



Original Article

An Initial Comparison of the Psychometric Properties of the Dark Triad Dirty Dozen in Spanish and Portuguese

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Abstract. We tested the psychometric properties of the Dark Triad Dirty Dozen measure of psychopathy, narcissism, and Machiavellianism in Portugal ($n = 1,034$) and Spain ($n = 386$). Adult ($M = 43.40$, $SD = 14.81$, range = 18–88) participants (1,113 women) completed the Dirty Dozen measure of each trait along with ultrabrief measures of extraversion, openness, neuroticism, agreeableness, conscientiousness, and religiousness and a lengthier measure of individual differences in depression, anxiety, and stress. Using confirmatory factor analysis and multigroup confirmatory factor analysis, we found evidence for measurement invariance for a 3-factor model of the Dirty Dozen in the sexes and countries. The Dark Triad traits and disagreeableness were present across the traits and countries. Across depression, anxiety, and stress, correlations with the Dark Triad traits were stronger in men than women. Our results suggest that the scale translations – in each country – are trustworthy paving the way for inter-Iberian and international collaborations.

Keywords: psychopathy, narcissism, Machiavellianism, depression, anxiety, stress, Dirty Dozen



The Dark Triad traits are independent-yet-related constructs associated with unethical, immoral, and socially undesirable behavior (Muris et al., 2017; Paulhus & Williams, 2002). The traits of psychopathy (e.g., callous social attitudes and impulsivity; Kavanagh et al., 2013), Machiavellianism (e.g., cynicism and strategic thinking; Jones, 2016), and narcissism (e.g., a sense of entitlement and exhibitionism; Sedikides, 2021) have proven to be a popular topic for researchers with wide-reaching implications (Furnham et al., 2013). They play a role in social behaviors such as an unwillingness to adhere to COVID-19 restrictions and sexist/racist attitudes (Jonason, Underhill,

et al., 2020; Nowak et al., 2020; Zajenkowski et al., 2020) along with interpersonal effects such as limited empathy and poor emotion regulation (Blötner et al., 2021; Kowalski et al., 2021; Urbonaviciute & Hepper, 2020; Wai & Tiliopoulos, 2012; Walker et al., 2022). The traits have traditionally been conceptualized and measured independently, sometimes with substantial length and potential redundancy. But these issues pose problems for screening purposes, unfunded research, and cross-national projects. To address this, several researchers have created brief measures of the three traits.

The Dirty Dozen (Jonason & Webster, 2010) was the first scale developed to combine the three Dark Triad traits into a single measure. As the name of the scale implies, it is composed of four items for three traits. Studies have repeatedly revealed that the scale has good psychometric properties using both classical test (e.g., Cronbach α 's \approx

.70; nomological network tests) and item response theory techniques in several languages and has proven useful in predicting social behaviors (e.g., Czarna et al., 2016; Jonason & Webster, 2012; Webster & Jonason, 2013). The scale appears to behave in multinational projects as well (Jonason, Żemojtel-Piotrowska, et al., 2020; Rogoza et al., 2021). Nevertheless, the scale has some detractors (Kajonius et al., 2016; Maples et al., 2014) whose concerns center around (a) diminished or shifted coverage of the content captured in traditional measures of the traits, (b) the inability to look at lower-order aspects of each trait, and (c) narrow-band conceptualizations of each trait. Despite these concerns, the scale continues to be popular among researchers around the world likely because of its (1) efficiency, (2) ease of translation, (3) reliable psychometric properties, and (4) function validity in predicting things researchers are interested in.

In this study, we provide classical test theory evidence for the validity of two translations of the Dark Triad Dirty Dozen. This is not to say other efforts have been made to do so in the past (Maneiro et al., 2019; Pineda et al., 2020), but in contrast, this research has been confined to one country with relatively modest sample sizes (≈ 400). The validation of the scale across languages is an essential check on researchers' ability to do cross-national research and given the brevity of this scale in contrast to traditional measures of the Dark Triad traits available in Spain and Portugal, having a validated and trustworthy scale will enable basic and applied research.

To evaluate the properties of the translations, we consider the factorial validity. We expect the translations to reveal a 3-factor solution (Jonason & Luévano, 2013; Jonason & Webster, 2010) but also in line with the idea that the traits are three related-yet-distinct personality traits (Muris et al., 2017; Paulhus & Williams, 2002). Importantly, we test whether this solution is similar in men and women and in participants from Portugal and Spain. This invariance testing is essential for cross-national research to ensure that researchers can compare means and correlations across nations.

In addition, we assess the nomological network of these translations overall, in men and women, and in each country. One of the fundamental observations that link the traits is that all three are linked to something akin to antagonism or disagreeableness (Jones & Figueredo, 2013; Jones & Neria, 2015). Therefore, if our translations are good, we would expect scores on the Dark Triad traits to be negatively correlated with agreeableness ala the Big Five traits. In addition, those characterized by the Dark Triad traits might be limited in their communal orientation (Jonason, Duineveld, & Middleton, 2015), which may translate into limited religiousness (Jonason, Li, & Czarna, 2013). Such an effect might be consistent with the life history interpretation of the traits (Jonason et al., 2010), as in religiousness is a *slow* (i.e., investing in long-term, mutualistic relationships, being integrated into a social

community) characteristic of people, but the Dark Triad traits are *fast* (i.e., limited investment in romantic, familial, or community) in nature. Finally, these traits are likely to impose intrapersonal costs on those who are characterized by them regardless of one takes a pathology or a pseudopathology view of these traits. As such, we would predict that they would be associated with more stress, anxiety, and depression.

