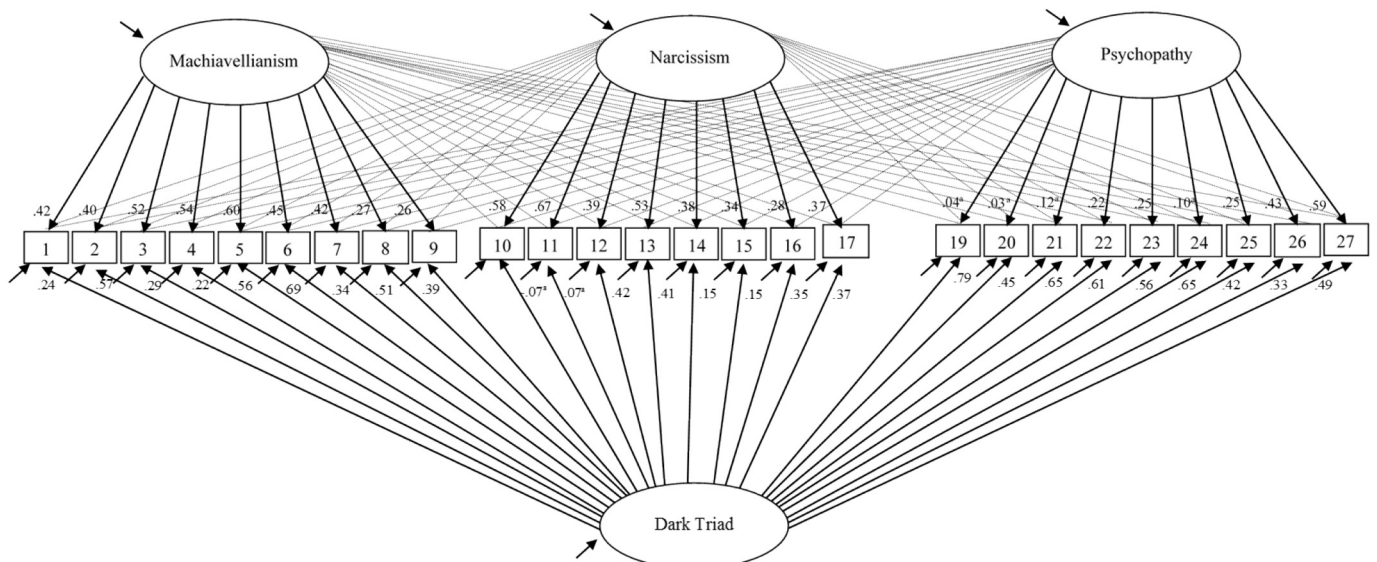


Fig. 1. Bifactor exploratory structural equation modeling analysis for the Short Dark Triad with standardized loadings. ^aItem loading nonsignificant. All other $ps < .01$.

Table 3
Convergent and discriminant validity of the French adaptation of the Short Dark Triad (SD3), and incremental convergent validity with the French-Canadian adaptation of the Dirty Dozen (DD).

