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A Coffee Can, factor analysis, and prediction of antisocial behavior: The structure of criminal risk

Daryl G. Kroner^{a,*}, Jeremy F. Mills^b, John R. Reddon^c

^a*Pittsburgh Institution, P.O. Box 4510, Kingston, Ontario, Canada K7L 5E5*

^b*Bath Institution, Bath, Ontario, Canada*

^c*Alberta Hospital Edmonton, Edmonton, Alberta, Canada*

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Abstract

The predictive accuracy of the Psychopathy Checklist-Revised, Level of Service Inventory-Revised, Violence Risk Appraisal Guide, and the General Statistical Information on Recidivism were compared to four instruments randomly generated from the total pool of original items. None of the four original instruments better predicted post-release failure than the four randomly generated instruments. These results suggest two conclusions: (a) the instruments are only measuring criminal risk, and (b) no single instrument has captured sufficient risk assessment theory to result in better prediction than randomly derived instruments measuring criminal risk. A two-stage factor analysis was completed on 1614 cases. This analysis of the risk items indicated a 4-factor solution and all 4 factors were equal to the original instruments in predicting post-release failure. Thus, the original instruments did not improve prediction over randomly structured scales, nor did the restructuring of items improve risk assessment, suggesting substantial deficiencies in the conceptualization of risk assessment and instrumentation. We argue that developing a risk-based construct, which involves hypothesis testing and an explanation of behavior, is the optimal method to advance risk assessment within the criminal justice and mental health systems. Such an approach would provide targeted areas for clinical intervention that are salient to risk.

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* Corresponding author. Tel.: +1 613 536 4834; fax: +1 613 536 6388.

E-mail address: kronerdg@csc-scc.cg.ca (D.G. Kroner).

1. Introduction

Approximately 20 years ago forensic psychiatry and psychology's role in prediction was in a crisis. Several verdicts had been pronounced declaring that clinicians were unable to make a meaningful contribution to the prediction of dangerousness or violence (Monahan, 1981; Quinsey & Abtmann, 1979; Steadman & Coccozza, 1974). Clinical judgement and the use of self-report measures proved to be ineffective in the prediction task. The pursuit of new instruments for prediction has proved successful, and the once unrealistic correlation of greater than 0.30 became a more common occurrence.

In the past 10 years several instruments have been used in criminal risk assessment. Each of these instruments has drawn upon different psychological traditions and incorporated a variety of psychometric and statistical techniques in their development. Regardless of their intended purpose or implicit orientation, these instruments have been shown to be predictive of outcome behaviors beyond the samples on which they were developed. The Psychopathy Checklist-Revised (PCL-R; Hare, 1991) comes from a personality/psychopathology orientation and was initially designed to reliably distinguish psychopaths from nonpsychopaths. Recent research indicates that the PCL-R predicts both violent and general recidivism (Hemphill, Hare, & Wong, 1998; Salekin, Rogers, & Sewell, 1996; Serin, 1996). The Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) had its beginnings in social learning theory. Although initially designed for determining the level of supervision among probationers, the LSI-R has been shown to predict violence (Gendreau, Goggin, & Smith, 2002; Mills, Kroner, & Hemmati, 2003).

Different than the PCL-R and the LSI-R's initial purposes, the following two instruments were explicitly developed to predict re-offending behavior upon release. The Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993) was developed among psychiatric patients within a mental health setting. The initial purpose of the VRAG was to predict violence, but it also predicts general recidivism (Glover, Nicholson, Hemmati, Bernfeld, & Quinsey, 2002). The General Statistical Information on Recidivism (GSIR; Nufield, 1982) was developed as an actuarial instrument designed to measure general re-offending among a Canadian federal correctional sample. Yet, it is predictive of violent recidivism (Glover et al., 2002; Mills, Kroner, & Hemmati, 2004). The PCL-R, LSI-R, and VRAG were not developed to predict institutional adjustment, but they are able to do so (Hare & McPherson, 1984; Kroner & Mills, 2001; Serin, DeV.Peters, & Barbaree, 1990). These four instruments were chosen because of their frequent use in risk assessment and because they have been cross-validated beyond their developmental samples.

Although these instruments have various strong and clear theoretical rationales with diverse developmental strategies, the correlations among these instruments are substantial, ranging from 0.46 to 0.78 (Belfrage, 1998; Glover et al., 2002; Loza & Dhaliwal, 1997; Loza & Simourd, 1994; Simourd & Hoge, 2000). These correlations, though, only represent between 21% and 60% of the variance (correlations squared) among the various scales. Commonalties do exist, but from a concurrent validity perspective, this would not be evidence that the instruments are measuring the same construct. Furthermore, applying any psychometric model of parallel-tests (classical test theory, tau-equivalent, congeneric, general factor, item response theory; DeVellis, 1991), it could not be assumed that the four instruments are measuring the same construct.

Despite these instruments having a different orientation in their development and the evidence that they are measuring different constructs, the relationship with criminal behavior has been quite similar. When the predictive efficiencies are directly compared within samples, minimal statistical differences are

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