

Risk factors for recidivism in offenders with intellectual disabilities

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The literature on risk factors for recidivism in offenders with intellectual disability (ID) is inconsistent and inconclusive compared to the field of mainstream criminality where the predictive efficacy of social psychological and criminological factors is well established (Gendreau, Little & Goggin, *Criminology*, 34, 575–607, 1996). Criminological variables have also been reported to have superior predictive efficacy over clinical variables in a large meta-analysis of recidivism in other mentally disordered offenders (Bonta, Law, & Hanson, *Psychological Bulletin*, 123, 123–142, 1998). The current study replicated this finding in a sample of offenders with ID ($n = 145$) discharged from four independent sector medium secure units in the UK between 1990 and 2001. Over a two-year follow-up period criminal history variables were significantly related to general recidivism. A subsequent analysis found the Offender Group Re-conviction Scale, a criminogenic risk assessment instrument designed for use in general offenders, to have excellent predictive efficacy in offenders with ID.

Keywords: intellectual disability; recidivism; criminal history risk factors; OGRS

Study 1: the relationship between recidivism and criminal history and deviant lifestyle variables in offenders with ID

Introduction

The accurate prediction and management of recidivism in offenders with intellectual disabilities (ID¹) is a key concern for mental health professionals. In order to manage the risk of future dangerousness, defined by Monahan (1988) as the risk of behaviour that is harmful to others, it is necessary for mental health professionals to identify the risk factors/contexts that may trigger such behaviour and to accurately assess the risk that a patient will offend in the future.

Offenders with ID represent a subgroup of mentally disordered offenders that have been largely ignored in the literature on methods of risk assessment of future offending (Barron, Hassiotis, & Banes, 2004; Johnston, 2002). The majority of the existing literature has investigated whether a diagnosis of ID is itself a risk factor for future offending by studying the prevalence of people with ID in the criminal justice system (for example, French, Brigden, & Noble, 1995; Gudjonsson, Clare, Rutter, & Pearce, 1993; Murphy, Harnett, & Holland, 1995) or the prevalence of offending behaviour in patients with ID (for example, Lyall, Holland, Collins, & Styles, 1995; McBrien, Hodgetts, & Gregory; 2003; McNulty, Kissi-Deborah, & Newsom-Davies,

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1995). Due to inconsistencies in the definition of ID and the comparison of offenders with ID at different stages of the criminal justice system (Holland, Clare, & Mukhopadhyay, 2002; McBrien, 2003) it is not possible to conclude from this literature if a diagnosis of ID increases a person's risk of offending. Even if the literature were able to inform if a diagnosis of ID is a risk factor for future offending, then this information remains of only limited use to clinicians. Such studies do not inform which offenders from a population of offenders with ID will offend in the future and therefore with whom services need to intervene, or who can be safely managed in the community. In the absence of accurate risk assessment professionals may be forced to keep people in secure settings to ensure safety or may unwittingly discharge offenders who are likely to re-offend in the future. Accurate risk assessment can be used to decipher between such offenders and so enable professionals to manage risk of recidivism more effectively.

Gendreau, Little, and Goggin (1996) state that the use of sociological, criminology or social psychology theories to explain criminal behaviour in general offenders (i.e. those without a mental disorder) is widespread and there is little disagreement about what works to predict recidivism in this population. Gendreau et al.'s large meta-analytic review of the literature (131 studies) identified that the strongest predictors of recidivism were criminogenic need (antisocial attitudes supportive of an antisocial lifestyle and negative behaviour related to education and employment), criminal history/history of anti-social behaviour, social achievement, age/gender/race and family factors.

Turning to mentally disordered offenders, historically clinicians have focused on psychopathological risk factors and clinical variables (Bonta, Law, & Hanson, 1998). Monahan (1981) reviewed the literature that assessed the ability of clinicians to predict violence, termed the 'first generation' of studies, and concluded that clinicians accurately predicted violence only once in every three cases. Further review of this literature (Monahan, 1984) spurred the 'second generation' of research studies that moved towards investigating the ability of demographic factors (termed actuarial models in these papers) to predict violence in mentally disordered offenders. Mossman (1994) re-analysed 58 data sets from 44 studies that compared clinical judgement and actuarial models and found that actuarial models (which most often measure static variables that can be simply coded from a patient's historical notes) consistently outperformed clinical judgement. The literature regarding risk assessment of violence in mentally disordered offenders has since moved into the 'third generation' of studies that consider dynamic risk factors as well as historical (often static) risk factors. Dynamic factors are clearly more amenable to change than static factors and so arguably have more clinical utility. Hanson and Harris (2000) take this further and separate dynamic risk factors into stable dynamic risk factors, which are amenable to change in the longer term (i.e. months or years), and acute dynamic risk factors which change in the short-term (days, hours or minutes). Measuring such risk factors could help clinicians formulate short and medium term risk-management plans.