We also try to examine the consistency of these correlations in men and women and in each country. If our translations are good, we expect none-to-few differences (e.g., differences created by crossing 0) across nations but several between men and women. Given that the traits are more characteristic of men than women (Jonason, Żemojtel-Piotrowska, et al., 2020), it is men who are high on these traits who may experience the most psychological problems for being characterized by these traits. Therefore, we expect the correlations between the traits and individual differences in depression, stress, and anxiety to be stronger in men than women. In addition, men characterized by the Dark Triad traits – especially psychopathy – may be especially disagreeable given either (1) the way societies encourage boys to be more aggressive or (2) through selection pressures that may have led ancestral men to accrue more reproductive benefits for being disagreeable in contrast to women (Jonason et al., 2009, 2010; Jonason, Jones et al., 2013). Indeed, women may be more encouraged by society and evolution to be more communal in nature than men (Jonason, Duineveld, & Middleton, 2015; Jonason, Strosser, et al., 2015), which may translate into stronger, negative correlations in women between religiousness and the Dark Triad traits.

With over 1,700 citations on Google Scholar, the Dirty Dozen measure of the Dark Triad has received considerable attention, both positive and negative in nature. One of the virtues of the scale is that it appears to translate well across nations into other languages (Rogoza et al., 2021) than English in which it was originally designed. However, most attempts to understand its psychometric properties have been conducted on one language at a time (Czarna et al., 2016; Özsoy et al., 2017; Savard et al., 2017; Schimmetti et al., 2019; Tamura et al., 2015) or two geographically and culturally distinct countries such as Australia and Turkey (Jonason et al., 2019). In contrast, we attempt to tease apart the psychometrics differences – if there are any – between translations of the scale in two geographically, linguistically, and culturally similar nations: Portugal and Spain. To do this, we test the structural properties of the scale overall, in both countries and in men and women. Doing so allows researchers to ensure that comparisons and tests conducted when collecting data from these groups can be compared in terms of means (i.e., scalar invariance) and that the correlations between traits are comparable (i.e., metric invariance). Said another way, invariance tests ensure that

researchers are comparing apples to apples, not apples to oranges. We then conduct a nomological network assessment with the brief measures of the Big Five traits, depression, anxiety, stress, and religiousness overall, in each country and in men and women.

Method

Participants and Procedure

Participants ($N = 1,420$; 307 men, 1,113 women) were aged 18 to 88 years ($M = 43.40$, $SD = 14.81$) and solicited using Facebook advertising in Portugal ($n = 1,034$, men = 18%, married = 55%, employed by a company = 60%, living in an urban environment = 68%; living in an apartment with a terrace = 41%; $M_{Age} = 42.85$, $SD_{Age} = 13.86$, range = 18–83) and Spain ($n = 386$, men = 32%, married = 58%, employed by a company = 57%, living in an urban environment = 72%; living in an apartment with a terrace = 43%; $M_{Age} = 44.82$, $SD_{Age} = 17.04$, range = 18–88) to take part in a personality study in relation to SARS-CoV-2 (i.e., COVID-19) in the early months of 2020 during the initial outbreak and when governments applied restrictions to mobility (Brito-Costa et al., 2022). All subjects gave their informed consent to participate in the present study, were debriefed upon completion, and the protocol was carried out in accordance with the ethical and applicable regulations and guidelines of the Portuguese Psychologists Association as approved by the Ethics Committee of Infad. These participants were analyzed previously (Brito-Costa et al., 2022), and we provide the variables required for analyses in this study only on the Open Science Framework at <https://osf.io/c9ean/> (Jonason, Tosi, & Costa, 2022).

Measures

To measure individual differences in the Dark Triad traits, we used the Spanish (Maneiro et al., 2019) and Portuguese (Macedo et al., 2017) translations of the Dirty Dozen measure (Jonason & Webster, 2010). Participants were asked how much they agreed (1 = *not at all*; 7 = *very much*) with 12 statements (4 per trait) such as “I tend to want others to admire me” (i.e., narcissism), “I tend to lack remorse” (i.e., psychopathy), and “I have used deceit or lied to get my way” (i.e., Machiavellianism), and items were averaged to create indices of each trait. The items had adequate-to-good and stable internal consistency for narcissism (Cronbach’s $\alpha_{Total} = .85$, $\alpha_{Men} = .86$, $\alpha_{Women} = .85$, $\alpha_{Spain} = .86$, $\alpha_{Spanish\ men} = .86$, $\alpha_{Spanish\ women} = .87$, $\alpha_{Portugal} = .85$, $\alpha_{Portuguese\ men} = .86$, $\alpha_{Portuguese\ women} = .85$), psychopathy ($\alpha_{Total} = .68$, $\alpha_{Men} = .71$,

$\alpha_{Women} = .66$, $\alpha_{Spain} = .74$, $\alpha_{Spanish\ men} = .69$, $\alpha_{Spanish\ women} = .78$, $\alpha_{Portugal} = .75$, $\alpha_{Portuguese\ men} = .73$, $\alpha_{Portuguese\ women} = .62$), and Machiavellianism ($\alpha_{Total} = .83$, $\alpha_{Men} = .86$, $\alpha_{Women} = .78$, $\alpha_{Spain} = .83$, $\alpha_{Spanish\ men} = .86$, $\alpha_{Spanish\ women} = .81$, $\alpha_{Portugal} = .81$, $\alpha_{Portuguese\ men} = .91$, $\alpha_{Portuguese\ women} = .74$) such as original estimates in English-speaking data (Jonason & Webster, 2010, 2012).