Variable	Machiavellianism			Narcissism			Psychopathy		
	SD3	DD	β	SD3	DD	β	SD3	DD	β
	Res r	Res r	Res r	Res r	Res r	Res r	Res r	Res r	Res r
DD total (n = 358)	.64 ^c	.85 ^c	.47 ^c	.40 ^c	.74 ^c	.20 ^c	.52 ^c	.69 ^c	.21 ^c
Machiavellianism	.63 ^c	–	.45 ^c	.31 ^c	.46 ^c	.11 ^a	.50 ^c	.51 ^c	.21 ^c
Psychopathy	.54 ^c	.51 ^c	.42 ^c	.13 ^a	.16 ^b	–.07	.47 ^c	–	.28 ^c
Narcissism	.33 ^c	.46 ^c	.20 ^c	.45 ^c	–	.38 ^c	.24 ^c	.16 ^b	.02
E-LSRP total (n = 404)	.70 ^c	.63 ^c	.45 ^c	.31 ^c	.31 ^c	.03	.72 ^c	.66 ^c	.45 ^c
Egocentric	.70 ^c	.64 ^c	.57 ^c	.30 ^c	.35 ^c	.07	.53 ^c	.53 ^c	.22 ^c
Callous	.56 ^c	.45 ^c	.44 ^c	.15 ^b	.12 ^a	–.06	.47 ^c	.65 ^c	.26 ^c
Antisocial	.39 ^c	.38 ^c	.07	.26 ^c	.26 ^c	.05	.66 ^c	.37 ^c	.61 ^c
B-PNI (n = 352)									
Grandiose	.43 ^c	.52 ^c	.24 ^c	.47 ^c	.61 ^b	.35 ^c	.40 ^c	.21 ^c	.17 ^b
Vulnerable	.40 ^c	.33 ^c	.25 ^c	.16 ^a	.54 ^c	.00	.41 ^c	.20 ^c	.28 ^c
IRI (n = 381)									
Fantasy	–.08	.02	–.09	.05	.16 ^b	.08	–.05	–.21 ^c	–.03
Perspective-taking	–.36 ^c	–.26 ^c	.23 ^c	–.08	–.20 ^c	.07	–.38 ^c	–.34 ^c	–.28 ^c
Empathic concern	–.52 ^c	–.40 ^c	–.50 ^c	–.01	–.07	.16 ^c	–.33 ^c	–.68 ^c	–.13 ^a
Personal distress	–.02	–.05	–.01	–.12 ^a	.08	–.13 ^a	–.01	–.16 ^b	.03
SUPPS-R total (n = 361)	.24 ^c	.29 ^c	.07	.20 ^c	.28 ^c	–.07	.53 ^c	.14 ^b	.54 ^c
Urgency	.18 ^c	.20 ^c	–.04	.12 ^a	.20 ^c	–.00	.40 ^c	.09 ^b	.42 ^c
Positive urgency	.16 ^b	.21 ^c	–.02	.21 ^c	.33 ^c	.13 ^a	.30 ^c	–.01 ^b	.27 ^c
Lack of premeditation	.06	.10	–.15 ^a	.06	.09	–.01	.32 ^c	.07 ^b	.40 ^c
Lack of perseverance	.18 ^b	.25 ^c	.04	–.03	.13 ^a	–.14 ^a	.31 ^c	.17 ^b	.33 ^c
Sensation	.18 ^c	.20 ^c	.00	.26 ^c	.19 ^c	.19 ^c	.31 ^c	.14 ^b	.25 ^c
BIDR total (n = 131)	–.19 ^a	–.26 ^b	–.04	–.10	–.25 ^b	–.01	–.34 ^c	–.11	–.32 ^b
Self-deceptive enhancement	–.04	–.02	.04	.00	.07	.04	–.16	–.26 ^b	–.19
Impression management	–.23 ^b	–.31 ^c	–.09	–.14	–.15	–.05	–.34 ^c	–.20 ^a	–.29 ^b

Note. SD3 = Short Dark Triad. DD = Dirty Dozen. E-LSRP = Expanded Version of the Three-Factor Levenson Self-Report Psychopathy Scale (E-LSRP). IRI = Interpersonal Reactivity Index. BIDR = Balanced Inventory for Desirable Responding. All instruments in their respective French adaptations.

β = standardized beta coefficient for multiple regression analyses using SD3 factors as predictors. Res = residualized scores representing the variance in each Dark Triad (DT) scale (e.g., SD3 Machiavellianism) not shared with its counterpart (e.g., DD Machiavellianism). Correlations in the same row with different subscripts are statistically significantly different (as computed using the Fisher r -to- z transformation, two-tailed, $p < .05$; a positive z score denotes a comparison in favor of the SD3, comparisons were done separately for each DT construct, and were also done separately for the bivariate and residualized correlations). Bolded correlations correspond to convergent validity correlations. Differences between SD3 and DD calculated for convergent validity correlations only.

^a $p < .05$.
^b $p < .01$.
^c $p < .001$.

traits. This was especially true for Psychopathy items, which raises some concerns about the scale's coverage of specific core psychopathy features. These results could suggest that most Psychopathy items assess some characteristics shared by the three constructs. However, the subclinical nature of the psychopathic traits targeted by the instrument and the low level of endorsement for many items could also partly explain these results. One important caveat is in order, as overreliance on traditional fit indices has been recently disputed. McNeish, An, and Hancock (2017) have suggested that measurement quality based on standardized factor loadings should also be considered to evaluate model fits. Following their guidelines, standardized factor loadings around .40, such as those obtained in our final model (see Fig. 1), would suggest a poorer fit than the one suggested by more traditional indices.

Convergent validity results are coherent with DT conceptualization. SD3 Machiavellianism was associated with callous, egocentric, grandiose, and unempathetic personality features. SD3 Narcissism was mainly associated with grandiosity, in line with Maples et al. (2014) who observed marked correlations with subscales from the Narcissistic Personality Inventory, which emphasize grandiose features. Of note, vulnerable narcissism was predicted by SD3 Machiavellianism and Psychopathy, but not Narcissism, a pattern similar to Maples et al.'s (2014) study, which used the Hypersensitive Narcissism Scale. An intriguing hypothesis to test in future studies is that failure to succeed in manipulating others may lead to heightened vulnerability, shame and/or anger, which may be reflected in some B-PNI items. SD3 Psychopathy, as expected, was related to all three factors from the E-LSRP, especially antisociality; it also showed low to moderate correlations with impulsivity, and was the strongest predictor of the latter among SD3 traits. Jones and Paulhus (2014), in developing the SD3, contended that impulsivity should be a key feature in distinguishing psychopathy from Machiavellianism; our results are coherent with their conceptualization.