Bonta et al. (1998) conducted a meta-analysis of the factors that predict recidivism in mentally disordered offenders and replicated Gendreau et al.'s (1996) findings that factors related to criminal history are the best predictors of recidivism (both for general and violent offences). Bonta et al. (1998) categorized risk factors into personal demographic variables, deviant lifestyle variables, criminal history

variables and clinical variables. Considering the developments in the research literature, criminal history variables and personal demographic variables are static variables (which largely represent the second generation of research studies) and deviant lifestyle and clinical variables are dynamic risk factors. Bonta et al. (1998) found that the most predictive variables were the static criminal history variables and simply having a criminal history produced the largest effect size. Of the personal demographic variables, age, gender, and marital status were significantly related to recidivism. Substance abuse, family problems and poor living arrangements (deviant lifestyle variables) were also significantly related to recidivism. Of the clinical variables, psychosis was significantly negatively related to recidivism as was a 'not guilty by reason of insanity' court disposal. A diagnosis of antisocial personality disorder significantly predicted future recidivism, though such a diagnosis is closely related to a criminal history (DSM-IV-TR; American Psychiatric Association, 2004). In addition, the number of hospital admissions and days hospitalized were significantly related to recidivism. Again, it is possible that days hospitalized is linked to the criminal history variable of institutional adjustment (defined as adjudications for behavioural problems in the Bonta et al. meta-analysis), although this would need further study. Bonta et al. (1998) claim that the focus on psychopathological risk factors resulted in inaccurate assessment of risk of recidivism in mentally disordered offenders as the social psychological explanations used to predict future offending in general offender populations also more accurately predict recidivism in this group.

Phillips et al. (2005) replicated the findings of Bonta et al. (1998) via a pseudo-prospective research design in a sample of mentally disordered offenders. Phillips et al. found that age, number of previous offences and number of days hospitalized² were all significantly related to both general and violent re-offending (with number of previous offences being the strongest predictor), whereas clinical diagnosis was not predictive of recidivism when the variance attributable to these other criminogenic variables was controlled for. The Bonta et al. (1998) and Phillips et al. (2005) analyses clearly identify that criminological factors in mentally disordered offenders, the same factors that are predictive of re-offending in general offenders, are most predictive of recidivism. Lindsay, Elliott, and Astell (2004) in a review of the literature state that it is well established in the research literature on mainstream criminality which static variables predict recidivism (criminal history/history of anti-social behaviour, social achievement, age/gender/race and family factors) and that the literature regarding dynamic risk factors is also beginning to emerge (but is less well established).

From the existing literature that is specific to offenders with ID it is unclear what the risk factors for re-offending are. This impacts on the ability of professionals to conduct accurate risk assessments of future offending in this diagnostic group. Previous studies have compared offenders with ID on various risk factors for offending (for reviews see Johnston, 2002; Lindsay & Beail, 2004) and although there is little consensus in the literature, there is some evidence to suggest that offenders with ID are young males (Alexander, Crouch, Halstead, & Piachaud, 2006; Holland et al., 2002; Puri, Lekh, & Treasaden, 2000; Woods & Mason, 1998) with behavioural and substance abuse problems (Lund, 1990; Murphy et al., 1995; Winter, Holland & Collins, 1997) and an increased likelihood of a diagnosis of personality disorder (Alexander et al., 2006; Puri et al., 2000; Woods & Mason, 1998). These studies

suggest that the risk factors that predict recidivism in offenders with ID may be similar to those that predict recidivism in other mentally disordered offenders (as evident from Bonta et al.'s meta-analysis). Indeed, Lindsay et al. (2004) measured static and dynamic risk factors in sex offenders with ID and reported that the variables that were linked to re-offending in this sample were similar to those reported in the mainstream criminality literature. McMillan, Hastings, and Coldwell (2004) reported that a simple measure of history of antisocial behaviour (the number of incidents recorded in nursing observations over the 6-month period prior to the study) was highly predictive of future anti-social behaviour (the number of incidents of aggression noted in nursing observations for the subsequent six month period) in a forensic psychiatric service for those with ID. Similarly, Quinsey, Book, and Skilling (2004) in a sample of those with ID with a history of anti-social behaviour, living in supported accommodation in the community, found that previous inappropriate and anti-social behaviours significantly predicted future anti-social behaviours against carers and peers within the supported accommodation setting.