To measure individual differences in the Big Five traits, we used the Spanish (Renau et al., 2013) and Portuguese (Brito-Costa et al., 2015) translations of the Ten Item Personality Inventory (Gosling et al., 2003). It is composed of 10 items (2 per trait) where participants report how much (1 = *not at all*; 7 = *very much*) they think of themselves as *extraverted*, *enthusiastic* and *quiet, reserved* as measures of extraversion. Items were averaged to create indexes of openness ($\rho = .21$, $p < .01$), conscientiousness ($\rho = .25$, $p < .01$), extraversion ($\rho = .36$, $p < .01$), agreeableness ($\rho = .21$, $p < .01$), and neuroticism ($\rho = .43$, $p < .01$). Given the nature of this scale, factor analytic checks failed to provide a good fit, so they are not reported here.

To measure individual differences in the emotions of depression, stress, and anxiety, we used the Spanish (Daza et al., 2002) and Portuguese (Pais-Ribeiro et al., 2004) translations of the Depression Anxiety Stress Scale—21 (DASS; Henry & Crawford, 2005; Lovibond & Lovibond, 1995). It is composed of 21 items (7 per trait) where participants were asked their agreement (0 = *not at all*; 3 = *very much*) with items such as *couldn’t experience positive feeling* (i.e., depression), *aware of dryness in mouth* (i.e., anxiety), and *tended to over-react* (i.e., stress). While the total score was bloated-specific ($\alpha = .95$), we treated them as averages of depression ($\alpha = .89$), anxiety ($\alpha = .90$), and stress ($\alpha = .92$). The one-dimensional model (CFI = .87, RMSEA = .04 90% CI [.09, .10]) was inferior ($\Delta CFI = -.06$; $\Delta RMSEA = -.01$) to the three-dimensional model (CFI = .93, RMSEA = .03 90% CI [.06, .07]).

We measured individual differences in religiousness with a single item in each language. As a narrow-band construct, a single-item measure should be sufficient (e.g., Francis & Kay, 1984). The item asked participants how much (1 = *not at all*; 4 = *very much*) *do you consider yourself a religious person*.

Data Analyses

To test the structural properties of the Dirty Dozen scales in both languages, we started with two principal components analyses, one per country (SPSS). Then, we tested the fit of this model overall, in each country and each sex using confirmatory factor analysis and multigroup confirmatory factor analysis (R). Pearson correlations were used to

examine the associations between the Dark Triad traits and the nomological network tests (SPSS), and the moderation tests were conducted by splitting the file on the relevant moderator and rerunning those correlations (SPSS) and then comparing them using an online calculator for Fisher's z tests (quantpsy.org/corrttest/corrttest.htm), which allows for the comparison of independent correlations.

Results

To begin, we ran two principal components analyses, one per country. In Spain, we extracted three factors accounting for 43%, 15%, and 9% of the variance (total = 67.53%), all with Eigenvalues over one (Kaiser–Meyer–Olkin = .86, Bartlett's $\chi^2 = 2,293.84$, $p < .001$). In the Portuguese data, we also found three factors accounting for 42%, 16%, and 10% of the variance (total = 67.02%), all with Eigenvalues over one (Kaiser–Meyer–Olkin = .87, Bartlett's $\chi^2 = 5,981.22$, $p < .001$). Thus, we initially confirmed the three-factor solution for the Dirty Dozen translations in both languages. Next, to build on this, we ran a confirmatory factor analysis overall (CFI = .88, RMSEA = .10 90% CI [.09, .11]) and in Spanish (CFI = .88, RMSEA = .10 90% CI [.09, .11]) and Portuguese (CFI = .88, RMSEA = .10 90% CI [.09, .11]) participants and in men (CFI = .88, RMSEA = .10 90% CI [.09, .11]) and women (CFI = .88, RMSEA = .10 90% CI [.09, .11]), revealing weak albeit similar fits across groups. Indeed, this 3-dimensional was superior (Δ CFI = .28) to the one-dimensional solution (CFI = .60, RMSEA = .19 90% CI [.18, .19]) for the Dark Triad translations overall. We tested measurement invariance via multigroup confirmatory factor analysis. Nested models were organized in a hierarchical ordering with decreasing numbers of parameters, which entailed adding parameter constraints one at a time. Because the models for each level of invariance

were nested within the previous models, they are compared using the change in fit indices (Putnick & Bornstein, 2016). We generally found evidence for measurement invariance for the scale across the sexes and countries (Table 1). Specifically, we found configural, metric (Δ CFI $< .01$, Δ RMSEA $< .01$), and scalar invariance (Δ CFI = .01, Δ RMSEA $< .01$) between the sexes, whereas we found metric (Δ CFI = .01, Δ RMSEA = .01) and scalar invariance (Δ CFI = .01, Δ RMSEA = .01) between nations.