Only moderate correlations were found between SD3 and DD scales for narcissism ($r = .45$) and psychopathy ($r = .47$). These figures are lower than those reported by Maples et al. (2014; $r_s = .54$ for narcissism and $.65$ for psychopathy). The issue of poor commensurability among personality measures is well-documented, as only moderate correlations were found between scales measuring the “same” construct in a meta-analysis (Pace & Brannick, 2010). This problem may become salient with multifaceted constructs such as narcissism and psychopathy, for which a coherent unitary definition remains elusive. SD3 Narcissism includes some items pertaining to more adaptive features of narcissism (e.g., leadership), while the DD focuses solely on maladaptive features (e.g., attention-seeking, entitlement). Furthermore, SD3 Psychopathy may be conceptually closer to secondary psychopathy (e.g., antisocial behavior and lifestyle, impulsivity), in contrast with its DD counterpart which emphasizes interpersonal and affective features traditionally associated with primary psychopathy (e.g., callousness, lack of empathy; Hare, 2003).

Negative associations were found between SD3 traits, especially psychopathy, and socially desirable responding. This result, in line with previous studies on DT traits and as proposed by others (e.g., Savard et al., 2017; Verschuere et al., 2014), strengthens hypotheses suggesting that individuals who have these traits may not value social acceptance. This may reflect inherent features of those traits, e.g. egocentrism, grandiosity, bravado. Anonymous data collection may also promote transparent responding.

Incremental convergent validity tests between the SD3 and the DD showed that SD3 Machiavellianism offers a better coverage of the egocentric, callous, and unempathetic features conceptually tied to this trait, in comparison with its DD counterpart. The result patterns for the E-LSRP and the SUPPS-P are in line with Jones and Paulhus' (2014) acknowledgment that the SD3, as previously mentioned, may be conceptually closer to secondary than to primary psychopathy: it shows strong incremental validity for antisociality and impulsivity, while DD Psychopathy is the most closely tied to E-LSRP callousness. Of note, DD

Psychopathy showed the strongest association with lack of Empathic Concern, a dimension of affective empathy that has received increased attention in recent neurobiological studies for its pivotal role in guiding prosocial behavior (e.g., Decety, 2015). DD Narcissism also showed a stronger association with narcissistic grandiosity; however, a more conclusive comparison of the two subscales should be made after revision of item 18 from the SD3 narcissism scale. These nuanced results highlight the relative merits of the two measures, as both instruments may be preferred in some situations for research or screening purposes. For instance, the SD3 might be the most informed choice for studies in which assessment of impulsivity and antisocial tendencies is critical; the DD, on the other hand, might be the better alternative if lack of empathic concern is the focus.

4.1. Limitations

Limitations to the present study include an unequal sex ratio ($> 4:1$ for women), which precluded the use of structural invariance analyses for gender. The cross-sectional design of the study does not allow the examination of the instrument's stability over time. The study could not use some benchmark measures of DT constructs (e.g., MACH-IV) because validated French versions of these instruments were unavailable, to our best knowledge; however, our study provides results from other validated measures yet to be tested in relation with DT measures, which can also be seen as an original contribution. One strength of the present study pertains to the generalizability of the translation. It was developed by a Swiss research team but validated in a French-Canadian sample; the positive psychometric properties reported here suggest that the translation can be used in various French-speaking countries or regions (e.g., France, Switzerland, Belgium, the Province of Quebec, etc.).

5. Conclusion

Despite some limitations, the present investigation suggests that the SD3-Fr possesses sound psychometric properties, comparable for the most part with the original version. The present validation study should contribute to promote the dissemination of a short and valid DT measure, which can be readily included in large assessment batteries for research and screening purposes in French-speaking communities. It also provides results about understudied associations between DT measures and other valid instruments pertaining to narcissism, empathy, and impulsivity. The present study adds to the literature on the muddled association between DT traits and socially desirable responding. The head-to-head comparison between the two competing DT measures shows they both have their relative merits in light of the present results, which should guide researcher decisions regarding the choice of one of the two instruments.

Conflicts of interest statement and sources of funding

None.