The aim of the present study was to examine if the same criminogenic variables and deviant lifestyle variables that consistently predict re-offending in general offender populations (Gendreau et al., 1996) and other mentally disordered offenders (Bonta et al., 1998; Phillips et al., 2005) are also predictive of recidivism in offenders with ID.

Method

Design

The study was a pseudo-prospective case-note analysis of patients discharged from four independent sector medium secure units in the UK. The data pertains to patients who were discharged between 1990 and 2001 with each patient followed for two years post-discharge. The predictor variables were criminal history and deviant lifestyle variables. The outcome measure was future criminal convictions (general offending) within the two-year follow up period.

Participants

A total of 145 patients with a diagnosis of ID were discharged from four independent sector medium secure units in the UK. Patients were admitted to hospital on the basis of having ID with or without a co-morbid diagnosis of another mental disorder and either having been convicted of a criminal offence ($n=77$) or having exhibited behaviour that might have led to a conviction in different circumstances ($n=68$). Diagnoses were made by a consultant psychiatrist on admission using the International Classification of Diseases-10 (ICD-10; World Health Organization, 1992). A diagnosis of Mental Impairment (MI) on ICD-10 is synonymous with that of Mental Retardation as defined by DSM-IV-TR (American Psychiatric Association, 2004). This ID group consisted of 121 patients with Mild MI, 18 with Moderate MI, five with Severe MI, and one with Unspecified MI. Forty-nine patients had a diagnosis of ID alone and 96 patients had a co-morbid diagnosis of another mental disorder. The specific frequency and percentage of co-morbid diagnoses are outlined in Table 1.

Table 1. Frequency of co-morbid diagnoses in patients with ID.

Diagnoses	<i>n</i> (%)
ID only	49 (33.8)
ID and mental illness ^a	34 (23.4)
ID and personality disorder ^b	35 (24.1)
ID and other diagnosis ^c	10 (6.9)
ID, mental illness and personality disorder	10 (6.9)
ID, mental illness and other diagnosis	4 (2.8)
ID, personality disorder and other diagnosis	3 (2.1)

^aA diagnosis of mental illness includes schizophrenia, schizotypal and delusional disorders, affective disorders and neurotic, stress-related and somatoform disorders.

^bPersonality disorders are simply any disorders of adult personality and behaviour.

^cOther diagnoses include organic, including symptomatic, mental disorders, mental and behavioural disorders due to psychoactive substance use, behavioural syndromes associated with physiological disturbances and physical factors, disorders of psychological development, behavioural and emotional disorders with onset usually occurring in childhood and adolescence and sexual and identity disorders.

There were 118 (81.4%) men and 27 (18.6%) women, with a mean age at the time of discharge of 31.54 years ($SD = 8.94$, range = 18.84–65.78). One hundred and seventeen (84.8%) patients were of White ethnic origin, 14 (10.1%) were of Black ethnic origin, three (2.1%) were of Asian ethnic origin, three (2.1%) were of mixed ethnicity and one (0.7%) had 'other' ethnicity.

Measures

The predictor variables were criminal history variables, specifically, number of previous offences, age at first conviction, number of previous violence against the person offences, number of previous sexual offences, number of previous acquisitive offences, number of previous offences for criminal damage, number of previous drug offences and number of previous bail offences. A history of alcohol abuse and a history of drug abuse were also measured (deviant lifestyle variables).

Convictions prior to admission to hospital and post-discharge were obtained from the Home Office Offenders Index (HOOI, 2000). All offences committed post-discharge were included, including violence against the person.