In Table 2, we report the correlations between the Dark Triad traits and the Big Five traits, scores on the DASS inventory, and the single-item measure of religiousness. Overall, all three traits were negatively correlated with agreeableness, religiousness, and conscientiousness and positively correlated with elevated depression, stress, and anxiety. Correlations between the Dark Triad traits were rather invariant across countries but differed more in men and women; a difference in correlation of about .10 yielded a significant ($p < .05$) Fisher's z test. The pivotal link between the Dark Triad traits and disagreeableness was present across the traits and countries but was stronger in psychopathy for men than women. For psychopathy and narcissism, the correlations with neuroticism were more strongly negative in women than in men. And across all three measures of the DASS, correlations with the Dark Triad traits were stronger in men than women. In addition, narcissism was correlated with psychopathy overall ($r = .34$, $p < .01$), in men ($r = .41$, $p < .01$), women ($r = .30$, $p < .01$), Portugal ($r = .32$, $p < .01$), and Spain ($r = .39$, $p < .01$). Narcissism was correlated with Machiavellianism overall ($r = .51$, $p < .01$), in men ($r = .47$, $p < .01$), women ($r = .46$, $p < .01$), Portugal ($r = .51$, $p < .01$), and Spain ($r = .43$, $p < .01$). Machiavellianism was correlated with psychopathy overall ($r = .52$, $p < .01$), in men ($r = .62$, $p < .01$), women ($r = .45$, $p < .01$), Portugal ($r = .51$, $p < .01$), and Spain ($r = .57$, $p < .01$). Using the same metric as above, none of these correlations differed by sex or country.

Table 1. Dirty Dozen scale: multigroup confirmatory factor analyses for the multidimensional solutions for the Dark Triad traits by sex and country

Comparison	Model	χ^2	<i>df</i>	CFI	Δ CFI	RMSEA	90% CI	Δ RMSEA
M v. W	Configural	952.68	111	.89	—	.10	[.09, -.10]	—
	Metric	952.86	111	.89	<.01	.10	[.09, -.10]	<.01
	Scalar	997.05	120	.88	.01	.10	[.09, -.10]	<.01
	Residual	1,173.18	132	.86	.02	.10	[.10, -.11]	<.01
P v. S	Configural	1043.95	111	0.88	—	.11	[.10, -.11]	—
	Metric	1,043.95	111	.88	.01	.10	[.10, -.11]	.01
	Scalar	1,159.25	120	.87	.01	.11	[.10, -.11]	.01

Note. Configural invariance tests whether the number of factors and the pattern of factor–indicator relationships are the same across groups. Metric invariance tests whether the factor loadings are equal across groups. Scalar invariance tests the equality of item thresholds. Residual invariance tests the equality of residual variances across groups. Because the models for each level of invariance are nested within the previous models, they are compared using the change in fit indices (Putnick & Bornstein, 2016). A change in CFI (Δ CFI) less than .01 and a change in RMSEA (Δ RMSEA) less than .015 suggest no meaningful decrease in model fit and supports measurement invariance (Chen, 2007); χ^2 tests ($p < .001$).

Table 2. Correlations between the Dark Triad traits and the Big Five traits, DASS scores, and religiosity overall, in the sexes and in two countries

Dark Triad triad and nomological test	Overall	Men	Women	Portugal	Spain
Narcissism					
Extraversion	.02	.02	.05	.01	.12*
Agreeableness	-.19**	-.15**	-.19**	-.18**	-.14**
Neuroticism	-.07*	-.21**	-.07*	-.10**	-.16*
Conscientiousness	-.09**	-.07	-.09**	-.09**	-.14**
Openness	-.06*	-.12*	-.04	-.06*	-.03
Depression	.09**	.25**	.07*	.10**	.15**
Anxiety	.07*	.24**	.05	.08**	.14**
Stress	.10**	.26**	.10**	.13**	.19**
Religiosity	-.09**	<.01	-.11**	-.13**	.07
Psychopathy					
Extraversion	-.08**	-.03	-.07*	-.11**	.04
Agreeableness	-.28**	-.41**	-.23**	-.29**	-.28**
Neuroticism	-.08*	-.19**	-.08**	-.06*	-.14**
Conscientiousness	-.18**	-.22**	-.16**	-.17**	-.21**
Openness	-.12*	-.16**	-.11**	-.13**	-.12*
Depression	.19**	.31**	.18	.20**	.16**
Anxiety	.14**	.35**	.11**	.14**	.16**
Stress	.12**	.26**	.13**	.11**	.18**
Religiosity	-.05*	-.06	-.03	-.08**	.02
Machiavellianism					
Extraversion	-.06	<-.01	-.05	-.07*	.07
Agreeableness	-.33**	-.37**	-.31**	-.34**	-.26**
Neuroticism	-.06*	-.15**	-.07*	-.09**	-.17**
Conscientiousness	-.19**	-.28**	-.14**	-.19**	.23**
Openness	-.16**	-.20**	-.14**	-.17**	.11*
Depression	.13**	.30**	.10**	.18**	.15**
Anxiety	.13**	.36**	.09**	.19**	.15**
Stress	.09**	.26**	.06**	.15**	.13**
Religiosity	-.06*	<.01	-.06*	-.06	.03