Acknowledgments

We gratefully thank Jérôme Rossier and Kokou Amenyona Atitsogbe (University of Lausanne, Switzerland) for their assistance and for providing valuable information on the French translation of the instrument.

References

- Asparouhov, T., & Muthén, B. O. (2006). *Robust chi-square difference testing with mean and variance adjusted test statistics*. Los Angeles, CA: Muthén & Muthén. Retrieved from <http://www.statmodel.com/examples/webnote.shtml#web10>.
- Beauducel, A., & Herzberg, P. Y. (2006). On the performance of maximum likelihood

- versus means and variance adjusted weighted least squares estimation in CFA. *Structural Equation Modeling*, 13, 186–203. <http://dx.doi.org/10.1207/s15328007sem1302.2>.
- Billieux, J., Rochat, L., Ceschi, G., Carré, A., Offerlin-Meyer, I., Delfedre, A.-C., ... Van der Linden, M. (2012). Validation of a short French version of the UPPS-P Impulsive Behavior Scale. *Comprehensive Psychiatry*, 53, 609–615. <http://dx.doi.org/10.1016/j.comppsy.2011.09.001>.
- Cale, E. M., & Lilienfeld, S. O. (2002). Sex differences in psychopathy and antisocial personality disorder: A review and integration. *Clinical Psychology Review*, 22, 1179–1207.
- Christian, E., & Sellbom, M. (2016). Development and validation of an expanded version of the Three-Factor Levenson Self-Report Psychopathy Scale. *Journal of Personality Assessment*, 98, 155–168. <http://dx.doi.org/10.1080/00223891.2015.1068176>.
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York, NY: Academic Press.
- D'Amours-Raymond, J. (2011). *Version abrégée transculturelle du Balanced Inventory of Desirable Responding (BIDR) [Brief version of the transcultural Balanced Inventory of Desirable Responding (BIDR)]* (Unpublished master's thesis) Quebec City, Canada: Laval University.
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10, 85.
- Decety, J. (2015). The neural pathways, development and functions of empathy. *Current Opinion in Behavioral Sciences*, 3, 1–6. <http://dx.doi.org/10.1016/j.cobeha.2014.12.001>.
- Diguer, L., Turmel, V., Da Silva Luis, R., Mathieu, V., Marcoux, L.-A., & Lapointe, T. (2014). Development and initial structure analysis of a French version of the Pathological Narcissism Inventory. *Journal of the European Psychiatric Association*, 29, 1–4. [http://dx.doi.org/10.1016/S0924-9338\(14\)77997-0](http://dx.doi.org/10.1016/S0924-9338(14)77997-0).
- Geng, Y.-G., Sun, Q.-B., Huang, J.-Y., Zhu, Y.-Z., & Han, X.-H. (2015). Dirty Dozen and Short Dark Triad: A Chinese validation of two brief measures of the Dark Triad. *Chinese Journal of Clinical Psychology*, 23, 246–250.
- Gilet, A.-L., Mella, N., Studer, J., Grün, D., & Labouvie-Vief, G. (2013). Assessing dispositional empathy in adults: A French validation of the Interpersonal Reactivity Index (IRI). *Canadian Journal of Behavioral Science*, 45, 42–48. <http://dx.doi.org/10.1037/a0030425>.
- Handschin, P., Rossier, J., & Atitsogbe, K. A. (2016). *Traduction française de la Short Dark Triad [French translation of the Short Dark Triad]*. Switzerland: Université de Lausanne.
- Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist* (2nd ed.). Toronto, ON: Multi-Health Systems.
- 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, 1–55. <http://dx.doi.org/10.1080/10705519909540118>.
- Jonason, P. K., & Luévano, V. X. (2013). Walking the thin line between efficiency and accuracy: Validity and structural properties of the Dirty Dozen. *Personality and Individual Differences*, 55, 76–81. <http://dx.doi.org/10.1016/j.paid.2013.02.010>.
- Jonason, P. K., & Webster, G. D. (2010). The Dirty Dozen: A concise measure of the Dark Triad. *Psychological Assessment*, 22, 420–432. <http://dx.doi.org/10.1037/a0019265>.
- Jonason, P. K., & Webster, G. D. (2012). A protean approach to social influence: Dark Triad personalities and social influence tactics. *Personality and Individual Differences*, 52, 521–526. <http://dx.doi.org/10.1016/j.paid.2011.11.023>.
- Jones, D. N., & Paulhus, D. L. (2014). Introducing the short dark triad (SD3): A brief measure of dark personality traits. *Assessment*, 21, 28–41. <http://dx.doi.org/10.1177/1073191113514105>.