Procedure

Ethical committee approval was obtained from the Ethical Committee of the School of Psychology, Cardiff University. Four psychology assistants completed data collection as the data collected for the present study forms part of a larger study. Psychology assistants were trained and supervised by a Consultant Clinical and Forensic Psychologist in gathering information from medical records. Due to differences in the quality of the medical records provided by the medium secure units across the sample, it was not possible to gather exactly the same data for all participants. The information in an individual patient's medical records may differ based on many factors that could not be controlled for by the present study (such as length of admission, number and quality of previous admissions, the diligence of staff preparing reports, etc.). Therefore many of the analyses were conducted on

subsamples of the total population. For each analysis conducted, we compared patient characteristics (age, gender and ethnicity) to the overall sample. No significant differences were found in age or ethnicity. For all of the criminal history analyses those included in the analysis significantly differed to those excluded on gender ($\chi^2=4.28$, d.f. =1, $p<0.05$), with a greater proportion of females not included in the analyses (39%) compared to males (23%). It was not felt that this would have affected the results because the results were re-analysed using only the male patients and the pattern of results did not alter. It was not possible to compute female only analyses as only one of the female patients was re-convicted within the two-year follow-up period.

Statistical analyses

Non-parametric tests were employed to compare those who were re-convicted compared to those who were not as the data did not always have equal variances and was not always normally distributed. On continuous variables (the criminal history variables) the Mann–Whitney test was employed and on categorical variables (deviant lifestyle variables) the chi square test was employed. A measure of effect size was taken to enable comparison across all of the variables (see Table 2). On the criminal history analyses the *U/mn* measure of effect size was taken (Newcombe, 2006). *U/mn* returns a value between 0 and 1 and can be interpreted like an AUC (0.5 being chance levels and illustrating no effect). The closer to 1 (or to 0 in the case of a negative effect) the greater the effect. In the present study negative effects (those below 0.5 and closer to 0) were reversed so that they could be interpreted as an AUC. As *U/mn* can be interpreted in the same way as AUCs, Rice and Harris' (2005) effect size estimates can be applied (i.e. 0.71 is regarded as a large effect size). On the deviant lifestyle analyses *phi* was taken as a measure of effect size (Rosenthal, 1991). Correlations known as Pearson's *r*, Spearman's *rho*, *phi* or point-biserial *r* are all defined and interpreted in exactly the same way (Rosenthal, 1991). Therefore, Cohen's (1992) power estimates relating to *r* were employed. Cohen (1992) reports that an *r* of 0.10 is a small effect size, 0.30 is a medium effect size and 0.50 is a large effect size.

Results

General re-conviction was defined as any offence post-discharge recorded in the Home Office Offenders Index (HOOI, 2000). Of the 145 patients in the study 14 (9.7%) were re-convicted within the two-year follow up period and 131 (90.3%) were not re-convicted. Only seven (4.8%) of our sample re-offended with a violent re-conviction (defined as any re-conviction categorized by the HOOI under 'violence against the person' or any offences of kidnap, arson, robbery, rape or indecent assault) and 131 (90.3%) did not re-offend (the remaining seven (4.8%) were re-convicted with a non-violent offence). In view of this small sample of violent offenders we decided not to pursue further statistical analysis involving violent offences as the outcome measure as the chances of making Type II errors were regarded as being too great. This is discussed further in the discussion.

Patients with ID who were re-convicted with a general offence were compared to those who were not re-convicted on criminal history variables and deviant lifestyle variables (see Table 2). Those who were re-convicted significantly differed to those

Table 2. Differences between offenders with ID who re-offended and those who did not on criminal history and substance variables.

<i>Criminal history variables</i>	Re-offended		Did not re-offend		<i>p</i>	ES (<i>U/mn</i>)
	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)		
Number of previous offences	14	17.07 (17.0)	131	7.36** (12.3)	.019	0.69
Age at first conviction	14	19.27 (6.96)	93	21.14 (6.93)	.294	0.59
Number of previous violence against the person offences	12	2.25 (2.56)	92	1.66 (3.55)	.194	0.61
Number of previous sexual offences	12	0.75 (1.61)	92	0.61 (1.91)	.828	0.52
Number previous acquisitive offences	12	9.42 (10.20)	92	4.70* (7.21)	.049	0.67
Number previous criminal damage offences	12	4.58 (3.47)	92	2.12* (3.56)	.064	0.66
Number previous drug offences	12	0.42 (0.52)	92	0.08** (0.34)	.000	0.68
Number previous bail offences	12	1.25 (1.55)	92	0.46 (1.92)	.001	0.69
<i>Deviant lifestyle variables</i>	Re-offended		Did not re-offend		<i>p</i>	ES (<i>phi</i>)
	<i>n</i>	%	<i>n</i>	%		
History of alcohol abuse						
Yes	9	69.2	47	40.5*	.048	0.17
No	4	30.8	69	59.5		
History of drug abuse						
Yes	9	69.2	24	21.4**	.001	0.33
No	4	30.8	88	78.6		