Note. Bolded pairs differed based on Fisher's z tests ($p < .05$). * $p < .05$. ** $p < .01$

Discussion

Measurement is an essential concern for researchers that is often taken for granted. Typically, personality researchers use scales to answer questions about some phenomena, assuming that the scale is sound. Those who are interested in scale development and psychometrics serve the larger pool of researchers by building and testing the scales that the field relies on. In this study, we have engaged in such research for two translations of the Dirty Dozen measure of the Dark Triad traits in two linguistically similar countries that share historical and cultural traditions: Portugal and Spain. We tested the factorial structure, measurement

invariance, and nomological network of the traits to fully explore the measurement equivalence of the translations.

The Dirty Dozen scale was designed to efficiently but effectively capture individual differences in the Dark Triad traits. The traits are independent-yet-related (Muris et al., 2017; Paulhus & Williams, 2002), which leads to the prediction that the scale should have a three-dimensional solution. Not only did we replicate this structure (Jonason, Kaufman, et al., 2013; Jonason & Webster, 2010) but also we found that it had measurement invariance across sex (configural, metric, scalar) and across countries (configural, metric, scalar) such as prior cross-national research on the Dark Triad Dirty Dozen (Rogoza et al., 2021). This is

rather important given the geo-histo-political proximity of our samples. Instead of comparing larger groups such as WEIRD and non-WEIRD nations, we ensured that collaborations on the Iberian Peninsula with these traits can be fruitfully conducted and they should be trustworthy as well. Comparisons across larger *cultural* groups are interesting but suspicious because what the differences are that drive differences between them is unclear, and these groupings assume homogeneity within them. Despite not capturing every invariance metric, we contend it may be sampling biases such as the differences in sample sizes of those used to calculate the different effects.

In addition, we found invariance (configural, metric, scalar) across the sexes, suggesting that research on sex differences in these traits in these two samples would also be trustworthy. Invariance here would assure researchers that the construct has the same structure in both sexes (Putnick & Bornstein, 2016). Nevertheless, given the centrality of sex differences in this area of research (Jonason et al., 2019, Jonason, Underhill, et al. 2020, Jonason, Žemojtel-Piotrowska, et al. 2020), such information will enable researchers interested in documenting and understanding sex differences in the Dark Triad traits and their ostensible consequences.

An examination of the structural properties, and their consistency across nations, is an interesting-albeit-limited form of validity, focused more on math than theory. To augment this, we also examined the correlations between the Dark Triad traits and several other correlates to better understand the validity of the translations. As centrally important for the Dark Triad traits, we replicated evidence for a disagreeable core of the traits (Jones & Figueredo, 2013; Jones & Neria, 2015), with an emphasis in men between psychopathy and disagreeableness. Alternatively, we found strong evidence – more so than disagreeableness – that the traits may be linked by adverse psychological health in the form of individual differences in depression, anxiety, and stress, effects that were reliably stronger in men than women. We also detected some effects for conscientiousness and openness that were rather weak but may be a function of, respectively, to the lack of interest in ideas and jobs that are artistic in nature (Jonason et al., 2014; Jonason, Richardson, & Potter, 2015) and impulsivity and rule-breaking tendencies of those characterized by the traits (Furnham et al., 2013). Finally, we found that those high in the Dark Triad traits were low in religiousness which may be the result of conflict between religious dogma restricting or discouraging the very acts and attitudes that those high in the Dark Triad traits tend to engage in (e.g., casual sex and crime; Jonason et al., 2012; Lyons & Jonason, 2015), such effects were little stronger in women than in men which may be related to women's stronger communal nature (Jonason, Duineveld, & Middleton, 2015; Jonason, Strosser, et al., 2015).

Limitations and Conclusion

This study had modest goals and has achieved them, to validate Spanish and Portuguese translations of the Dark Triad Dirty Dozen and compare their relative psychometric properties using classical test theory techniques. Nevertheless, there are several limitations to consider. First, the sample sizes were unbalanced for country-level comparisons although the sample sizes for either would be more than adequate on their own. This might mean, however, that estimates in the Portuguese sample are more trustworthy than the Spanish sample because the former has less erroring in describing its respective population. Second, we used Facebook advertising to collect our data which might make our sample WEIRDer than other studies that relied on college students for validation. That is, they may be even more affluent given their heightened age. Third, for the Big Five scale we used the Ten Item Personality Inventory (TIPI) which is composed of only 10 items. While such a measure is likely to only reveal the most robust correlations given increased error (Brito-Costa et al., 2015; Jonason et al., 2011), it fails to capture lower-order aspects for understanding the nature of each of the traits (Jonason, Kaufman, et al., 2013). Fourth, while the DASS is not brief, it might fail to differentiate the Dark Triad traits because the scales are too highly correlated themselves. Fifth, unsurprisingly, even small correlations were significant in our data given the large sample size, so it may appear to validate the Dirty Dozen through the detection of error correlations. Sixth, our examination of the relative psychometric properties of these translations were confined to classical test theory as opposed to item response theory and were confined to structural and convergent and divergent validity. Therefore, we failed to capture other issues such as criterion or predictive validity, making our study part of a larger enterprise to validate this scale in non-English-speaking populations. Despite this, we have provided at least initial evidence for the validity of the Spanish and Portuguese version of the Dirty Dozen scale overall and in relation to one another.

