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A comparative study of violence risk assessment tools: A systematic review and metaregression analysis of 68 studies involving 25,980 participants

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ABSTRACT

There are a large number of structured instruments that assist in the assessment of antisocial, violent and sexual risk, and their use appears to be increasing in mental health and criminal justice settings. However, little is known about which commonly used instruments produce the highest rates of predictive validity, and whether overall rates of predictive validity differ by gender, ethnicity, outcome, and other study characteristics. We undertook a systematic review and meta-analysis of nine commonly used risk assessment instruments following PRISMA guidelines. We collected data from 68 studies based on 25,980 participants in 88 independent samples. For 54 of the samples, new tabular data was provided directly by authors. We used four outcome statistics to assess rates of predictive validity, and analyzed sources of heterogeneity using subgroup analysis and metaregression. A tool designed to detect violence risk in juveniles, the Structured Assessment of Violence Risk in Youth (SAVRY), produced the highest rates of predictive validity, while an instrument used to identify adults at risk for general offending, the Level of Service Inventory – Revised (LSI-R), and a personality scale commonly used for the purposes of risk assessment, the Psychopathy Checklist – Revised (PCL-R), produced the lowest. Instruments produced higher rates of predictive validity in older and in predominantly White samples. Risk assessment procedures and guidelines by mental health services and criminal justice systems may need review in light of these findings.

Contents

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1. Introduction

Risk assessment tools assist in the identification and management of individuals at risk of harmful behaviour. Due to the potential utility of such tools, researchers have developed many risk assessment instruments, the manuals for which promise high rates of construct and predictive validity (Bonta, 2002). Recent meta-analyses have identified over 120 different risk assessment tools currently used in general and psychiatric settings (for a metareview, see Singh & Fazel, 2010). These measures range from internationally utilized tools such as the Historical, Clinical, Risk Management – 20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997) to locally developed and implemented risk measures such as the North Carolina Assessment of Risk (NCAR; Schwalbe, Fraser, Day, & Arnold, 2004). Given the large selection of tools available to general and secure hospitals and clinics, prisons, the courts, and other criminal justice settings, a central question is which measures have the highest rates of predictive accuracy. To date, no single risk assessment tool has been consistently shown to have superior ability to predict offending (Campbell, French, & Gendreau, 2007; Gendreau, Goggin, & Smith, 2002; SBU, 2005; Walters, 2003), and several major uncertainties remain regarding the populations and settings in which risk assessments may be accurately used (Leistico, Salekin, DeCoster, & Rogers, 2008; Guy, Edens, Anthony, & Douglas, 2005; Schwalbe, 2008; Smith, Cullen, & Latessa, 2009).

Such uncertainties are important given that risk assessment tools have been increasingly used to influence decisions regarding accessibility of inpatient and outpatient resources, civil commitment or preventative detention, parole and probation, and length of community supervision in many Western countries including the US (Cottle, Lee, & Heilbrun, 2001; Schwalbe, 2008), Canada (Gendreau, Goggin, & Little, 1996; Hanson & Morton-Bourgon, 2007), UK (Kemshall, 2001; Khiroya, Weaver & Maden, 2009), Sweden (SBU, 2005), Australia (Mercado & Ogloff, 2007), and New Zealand (Vess, 2008). Recent work has suggested that the influence of risk assessment tools appears to be growing in both general and forensic settings. For example, violence risk assessment is now recommended in clinical guidelines for the treatment of schizophrenia in the US and the UK (APA, 2004; NICE, 2009). In the US, risk assessment tools are used routinely in the mental health care systems of the majority of the 17 states that have civil commitment laws (Mercado & Ogloff, 2007). Recent studies in England have found that two thirds of mental health clinicians in general settings are using structured risk assessment forms (Higgins, Watts, Bindman, Slade & Thornicroft, 2005), as are clinicians working in over 70% of forensic psychiatric units (Khiroya et al., 2009). Risk measures are also being used with increasing regularity in both criminal and civil court cases in the US and the UK (DeMatteo & Edens, 2006; Young, 2009). The widespread, often legally required use of risk measures (Seto, 2005) necessitates the regular and high-quality review of the evidence base.

1.1. Uncertainties in risk assessment

The research base on the predictive validity of risk assessment tools has expanded considerably; however, policymakers and clinicians continue to be faced with conflicting findings of primary and review literature on a number of central issues (Gendreau, Goggin & Smith, 2000; Singh & Fazel, 2010). Key uncertainties include:

(1) Are there differences between the predictive validity of risk assessment instruments?
(2) Do risk assessment tools predict the likelihood of violence and offending with similar validity across demographic backgrounds?
(3) Do actuarial instruments or tools which employ structured clinical judgment produce higher rates of predictive validity?

1.1.1. Demographic factors

There is contrasting evidence whether risk assessment tools are equally valid in men and women. Several recent reviews have found no difference in tool performance between the genders (e.g., Schwalbe, 2008; Smith et al., 2009). Schwalbe (2008) conducted a meta-analysis on the validity literature of risk assessment instruments adapted for use in juvenile justice systems, and found no differences in predictive validity based on gender. This finding was supported by a meta-analysis conducted by Smith, Cullen, and Latessa (2009), who found that the Level of Service Inventory – Revised (LSI-R) produced non-significantly different rates of predictive validity in men and women. In contrast, recent meta-analyses have found that the predictive validity of certain risk assessment tools is higher in juvenile men (Edens, Campbell & Weir, 2007) or in women (Leistico et al., 2008).