Note. The criminal history variables were compared using Mann–Whitney and the deviant lifestyle variables were compared using chi square. Effect size (ES) measures *U/mn* is equivalent to an AUC and therefore can be directly translated into a Pearson's *r* effect size. *Phi* can also be directly translated into a Pearson's *r*.

who did not on number of previous offences ($p < 0.05$), number of previous acquisitive offences ($p < 0.05$), number of previous drug offences ($p < 0.001$) and number of bail offences ($p < 0.01$). A history of alcohol abuse and a history of drug abuse also significantly differed between those who were re-convicted and those who were not ($p < 0.05$ and $p < 0.01$, respectively). It is important to note that in the deviant lifestyle analyses the number of patients who were re-convicted and did not have a history of alcohol or drug abuse was just four and so the significant difference should be interpreted with caution.

Of those variables that significantly differed between those who were re-convicted and those who did not, number of previous offences, number of previous acquisitive offences, number of previous drug offences, number of previous bail offences were all of a medium effect size (Rice & Harris, 2005), as was a history of drug abuse (Cohen, 1992); a history of alcohol abuse was a small effect size (Cohen, 1992).

Discussion

The aim of Study 1 was to investigate whether criminal history variables and deviant lifestyle variables were related to re-offending in offenders with ID. Study 1 revealed

that number of previous offences, number of previous acquisitive offences, number of previous drug offences and number of previous bail offences, as well as a history of substance abuse were significantly related to general re-convictions in offenders with ID.

The finding that criminal history and deviant lifestyle variables are associated with general recidivism in offenders with ID replicates the research literature in general offenders (Gendreau et al., 1996), other categories of mentally disordered offenders (Bonta et al., 1998; Phillips et al., 2005) and the research literature that has shown a history of anti-social behaviour to predict future anti-social behaviour in offenders with ID (Lindsay et al., 2004; McMillan et al., 2004; Quinsey et al., 2004). However, it should be noted that in Study 1 very few of the offenders with ID went on to be re-convicted. From a sample of 145 offenders with ID, followed up for a period of two years post-discharge, just 14 were re-convicted with a general offence and just seven were re-convicted with a violent offence. This resulted in very small group sizes in the 're-offended' group and so reduced the power of the statistical analyses. This highlights the difficulty of studying recidivism in this population and is not unique to the present study. It has been reported that patients with ID tend to get convicted at a lower rate compared to other mentally disordered offenders as offending in those with ID is often labelled as challenging behaviour and does not involve the full legal process (Turner, 2000). Indeed, based on the same sample of offenders with ID included in the present study, Gray, Fitzgerald, Taylor, and Snowden (2007) report that offenders with ID were significantly slower to re-offend than a control group of mentally disordered offenders without a diagnosis of ID, of whom 11.8% re-offended with a violent offence within the two-year follow up period. Despite this limitation in research design, criminal history variables were significantly associated with future convictions in this population.

A larger sample, with resulting increased statistical power, may have found additional effects to those found in the present study. In addition, in the present study only those variables known to be linked to re-offending in general offenders (Gendreau et al., 1996) and mentally disordered offenders (Bonta et al., 1998; Phillips et al., 2005) were included. Other variables, had they been measured, may also have been found to be related to recidivism in offenders with ID. Ideally all possible risk factors for offending in offenders with ID would have been included. However, this would have been quite a different study, requiring a meta-analytic review of the research literature. A further limitation of the present study is the fact that the majority of the present sample were male and so did not enable any gender differences to be scrutinized. Unfortunately there were too few females who were re-convicted in the present study to enable gender specific analyses to be computed.

Bonta et al. (1998) concluded that in mentally disordered offenders the focus on the importance of clinical variables in relation to re-offending comes at a cost: inaccurate risk prediction. As in general offender populations, attention should be paid to criminological variables as these variables are significantly better at predicting recidivism than clinical variables. The present study extends this finding to offenders with ID. In Study 1 criminal history and deviant lifestyle variables were significantly related to re-offending, which highlights the need to focus risk assessment for future offending on these factors in offenders with ID alongside any analysis of clinical factors.