In the end, we have one conclusion to offer. The Dark Triad Dirty Dozen can be successfully translated and used in local and multinational collaborations of personality research. This conclusion is based on several outcomes such as (1) the three-dimensional model fitting the data better than the one-dimensional model overall, (2) the relative lack of measurement variance by sex and country, (3) similar rates of internal consistency in total and by sex and country, and (4) correlations with the Big Five traits, negative affect, and religiousness overall and across the sexes and countries. Although more psychometric work might be useful, our evidence should enable

research on the Iberian Peninsula to take place with this rather popular scale and to engage in other large-scale collaborations without having to prove their translations are trustworthy.

References

- Blötnner, C., Steinmayr, R., & Bergold, S. (2021). Malicious mind readers? A meta-analysis on Machiavellianism and cognitive and affective empathy. *Personality and Individual Differences*, 181, Article 111023. <https://doi.org/10.1016/j.paid.2021.111023>
- Brito-Costa, S., Jonason, P. K., Tosi, M., Antunes, R., Silva, S., & Castro, F. (2022). Options and opinions about COVID-19: Personality correlates and sex differences in two European countries. *PLoS One*, 17(6), Article e0268193. <https://doi.org/10.1371/journal.pone.0268193>
- Brito-Costa, S., Moisés, A., Almeida, H., & Castro, F. (2015). Psychometric properties of Ten Item Personality Inventory (TIPI). *International Journal of Developmental and Educational Psychology*, 1(2), 115–122.
- Czarna, A. Z., Jonason, P. K., Dufner, M., & Kossowska, M. (2016). The Dirty Dozen Scale: Validation of a Polish version and extension of the nomological net. *Frontiers in Psychology*, 7, Article 445. <https://doi.org/10.3389/fpsyg.2016.00445>
- Daza, P., Novy, D., Stanley, M., & Averill, P. (2002). The Depression Anxiety Stress Scale-21: Spanish translation and validation with a Hispanic sample. *Journal of Psychopathology & Behavioral Assessment*, 24(3), 195–205. <https://doi.org/10.1023/a:1016014818163>
- Francis, L. J., & Kay, W. K. (1984). Attitude towards religion: Definition, measurement and evaluation. *British Journal of Educational Studies*, 32(1), 45–50. <https://doi.org/10.2307/3121125>
- Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The Dark Triad of personality: A 10 year review. *Social and Personality Psychology Compass*, 7(3), 199–216. <https://doi.org/10.1111/spc3.12018>
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37(6), 504–528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *The British Journal of Clinical Psychology*, 44(2), 227–239. <https://doi.org/10.1348/014466505x29657>
- Jonason, P. K., Duineveld, J. J., & Middleton, J. P. (2015). Pathology, pseudopathology, and the Dark Triad of personality. *Personality and Individual Differences*, 78, 43–47. <https://doi.org/10.1016/j.paid.2015.01.028>
- Jonason, P. K., Jones, A., & Lyons, M. (2013). Creatures of the night: Chronotypes and the Dark Triad traits. *Personality and Individual Differences*, 55, 538–541. <https://doi.org/10.1016/j.paid.2013.05.001>
- Jonason, P. K., Kaufman, S. B., Webster, G. D., & Geher, G. (2013). What lies beneath the Dark Triad Dirty Dozen: Varied relations with the Big Five. *Individual Differences Research*, 11, 81–90.
- Jonason, P. K., Koenig, B., & Tost, J. (2010). Living a fast life. *Human Nature*, 21, 428–442. <https://doi.org/10.1007/s12110-010-9102-4>
- Jonason, P. K., Li, N. P., & Czarna, A. Z. (2013). Quick and dirty: Some psychosocial costs associated with the Dark Triad in three countries. *Evolutionary Psychology*, 11, 172–185. <https://doi.org/10.1177/147470491301100116>
