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A normative study of the Coolidge axis-II inventory, short form

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Coolidge (2001) has developed a short-form, the short Coolidge axis-two inventory (SCATI), a 70-item version of the original 225-item Coolidge axis-II inventory (CATI). In a normative study of this instrument, the test was found to have many of the psychometric properties of the original. Multivariate analysis revealed that the internal structure of the SCATI is similar to the original.

The Coolidge axis-II inventory (CATI, Coolidge, 1993; Coolidge & Merwin, 1992) is a 225-item self-report inventory designed to measure the DSM-IV personality disorders. The test was constructed in a similar manner to the Personality Diagnostic Questionnaire (Hyler *et al.*, 1989) by phrasing the DSM criteria into a questionnaire format. Coolidge and Merwin (1992) demonstrated a 50% concordance rate with clinical diagnosis and lower false positives when compared with the Millon clinical multi-axial inventory-II (Millon, 1987). The test has demonstrated reliability and validity and has been used in a variety of contexts, such as attributes of psychology majors in college (McCray, King, & Bailly, 2005), overall patterns of adaptation (Rubino, Pezzarossa, & Siracusano, 2003), women in multiple abusive relationships (Coolidge & Anderson, 2002), younger and older adults (Segal, Hook, & Coolidge, 2001) and academic performance (King, 2000).

Coolidge (2001) has developed the short-form, the short Coolidge axis-two inventory (SCATI), a 70-item version of the original 225-item test. The SCATI has been recently used in an investigation into the relationship between PDs (Personality Disorders) and the management of chronic medical illness (Benight *et al.*, 2002). However, to date, there are no psychometric studies of the instrument. As normative studies are a crucial part of test development and validation, the purpose of this study is to investigate the psychometric properties of the SCATI with a large Canadian sample.

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Method

Participants

The sample consisted of $N = 840$ introductory psychology students (561 females, 267 males, 12 no gender reported). The sample ranged from 18 to 51 years, $M = 20.31$, $SD = 2.70$.

Instrument

The SCATI (Coolidge, 2001) was developed using the items from the full version of the CATI. The items were selected based upon their expected frequency in regards with the disorder, where that information was available. Therefore, the top five criteria were chosen for every disorder and made into an item. For example, in the DSM the first criterion for Obsessive-Compulsive PD (OCPD) is (1) is preoccupied with details, etc.; therefore, this is the first item on the SCATI's OCPD scale (Coolidge, 2005).[1]

Results

The means, SDs, skewness and kurtosis for the scales are reported in Table 1. The test uses a -1 (Strongly False) to -4 (Strongly True) Likert-type scale. With the exception of the obsessive-compulsive with six items (range 6–24) and Narcissistic scale with four items (range 4–16), all the scales have five items, with a possible range 5–20.

The internal reliability of the SCATI ranged from $\alpha = .462$ to .726 with an average of $\alpha = .619$. These results compare to the original test that has an average of 25 items and a range of $\alpha = .700$ (obsessive-compulsive) to $\alpha = .864$ (dependent) with an average of $\alpha = .780$ (Watson & Sinha, 1996).

There were several gender differences with the males having higher antisocial, narcissistic, passive–aggressive, sadistic, self-defeating, schizoid and schizotypal scores and the females having higher Dependent PD scores. The effect sizes for gender differences ranged from 'medium', Cohen's $d = 0.25$, for the schizoid to 'large', Cohen's $d = 1.13$, for the sadistic PD.

A principle component analysis (PCA) with a Varimax rotation was performed on the 10 DSM-IV PD scales (Table 2). A three-component solution was obtained, accounting for 61.46% of the variance. While there are some differences, the obtained components are similar to those reported by Coolidge and Merwin (1992) and Watson and Sinha (1996). Consistent with those studies, PCA with Varimax rotation generated three components: (1) avoidant behaviour, general maladjustment and anxious features; (2) antisocial/sadistic with paranoid, suspicious themes and (3) a pathological continuum (histrionic PD vs. schizoid PD) of introversion–extroversion.

The results are similar to previous research by Deary, Peter, Austin, and Gibson (1998) relating Eysenck and Eysenck (1976) PEN model personality disorder. Component 1 is similar to neuroticism, component 2 like psychoticism and component 3 is similar to extroversion–introversion. While many of the disorders are clearly associated with one factor, paranoid and self-defeating PDs appear to have elements of neuroticism and psychoticism as has been noted by Deary *et al.* (1998).

