



The predictive validity of risk assessment tools for female offenders: A systematic review



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ABSTRACT

Assessing an offender's risk level is important given the impact of criminal behavior on victims, the consequences for the offender, and for society more generally. A wide range of assessment tools have been developed to assess risk in offenders. However, the validity of such tools for female offenders has been questioned. We present a systematic literature review of studies examining the accuracy with which risk assessment tools can predict violence and recidivism in female offenders. Five databases were searched, reference lists of relevant publications were hand searched, and an online search engine was used to identify studies. Fifteen studies were subject to review which evaluated nine risk assessment instruments (COMPAS, CAT-SR, HCR-20, LSI, PLC-R, OGRS, RISC, RM2000V, VRAG). The quality of these studies was systematically examined using a detailed quality assessment. The review findings indicate that the most effective tool for assessing both violence and recidivism in women was the LSI. There was variability in the quality scores obtained, with studies limited by measurement issues and standards of reporting results. Future research should aim to improve the quality of studies in this area, assess predictive accuracy across *subtypes* of female offenders, and compare correctional and psychiatric samples independently.

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1. Introduction

Women comprise a minority of the offending population. Less than 5% of the prison population are female while women comprise 15% of offenders within the community (Ministry of Justice [MoJ], 2012a, 2014). Lower rates of violence and recidivism are also evident in female offenders. In terms of recidivism, the reoffending rate among offenders within one year following release is 18.3% for females while 28.3% for men (Ministry of Justice, 2012b). Rates of general violence in female offenders can vary from 14% to 27% (Greenfeld & Snell, 1999; Ministry of Justice, 2012a), and it is widely acknowledged that female offenders are less likely to perpetrate violence than males (De Vogel & De Vries Robbé, 2013). However, rates for particular types of violence, such as intimate partner violence and violence committed by psychiatric offenders, are comparable between male and female offenders (De Vogel & De Vries Robbé, 2013; De Vogel, de Vries Robbé, van Kalmthout, & Place, 2012). Furthermore, Logan (2004) suggested that violence against partners and children is more likely to lead to death when perpetrated by a woman (as cited in De Vogel, 2005). Criminal behavior is a significant problem that cannot be ignored, and adequately assessing risk of reoffending and violence in females is crucial.

Accurate assessment of future risk for violence and re-offending not only informs the management of offenders, but also ensures public safety (Craig, Browne, & Beech, 2008). It includes consideration of the: (a) nature, (b) frequency, (c) severity and (d) likelihood of harm (Craig et al., 2008). Risk assessment tools have been designed to enable the evaluation of the likely level of risk an offender holds for future violence and/or reoffending, and provide information on potential areas for management and planning. Although the criminal profile of male and female offenders is different (De Vogel & De Vries Robbé, 2013), few risk assessment tools exist that have been designed and validated on the female offending population to assess risk for future violence or reoffending. This is in spite of the increasing literature recognizing that risk factors for future violence and offending in females may be different to males (Caulfield, 2010; Chesney-Lind & Pasko, 2013). The generalizability of risk assessment tools to female offenders has, therefore, been questioned. As such, it is important that researchers and practitioners are aware of the strengths and weaknesses of risk assessment tools currently used to predict violence and recidivism in female offenders. This review sought to synthesize what is currently known about the predictive validity of these tools with female offenders and subject these studies to quality assessment.

1.1. Evaluating predictive validity

In evaluating the accuracy of risk assessment, studies typically assess the predictive validity of a risk assessment tool. Predictive validity (or accuracy) refers to the ability of an instrument to correctly assess the likelihood of violence or recidivism (Singh, 2013). The most commonly used statistical analysis of predictive accuracy is Receiver Operating Characteristic (ROC) analysis which was introduced to violence risk assessments in the 1990s (Douglas, Cox, & Webster, 1999; Mossman, 1994). This analysis produces a statistic of predictive accuracy called the Area Under the Curve (AUC). An AUC can be interpreted as a global

discrimination index, equal to the probability of a randomly selected recidivist scoring higher on a risk instrument than a randomly selected non-recidivist (Mossman, 1994). An AUC of 0.00 represents perfect negative prediction, an AUC of .50 indicates chance prediction, and an AUC of 1.0 indicates perfect positive prediction. AUC values $>.70$ are considered 'moderate' and values $>.75$ 'good' (Douglas, Guy, & Reeves, 2008). A particular advantage of AUC estimates is that they are largely independent of base rates and selection ratios (Rice & Harris, 1995).

Predictive accuracy can also be measured using the correlation coefficient (r). This measures the direction and strength of association between two variables (Field, 2009; Warner, 2008), which, in this context, is risk score and violence or recidivism. Values range from -1.00 (perfect negative association) to $+1.00$ (perfect positive association). A value $>.30$ is indicative of a moderate relationship, while values $>.50$ represent a strong relationship (Cohen, 1988).

1.2. Approaches to risk assessment

There are three main approaches to risk assessment (Bonta, 1996). The first generation of risk assessment was 'clinical judgement' and involved the use of unstructured professional judgement to determine an offender's risk level. Predicated on professional experience and knowledge of the area, the predictive accuracy of this type of risk assessment was found to be no better than chance (Hanson & Bussière, 1998). Findings such as this led to the development of second generation risk assessment tools; actuarial assessments. These are static instruments which are based on factors empirically associated with recidivism. Particular benefits of actuarial measures are that they are less open to interpretation and they are structured and replicable (Kemshall, 2002). Examples of actuarial risk instruments include the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) and the Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993). Although the PCL-R was not designed to predict violence or recidivism, it is used regularly in forensic settings to assess risk of these outcomes (Grann, Långström, Tengström, & Gunnar, 1999; Hart, 1998a). Accuracy estimates for actuarial instruments are within the moderate range (Hart, Michie, & Cooke, 2007) and research still attests to their predictive validity (Hare, Clark, Grann, & Thornton, 2000). Nevertheless, a myriad of criticisms have been levelled at actuarial risk tools which include concerns regarding their predictive and content validity (Hannah-Moffat & Shaw, 2001). Actuarial risk assessments have also been criticized due to their lack of accuracy in estimating risk at an individual level and also their minimal utility in the management of offenders' risk (Hart et al., 2007).

A third generation of risk assessment tools was, therefore, developed which integrated dynamic and static risk factors. These tools are referred to as structured professional judgement (SPJ). They are empirically guided, in that they are based on factors empirically demonstrated to be associated with risk, but judgements are also clinically informed (Hart, 1998b). Examples of SPJ tools include the HCR-20 (Webster, Douglas, Eaves, & Hart, 1997), Level of Service Inventory (LSI-R; Andrews & Bonta, 1995) and the Violence Risk Scale (VRS; McNeil & Binder, 1994). All of these instruments have demonstrated good predictive validity with AUC $>.70$ (Douglas, Ogloff, Nicholls, & Grant, 1999;

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