- Jonason, P. K., Li, N. P., Webster, G. W., & Schmitt, D. P. (2009). The dark triad: Facilitating a short-term mating strategy in men. *European Journal of Personality*, 23, 5–18. <https://doi.org/10.1002/per.698>
- 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(1), 76–81. <https://doi.org/10.1016/j.paid.2013.02.010>
- Jonason, P. K., Luevano, V. X., & Adams, H. M. (2012). How the Dark Triad traits predict relationship choices. *Personality and Individual Differences*, 53, 180–184. <https://doi.org/10.1016/j.paid.2012.03.007>
- Jonason, P. K., Okan, C., & Özsoy, E. (2019). The Dark Triad traits in Australia and Turkey. *Personality and Individual Differences*, 149, 123–127. <https://doi.org/10.1016/j.paid.2019.05.058>
- Jonason, P. K., Richardson, E. N., & Potter, L. (2015). Self-reported creative ability and the Dark Triad traits: An exploratory study. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 488–494. <https://doi.org/10.1037/aca0000037>
- Jonason, P. K., Strosser, G. L., Kroll, C. H., Duineveld, J. J., & Baruffi, S. A. (2015). Valuing myself over others: The Dark Triad traits and moral and social values. *Personality and Individual Differences*, 81, 102–106. <https://doi.org/10.1016/j.paid.2014.10.045>
- Jonason, P. K., Teicher, E. A., & Schmitt, D. P. (2011). The TIPI's validity confirmed: Associations with mating strategies and self-esteem. *Individual Differences Research*, 9, 52–60.
- Jonason, P. K., Tosi, M., & Costa, S. (2022). *COVID in Portugal and Spain* [Data set]. <https://osf.io/c9ean/>
- Jonason, P. K., Underhill, D., & Navaratte, C. D. (2020). Understanding prejudice in terms of approach tendencies: The Dark Triad traits, sex differences, and political personality traits. *Personality and Individual Differences*, 153, Article 109617. <https://doi.org/10.1016/j.paid.2019.109617>
- Jonason, P. K., & Webster, G. D. (2010). The Dirty Dozen: A concise measure of the Dark Triad. *Psychological Assessment*, 22(2), 420–432. <https://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(4), 521–526. <https://doi.org/10.1016/j.paid.2011.11.023>
- Jonason, P. K., Wee, S., Li, N. P., & Jackson, C. (2014). Occupational niches and the Dark Triad traits. *Personality and Individual Differences*, 69, 119–123. <https://doi.org/10.1016/j.paid.2014.05.024>
- Jonason, P. K., Žemojtel-Piotrowska, M., Piotrowski, J., Sedikides, C., Campbell, W. K., Gebauer, J. E., Maltby, J., Adamovic, M., Adams, B. G., Kadiyono, A., Atitsogbe, K. A., Bundhoo, H. Y., Bălțătescu, S., Bilić, S., Brulin, J., Chobthamkit, P., Del Carmen Dominguez, A., Dragova-Koleva, S., El-Astal, S., ... Yahiaev, I. (2020). Country-level correlates of the Dark Triad traits in 49 countries. *Journal of Personality*, 88(6), 1252–1267. <https://doi.org/10.1111/jopy.12569>
- Jones, D. N. (2016). The nature of Machiavellianism: Distinct patterns of misbehavior. In V. Zeigler-Hill & D. K. Marcus (Eds.), *The dark side of personality*. APA.
- Jones, D. N., & Figueredo, A. J. (2013). The core of darkness: Uncovering the heart of the Dark Triad. *European Journal of Personality*, 27(6), 521–531. <https://doi.org/10.1002/per.1893>
- Jones, D. N., & Neria, A. L. (2015). The Dark Triad and dispositional aggression. *Personality and Individual Differences*, 86, 360–364. <https://doi.org/10.1016/j.paid.2015.06.021>
- Kajonius, P. J., Persson, B. N., Rosenberg, P., & Garcia, D. (2016). The (mis)measurement of the Dark Triad Dirty Dozen: Exploitation at the core of the scale. *PeerJ*, 4, Article e1748. <https://doi.org/10.7717/peerj.1748>
- Kavanagh, P. S., Signal, T. D., & Taylor, N. (2013). The Dark triad and animal cruelty: Dark personalities, dark attitudes, and dark behaviors. *Personality and Individual Differences*, 55(6), 666–670. <https://doi.org/10.1016/j.paid.2013.05.019>