Study 2: the predictive efficacy of the offender group reconviction scale (OGRS) in offenders with ID

Introduction

Study 1 found that the same criminal history and deviant lifestyle variables that predict recidivism in mentally disordered offenders (and general offenders) also predict recidivism in offenders with ID. Considering these findings, it is tempting to simply apply risk assessment instruments designed for use in mentally disordered offenders or general offenders to offenders with ID. However, Dawes, Faust, and Meehl (1989) suggest that using an instrument in a different population to that in which it was designed for makes it very possible that the instrument loses its efficacy. Therefore the ability of risk assessment instruments with proven efficacy in mentally disordered offenders or general offenders need to be validated in offenders with ID before they can be used with confidence in this population.

There is a growing body of evidence that risk assessment instruments designed for use in mentally disordered offenders have predictive efficacy in offenders with ID. There are a handful of studies that have tested the ability of the Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993) the Psychopathy Checklist – Revised (PCL-R; Hare, 1991, 2003) and the History, Clinical, Risk-Management-20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997) to predict institutional violence in offenders with ID (Lindsay et al., 2008; Morrissey et al., 2005, 2007a,b; Quinsey et al., 2004³). These studies collectively provide some evidence for the predictive validity of the VRAG, the PCL-R and the HCR-20 in offenders with ID. The VRAG has been reported to predict institutional violence with a receiver operator characteristic (ROC) area under the curve (AUC) of 0.69 (Quinsey et al., 2004) and 0.71 (Lindsay et al., 2008). An AUC of 0.71 is a large effect size (Rice & Harris, 2005, see Results for a description of ROC analyses). There is somewhat less convincing evidence regarding the PCL-R with Morrissey et al. (2005, 2007a) reporting a small relationship between PCL-R and institutional violence (though using a modified PCL-R and with a lack of control over the timing of the risk assessment). Lindsay et al. (2008) report that the HCR-20 predicted institutional violence with a large effect size (AUC = 0.72) and Morrissey et al. (2007a) also report that the HCR-20 was able to predict institutional physical aggression with a medium effect size and verbal aggression/damage to property with a large effect size. In addition, Gray, Fitzgerald, Taylor, and Snowden (2007) have found that the VRAG, the Psychopathy Checklist – Screening Version (PCL-SV; Hart, Cox, & Hare, 1995) and the HCR-20 to be able to predict both violent and general recidivism in the long-term (over a period of five years) in offenders with ID.

One of the most noteworthy actuarial risk assessment instruments developed in general offender populations is the Offender Group Re-conviction Scale (OGRS; Copsas & Marshall, 1998). The OGRS is a criminogenic risk assessment instrument based upon six variables (criminal history variables and personal demographic variables) and provides a probability of general recidivism over a two-year period. In addition, in 1999, the OGRS was revised (OGRS II; Taylor, 1999) and four criminal history variables were added to enable an additional prediction of future violent offences⁴. The OGRS was developed on a very large construction sample (some 30,000 offenders released from prison or offenders sentenced to a community penalty

in 1995) and is routinely used by the probation service in completion of pre-sentence reports.

Despite being designed for the general offender population there is evidence to support the use of the OGRS in mentally disordered offenders. Gray et al. (2004) in a sample of mentally disordered offenders in the UK found the OGRS to provide the best prediction of risk of future offending compared to other methods of risk assessment designed for use in mentally disordered offenders (e.g. the HCR-20; Webster et al., 1997). In the Gray et al. (2004) study the OGRS produced an AUC of 0.81 compared to 0.61 for the HCR-20. The superior predictive abilities of the OGRS also remained true for serious offences, which are rarer and so more difficult to predict. This finding has been replicated by Snowden, Gray, Taylor, and MacCulloch (2007) across different follow up periods (six months to five years). The most accurate risk prediction was at two years post-discharge with an AUC of 0.79. This is unsurprising as the OGRS was designed to predict general recidivism over a two-year period. AUCs did not drop below 0.74 and so the OGRS consistently predicted general recidivism in mentally disordered offenders with a large effect size (Rice & Harris, 2005).