A confirmatory factor analysis (CFA) was conducted to further test the correspondence between the CATI and the SCATI. As Coolidge and Merwin (1992)

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[1] *The current version of the SCATI contains five items for each scale.*

Table 1. Means and *SD*s of SCATI scales

	α	Total M (SD)	Skew.	Kurt.	Males M (SD)	Females M (SD)	F
Antisocial	.659	8.79 (2.83)	.748	.106	9.73 (2.87)	8.23 (2.67)	32.43*
Avoidant	.726	10.54 (3.02)	.317	−.376	10.63 (3.00)	10.50 (3.05)	0.97
Borderline	.585	10.89 (2.93)	.119	−.348	10.74 (3.01)	10.96 (2.89)	0.00
Dependent	.626	11.94 (2.72)	.044	−.159	11.25 (2.67)	12.28 (2.69)	12.26*
Histrionic	.673	13.72 (2.86)	−.153	−.214	13.49 (2.78)	13.84 (2.88)	2.27
Narcissistic	.462	11.29 (2.17)	−.228	−.037	11.69 (2.26)	11.10 (2.10)	8.79*
Obsessive	.601	13.83 (3.02)	.104	−.234	13.85 (2.91)	13.85 (3.07)	0.01
Paranoid	.651	11.28 (2.83)	.189	−.278	11.69 (2.77)	11.05 (2.81)	6.73
Schizoid	.628	7.56 (2.41)	.945	.202	8.30 (2.51)	7.18 (2.25)	30.69*
Schizotypal	.584	9.65 (2.53)	.280	.272	10.06 (2.58)	9.42 (2.49)	18.33*
Depressive	.707	9.87 (2.91)	.433	−.198	9.68 (2.91)	9.93 (2.91)	0.39
Passive	.517	10.99 (2.45)	.178	−.166	12.08 (2.64)	10.67 (2.41)	22.55*
Sadistic	.475	9.25 (2.84)	.606	−.003	11.19 (2.77)	8.29 (2.35)	157.51*
Self-defeating	.512	9.15 (2.41)	.535	−.020	9.61 (2.50)	8.91 (2.33)	10.98*

Note. *Significant Bonferonni corrected *F* test *p* (.05/14) = .0036, with equal *N* values. Skew., skewness; Kurt., kurtosis.

originally reported a Varimax-rotated PCA, this solution was used as the hypothesis matrix. The analysis was conducted with a Procrustes rotation (Cliff, 1966) using COMPARE (Reddon, 2000). This software allows a comparison of the Varimax-rotated loadings for the two sets of data. The obtained congruence coefficients were .90, .93 and .81 indicating a strong degree of equivalence for the factors. The trace of the sum of squares error matrix was 2.16, demonstrating a reasonable fit for the two datasets.

Discussion

This study illustrates the utility of the SCATI. The test appears to retain many of the psychometric properties of the full measure. Considering that the scales have been reduced from an average of approximately 25 items to 5 items in length, the SCATI has good internal reliability. PCA and CFA reveal that the internal structure of the test has dimensions similar to the full CATI. Therefore, the SCATI is an instrument of value for further research.[2]

Overall, the results for gender differences are in the expected direction of clinical findings (Hartung & Widiger, 1998). However, the gender differences obtained can vary substantially with differences in methodology and between samples (Corbitt & Widiger, 1995). In this sample, the SCATI had no differences for borderline and histrionic PD. It is possible that males with borderline or histrionic traits are under-represented in the clinical population due to gender bias. However, these traits are evident in their responses to a self-report inventory, therefore no obtained gender difference with the self-reported PD traits.

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[2] *The SCATI is available for research purposes free of charge from fcoolidg@uccs.edu.*

Table 2. Principle component analysis of SCATI PD scales

Component	1	2	3
Antisocial	.147	.731	.181
Avoidant	.584	.118	− .464
Borderline	.753	.295	.102
Dependent	.837	− .031	.004
Depressive	.804	.159	− .112
Histrionic	.023	.102	.841
Narcissistic	.262	.394	.533
Obsessive-compulsive	.564	.122	.261
Passive-aggressive	.484	.622	.030
Paranoid	.512	.541	− .064
Schizotypal	.492	.499	− .424
Schizoid	.394	.505	− .482
Sadistic	− .067	.840	.094
Self-defeating	.590	.590	− .124

Note. Varimax rotation.

The study is limited by the use of a college student sample with very few participants over the age of 25. The instrument requires validation with additional non-clinical and clinical populations. Benight *et al.* (2002) demonstrated the utility of the instrument in a patient population. The current study demonstrates the value of the instrument in a normal population and that the SCATI is a useful, psychometrically sound, reduced version of the 225-item CATI.

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