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Replicability and cross-gender invariance of a two-dimensional model of antisociality in male and female college students

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ABSTRACT

A confirmatory factor analysis of indicators from the Psychological Inventory of Criminal Thinking Styles-Layperson Edition (PICTS-L), Levenson Self-Report Psychopathy (LSRP) scale, and Personality Assessment Inventory (PAI) Antisocial Features (ANT) scale was used to test the replicability and cross-gender invariance of a two-dimensional (proactive, reactive) model of antisociality. Employing a sample of 478 male and female students, the two-dimensional model was contrasted with a one-factor general deviance model and a two-factor social learning model (criminal thinking, antisocial behavior). Fit statistics indicated that the two-dimensional model achieved a significantly better fit than the alternative general deviance and social learning models. The results of a two-group confirmatory factor analysis of 208 male college students and 270 female college students revealed that the two-factor model was invariant across gender.

1. Introduction

A two-dimensional model of antisocial behavior has been proposed in which adult criminality and antisociality are considered remnants or extensions of childhood aggression (Walters, 2008; Walters, in press). Like childhood aggression, adult antisociality can be organized into two distinct but substantively correlated dimensions, proactive and reactive. Whereas proactive antisociality is planned, cold-blooded, and goal-directed, reactive antisociality is unplanned, hot-blooded, and impulsive. Despite a moderately high degree of intercorrelation, proactive, and reactive antisociality correlate differentially with specific external criteria. For instance, proactive antisociality correlates higher with positive outcome expectancies for crime/antisociality than does reactive antisociality, whereas reactive antisociality correlates higher with hostile attribution biases (Smithmyer, Hubbard, & Simons, 2000). Criminality, according to this model, is a function of two overlapping dimensions, proactive criminal thinking/antisociality and reactive criminal thinking/antisociality.

One way to assess model validity is to contrast it with competing models. One such competing model is the general deviance paradigm in which nontraditional attitudes and behaviors toward sex, drugs, religion, and the law are held to load onto a single latent construct (McGee & Newcomb, 1992). Another potential competing model against which the two-dimensional model could be compared is the social learning model in which antisociality is divided into its cognitive and behavioral components (Bandura, 1986). Using a statistical procedure like structured equation modeling (SEM) it is possible to directly compare these competing models on the same group of participants for the purpose of determining the relative strengths and weaknesses of each model.

A study directly comparing different models of antisociality was recently published. In that study, indicators from the Psychological Inventory of Criminal Thinking Styles (PICTS; Walters, 1995), Levenson Self-Report Psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), and Antisocial Features scale (ANT) of the Personality Assessment Inventory (PAI; Morey, 2007) were subjected to SEM-based confirmatory factor analysis (CFA) and path regression analysis. The results of the CFA indicated that a two-dimensional model composed of proactive and reactive antisociality achieved significantly better fit in two different samples of incarcerated offenders than a one-factor general deviance model and a two-factor social learning model (criminal thinking, antisocial behavior). Path analysis produced results consistent with the view that proactive antisociality is more strongly associated with positive outcome expectancies for crime than hostile attribution biases, whereas reactive antisociality does just the opposite (Walters, 2008).

The purpose of the present study is twofold. First, employing the same 10 PICTS/LSRP/ANT indicators as Walters (2008), the current investigation will compare the relative fit of the two-dimensional, one-factor general deviance, and two-factor social learning models in accounting for the same 10 indicators in a

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group of mixed gender college students because the Walters (2008) study was conducted on incarcerated offenders. If replication is achieved in the first set of analyses a second set of analyses will be conducted to determine whether the two-dimensional model is configurally and factorially invariant in male and female respondents given the fact that the Walters' (2008) investigation was conducted solely on males. The first hypothesis predicted that the two-dimensional model would achieve significantly better fit for the entire (mixed gender) sample than either the general deviance or social learning models. The second hypothesis predicted that the two-dimensional model would be invariant across gender.

2. Method

2.1. Participants

The sample for this study was composed of 208 male and 270 female undergraduate students enrolled in classes at a branch campus of a major state university in the northeastern United States. Participants ranged in age from 18 to 59 ($M = 20.55$, $SD = 5.20$), although 76.0% of the sample were between the ages of 18 and 20. The racial breakdown for the sample was 67.9% white, 23.7% black, 2.3% Hispanic, 3.0% Asian, and 3.0% other. There were no significant gender differences in age or race ($p \geqslant .10$).

2.2. Measures

The PICTS is an 80-item self-report inventory designed to measure criminal thinking in offender populations. James Kaufman recently created a layperson's version of the PICTS (PICTS-L) by modifying item wording and in some cases item content so that the questions were more applicable to non-offenders. Each item on the PICTS is rated on a four-point Likert-type scale (*strongly agree*, *agree*, *uncertain*, *disagree*), with strongly agree responses earning respondents four points, agree responses earning respondents three points, uncertain responses earning respondents two points, and disagree responses earning respondents one point. Besides two 8-item validity scales, Confusion-revised (Cf-r) and Defensiveness-revised (Df-r), the PICTS generates scores for eight non-overlapping 8-item thinking style scales—Mollification (Mo), Cutoff (Co), Entitlement (En), Power Orientation (Po), Sentimentality (Sn), Superoptimism (So), Cognitive Indolence (Ci), and Discontinuity (Ds). The test–retest reliability, internal consistency, and preliminary validity of the PICTS-L have been found to be satisfactory (J. Kaufman, personal communication) and comparable to what has been reported for the standard PICTS (Walters, 2002).