- Lee, K., Ashton, M. C., Wiltshire, J., Bourdage, J. S., Visser, B. A., & Gallucci, A. (2013). Sex, power, and money: Prediction from the Dark Triad and Honesty-Humility. *European Journal of Personality*, 27, 169–184. <http://dx.doi.org/10.1002/per.1860>.
- Lynam, D. R., Smith, G. T., Whiteside, S. P., & Cyders, M. A. (2006). *The UPPS-P-P: Assessing five personality pathways to impulsive behavior*. West Lafayette: Indiana, Purdue University.
- Maheux-Caron, V., Gamache, D., Lussier, Y., & Savard, C. (2017, September). French adaptation and validation of the Expanded Version of the Three-Factor Levenson Self-Report Psychopathy Scale. Paper presented at the biannual congress of the International Society for the Study of Personality Disorders (ISSPD), Heidelberg, Germany.
- Maples, J. L., Lamkin, J., & Miller, J. D. (2014). A test of two brief measures of the dark triad: The dirty dozen and short dark triad. *Psychological Assessment*, 24, 326–331. <http://dx.doi.org/10.1037/a0035084>.
- McLarnon, M. J. W., & Tarraf, M. C. (2017). The Dark Triad: Specific or general sources of variance? A bifactor exploratory structural equation modeling approach. *Personality and Individual Differences*, 112, 67–73. <http://dx.doi.org/10.1016/j.paid.2017.02.049>.
- McNeish, D., An, J., & Hancock, G. R. (2017). The thorny relation between measurement quality and fit index cutoffs in latent variable models. *Journal of Personality Assessment*. <http://dx.doi.org/10.1080/00223891.2017.1281286> (Advance online publication).
- Miller, J. D., Few, L. R., Seibert, L. A., Watts, A., Zeichner, A., & Lynam, D. R. (2012). An examination of the Dirty Dozen measure of psychopathy: A cautionary tale about the costs of brief measures. *Psychological Assessment*, 24, 1048–1053. <http://dx.doi.org/10.1037/a0028583>.
- Morin, A. J. S., Arens, A. K., Tran, A., & Caci, H. (2016). Exploring sources of construct-relevant multidimensionality in psychiatric measurement: A tutorial and illustration using the composite scale of morningness. *International Journal of Methods in Psychiatric Research*, 25, 277–288. <http://dx.doi.org/10.1002/mpr.1485>.
- 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, 183–204. <http://dx.doi.org/10.1177/1745691616666070>.
- Muthén, B. O. (2004). *Mplus technical appendices*. Los Angeles, CA: Muthén and Muthén. Retrieved from <http://www.statmodel.com/techappen.shtml>.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- Pace, V. L., & Brannick, M. T. (2010). How similar are personality scales of the “same” construct? A meta-analytic investigation. *Personality and Individual Differences*, 49, 669–676. <http://dx.doi.org/10.1016/j.paid.2010.06.014>.
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, 46, 598–609. <http://dx.doi.org/10.1037/0022-3514.46.3.598>.
- Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36, 556–563. [http://dx.doi.org/10.1016/S0092-6566\(02\)00505-6](http://dx.doi.org/10.1016/S0092-6566(02)00505-6).
- Savard, C., Simard, C., & Jonason, P. K. (2017). Psychometric properties of the French-Canadian version of the Dark Triad Dirty Dozen. *Personality and Individual Differences*, 119, 122–128. <http://dx.doi.org/10.1016/j.paid.2017.06.044>.
- Schoenleber, M., Roche, M. J., Wetzel, E., Pincus, A. L., & Roberts, B. W. (2015). Development of a brief version of the Pathological Narcissism Inventory. *Psychological Assessment*, 27, 1520–1526. <http://dx.doi.org/10.1037/pas0000158>.
- Van De Vijver, F. J. R. (2016). Test adaptations. In F. T. L. Leong, D. Bartram, F. M. Cheung, K. F. Geisinger, & D. Iliescu (Eds.), *The ITC international handbook of testing and assessment* (pp. 364–376). New York: Oxford University Press.
- Verschuere, B., Uzieblo, K., De Schryver, M., Douma, H., Onraedt, T., & Crombez, G. (2014). The inverse relation between psychopathy and faking good: Not response bias, but true variance in psychopathic personality. *Journal of Forensic Psychiatry & Psychology*, 25, 705–713. <http://dx.doi.org/10.1080/14789949.2014.952767>.
- Zeigler-Hill, V., & Marcus, D. K. (2016). *The dark side of personality: Science and practice in social, personality, and clinical psychology*. Washington, DC: American Psychological Association.