- 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>
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335–343. [https://doi.org/10.1016/0005-7967\(94\)00075-u](https://doi.org/10.1016/0005-7967(94)00075-u)
- Lyons, M., & Jonason, P. K. (2015). Dark Triad, tramps, and thieves: Psychopathy predicts a diverse range of theft-related attitudes and behaviors. *Journal of Individual Differences*, 36(4), 215–220. <https://doi.org/10.1027/1614-0001/a000177>
- Macedo, A., Araújo, A., Cabaços, C., Brito, M., Mendonça, L., & Pereira, A. (2017). Personality Dark Triad: Portuguese validation of the Dirty Dozen. *European Psychiatry*, 41(S1), 7–11. <https://doi.org/10.1016/j.eurpsy.2017.01.1268>
- Maneiro, L., López-Romero, L., Gómez-Fraguela, J., Cutrín, O., & Romero, E. (2019). Pursuing the Dark Triad. *Journal of Individual Differences*, 40(1), 36–44. <https://doi.org/10.1027/1614-0001/a000274>
- 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*, 26(1), 326–331. <https://doi.org/10.1037/a0035084>
- 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>
- Nowak, B., Brzóska, P., Piotrowski, J. P., Sedikides, C., Żemojtel-Piotrowska, M., & Jonason, P. K. (2020). Adaptive and maladaptive behavior during the COVID-19 pandemic: The roles of Dark Triad traits, collective narcissism, and health beliefs. *Personality and Individual Differences*, 167, 110232. <https://doi.org/10.1016/j.paid.2020.110232>
- Özsoy, E., Rauthmann, J. F., Jonason, P. K., & Ardiç, K. (2017). Reliability and validity of the Turkish versions of Dark Triad Dirty Dozen (DTDD-T), Short Dark Triad (SD3-T), and Single Item Narcissism Scale (SINS-T). *Personality and Individual Differences*, 117, 11–14. <https://doi.org/10.1016/j.paid.2017.05.019>
- Pais-Ribeiro, J., Honrado, A., & Leal, I. (2004). Contribuição para o estudo da adaptação portuguesa das escalas de ansiedade depressão e stress de 21 itens de Lovibond [Contribution to the study of the Portuguese adaptation of Lovibond's 21 items of anxiety and depression scales]. *Psychology, Health, & Medicine*, 5, 229–239.
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36(6), 556–563. [https://doi.org/10.1016/s0092-6566\(02\)00505-6](https://doi.org/10.1016/s0092-6566(02)00505-6)
- Pineda, D., Sandín, B., & Muris, P. (2020). Psychometrics properties of the Spanish version of two Dark Triad scales: The Dirty Dozen and the Short Dark Triad. *Current Psychology*, 39(5), 1873–1881. <https://doi.org/10.1007/s12144-018-9888-5>
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, 41, 71–90. <https://doi.org/10.1016/j.dr.2016.06.004>
- Renau, V., Obersta, U., Gosling, S., Rusiñola, J., & Chamarroc, A. (2013). Translation and validation of the Ten Item Personality Inventory into Spanish and Catalan. *Revista de Psicologia, Ciències de l'Educació i de l'Esport*, 31(2), 85–97.
- Rogoza, R., Żemojtel-Piotrowska, M., Jonason, P. K., Piotrowski, J., Campbell, K. W., Gebauer, J. E., Maltby, J., Sedikides, C., Adamovic, M., Adams, B. G., Ang, R. P., Ardi, R., Atitsogbe, K. A., Baltatescu, S., Bilić, S., Bodroža, B., Gruneau Brulin, J., ... Włodarczyk, A. (2021). Structure of Dark Triad Dirty Dozen across eight world regions. *Assessment*, 28(4), 1125–1135. <https://doi.org/10.1177/1073191120922611>
- 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. <https://doi.org/10.1016/j.paid.2017.06.044>
- Schimmenti, A., Jonason, P. K., Passanisi, A., La Marca, L., Di Dio, N., & Gervasi, A. M. (2019). Exploring the dark side of personality: Emotional awareness, empathy, and the Dark Triad traits in an Italian sample. *Current Psychology*, 38(1), 100–109. <https://doi.org/10.1007/s12144-017-9588-6>
- Sedikides, C. (2021). In search of Narcissus. *Trends in Cognitive Sciences*, 25(1), 67–80. <https://doi.org/10.1016/j.tics.2020.10.010>
- Tamura, A., Oshio, A., Tanaka, K., Masui, K., & Jonason, P. K. (2015). Development, reliability, and validity of the Japanese version of the Dark Triad Dirty Dozen (DTDD-J). *The Japanese Journal of Personality*, 24, 26–37. <https://doi.org/10.2132/personality.24.26>
- Urbonaviciute, G., & Hepper, E. G. (2020). When is narcissism associated with low empathy? A meta-analytic review. *Journal of Research in Personality*, 89, Article 104036. <https://doi.org/10.1016/j.jrp.2020.104036>
- Wai, M., & Tiliopoulos, N. (2012). The affective and cognitive empathic nature of the Dark Triad of personality. *Personality and Individual Differences*, 52, 794–799. <https://doi.org/10.1016/j.paid.2012.01.008>
- Walker, S. A., Olderbak, S., Gorodezki, J., Zhang, M., Ho, C., & MacCann, C. (2022). Primary and secondary psychopathy relate to lower cognitive reappraisal: A meta-analysis of the Dark Triad and emotion regulation processes. *Personality and Individual Differences*, 187, Article 111394. <https://doi.org/10.1016/j.paid.2021.111394>
- Webster, G. D., & Jonason, P. K. (2013). Putting the "IRT" in "Dirty": Item response theory analyses of the Dark Triad Dirty Dozen—An efficient measure of narcissism, psychopathy, and Machiavellianism. *Personality and Individual Differences*, 54(2), 302–306. <https://doi.org/10.1016/j.paid.2012.08.027>
- Zajenkowski, M., Jonason, P. K., Leniarska, M., & Kozakiewicz, Z. (2020). Who complies with the restrictions to reduce the spread of COVID-19? Personality and perceptions of the COVID-19 situation. *Personality and Individual Differences*, 166, Article 110199. <https://doi.org/10.1016/j.paid.2020.110199>

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Conflict of Interest

The authors have no relevant financial or nonfinancial interests to disclose.

Publication Ethics

All subjects gave their informed consent to participate in the present study, were debriefed upon completion, and the

protocol was carried out in accordance with the ethical and applicable regulations and guidelines of the Portuguese Psychologists Association as approved by the Ethics Committee of Infad.

Open Science

Open Data: The authors confirm that there is sufficient information for an independent researcher to reproduce all of the reported results (Jonason, Tosi, & Costa, 2022). Data and supplemental files are located on the Open Science Framework at <https://osf.io/c9ean/>.

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