The LSRP is a 26-item self-report measure of psychopathy designed for nonincarcerated populations. Primary psychopathy (LSRP-PP: affective and interpersonal features) is measured with the first 16 items and secondary psychopathy (LSRP-SP: chronic antisocial lifestyle) is measured with the last 10 items of the LSRP. Each item is rated on a 4-point Likert-type scale (*disagree strongly*, *disagree somewhat*, *agree somewhat*, *agree strongly*), with values of 1, 2, 3, and 4 being awarded for disagree strongly, disagree somewhat, agree somewhat, and agree strongly responses, respectively, on 19 items. In an attempt to control for response style and test-taking sets like social desirability the remaining seven items are reverse scored. Reliability (LSRP-PP = .82; LSRP-SP = .63) and validity (correlations with Hare's (2003) Psychopathy Checklist-Revised and passive avoidance errors) data on the LSRP are generally positive (Brinkley, Schmitt, Smith, & Newman, 2001; Epstein, Poythress, & Brandon, 2006), although questions have been raised about the construct validity of the LSRP-PP (Lilienfeld & Fowler, 2006).

The PAI (Morey, 2007) is a 344-item self-report measure that is rated on a four-point scale (1 = *very true*, 2 = *mainly true*, 3 = *slightly true*, 4 = *false*). The 24 items that form the three 8-item non-overlapping subscales of the Antisocial Features (ANT) scale, Antisocial Behaviors (ANT-A), Egocentricity (ANT-E), and Stimulus Seeking (ANT-S), were administered as a stand alone procedure rather than being embedded in the 344-item PAI. Comparable results are obtained when the ANT and PICTS General Criminal Thinking (GCT) scales are correlated using the stand alone, $r(N = 327) = .53$ (Walters & Knight, submitted), and embedded, $r(N = 293) = .51$ (Walters & Geyer, 2005), procedures and when the ANT and a diagnosis of antisocial personality disorder on the Structured Interview for DSM-IV Axis II Personality Disorders (SCID-II: First, Gibbon, Spitzer, Williams, & Benjamin, 1997) are correlated using the stand alone, $r(N = 327) = .49$ (Walters & Knight, submitted), and embedded, $r(N = 1345) = .51$ (Guy, Poythress, Douglas, Skeem, & Edens, 2008), procedures.

2.3. Procedure

Inquiries were directed to instructors who taught classes at the branch campus where this study took place about permitting students who were enrolled in their classes to be approached about participating in a project on antisocial attitudes. In those classes where the instructor gave his or her permission for investigators to speak to students the project was explained and students expressing an interest in participating in the project were administered a packet containing the PICTS-L, LSRP, and ANT. Students were asked to complete the surveys anonymously, listing only their age, gender, and ethnic status. Informed consent forms were passed out along with the packet of questionnaires and anonymous completion of the questionnaire was viewed as providing implied consent. There were 29 potential participants whose survey results were not included in the analysis because they left more than five items unanswered on the PICTS-L ($n = 4$), achieved a T-score $\geqslant 100$ on the PICTS-L Confusion scale ($n = 2$), left more than one item unanswered on the LSRP ($n = 11$), left more than one item unanswered on the ANT ($n = 8$), or failed to provide their gender ($n = 4$). Valid protocols with missing items were prorated by calculating an average item score for the items that were completed and adding this number to the raw total for the scale.

Confirmatory factor analysis (CFA) using Maximum Likelihood Estimation (MLE) was employed in this study and version 4.0 of the AMOS structural equation modeling (SEM) program (Arbuckle & Wothke, 1999) was used to calculate each CFA. As in the previous two Walters (2008) and Walters (in press) investigations, the PICTS Mollification (Mo), Cutoff (Co), Entitlement (En), Power Orientation (Po), Superoptimism (So), Cognitive Indolence (Ci), and Discontinuity (Ds) scales, the LSRP secondary psychopathy scale (LSRP-SP), and the ANT Egocentricity (ANT-E) and Stimulus Seeking (ANT-S) scales served as indicators in this study. Baseline models for male and female participants were constructed, followed by a comparison of the two-dimensional model with competing one-dimensional and social learning models in the full (male and female) sample and an analysis of cross-gender configural and factorial invariance. Configural invariance was tested by fitting the 10 indicators to the two factors of the two-dimensional model for males and females separately. Factorial invariance was tested by fitting the 10 indicators to the two factors of the two-dimensional model in males and forcing the factor loadings, variances, and covariance from the male subsample onto the female subsample.

The rationale for assigning indicators to the proactive and reactive factors of the two-dimensional model and to the cognitive and behavioral factors of the social learning model is described in Walters (2008). In brief, PICTS scales loading heavily onto a wilful criminality factor (Egan, McMurran, Richardson, & Blair, 2000) and the PAI scale marked by the pursuit of personal goals were assigned to the proactive dimension, whereas PICTS scales loading heavily