Although the OGRS has been shown to have excellent predictive efficacy in mentally disordered offenders, there are no studies to date that have assessed the predictive efficacy of the OGRS in offenders with ID. Based on the ability of the OGRS to predict recidivism in mentally disordered offenders (a population for which it was not designed), the ability of criminal history variables to predict general offences in offenders with ID found in Study 1, and the fact that other risk assessment instruments not designed for use with offenders with ID have been shown to have excellent predictive efficacy in this population, it was predicted that the OGRS would have good predictive efficacy in this sample of offenders with ID.

Method

Design

The design of Study 2 remained the same as Study 1 though the predictor variable was OGRS probability of re-offending. The outcome measure of violent re-convictions was also considered in addition to general offending given that ROC analysis was employed and ROC analysis is relatively immune to base rates of offending behaviour.

Participants

The OGRS was completed on a subsample of the patients ($n = 85$) in Study 1. It was not possible to score the OGRS for 60 of the original patients as 39 did not get convicted for the offence that led to their admission (a requirement of the OGRS) and crucial criminal history information from the HOOI (2000) was missing from case notes for 21 of the original patients (the OGRS cannot be pro-rated). Those excluded from the OGRS analysis were compared to those included on demographic variables. The only significant difference between those included and those excluded was gender ($\chi^2 = 11.50$, d.f. = 1, $p < 0.01$), with a greater proportion of females not

included in the analysis than included. As per Study 1, this analysis was repeated with just males and the results were unchanged. Therefore it is not felt that this affected the results.

Measures

The OGRS (Copas & Marshall, 1998) was developed for use in probation settings and does not contain any mental health variables. It estimates the probability that an offender will be re-convicted within two years of release based on six variables (gender, current offence category, age at first conviction, age at current conviction, number of previous custodial sentences while under 21 and total number of previous court appearances at which convicted). The revised version (Taylor, 1999) also includes number of previous court appearances at which convicted of a violent offence, number of previous court appearances at which convicted of a sexual offence where these exist, any previous conviction for burglary and any previous conviction for a breach. The OGRS II (Taylor, 1999) also produces a category risk prediction of violent/sexual crime that ranges from 'some probability' of a future violent/sexual offence, 'raised probability', 'moderate probability' or 'high probability'. If the individual has no previous violent/sexual offences the risk category is not calculated (a category of 'no history' is given).

The outcome measures were general and violent convictions post-discharge from hospital obtained from the HOOI (2000). General offences were any convictions post-discharge (including violence against the person offences). Violent offences included all offences classified as violence against the person by the Home Office and kidnap, arson, robbery, rape and indecent assault.

Procedure

As in Study 1 ethical approval was sought from the School of Psychology, Cardiff University. The OGRS was scored by five psychologists trained in completion of the tool. The OGRS was scored from the patient's medical records and from the HOOI pre-admission to hospital. All background psychiatric and mental health reports on the patients were obtained as were full criminal record history, admission and discharge hospital reports, social work and probation information, and nursing records. All convictions were obtained from the HOOI both prior to admission to hospital and following discharge. Risk assessments were completed blind to outcome by the use of automatic 'computer masking' of offences following date of discharge. The inter-rater reliability for the OGRS was uniformly high (intra-class correlation coefficient (ICC) of 0.96).

Statistical analyses

Signal Detection Theory (SDT; Green & Swets, 1996) was employed to test the ability of the OGRS to distinguish between patients with ID who will or will not be re-convicted. The use of SDT has been championed as a succinct and accurate way of expressing the effectiveness of risk assessment instruments and is relatively insensitive to base rates, thus allowing comparisons of efficacy across groups or

contexts with different base rates (Mossman, 1994; Swets, 1988). The efficacy of the instrument can be given by the AUC of the ROC.

Results

The average OGRS probability of re-offending in patients with ID was 39.9 (SD = 21.8, range 2–92). For those who were re-convicted with a general offence the average OGRS score was 69.8 (SD = 14.5, range 45–91) and for those who were not re-convicted the average OGRS score was 34.5 (SD = 21.8, range 2–92). This difference in mean scores was significantly different to chance ($t(83) = 5.59, p < 0.001; d = 1.91$). This is a large effect size (Cohen, 1992). For those who were re-convicted with a violent offence the average OGRS score was 61.14 (SD = 12.10, range 45–81) and for those who were not re-convicted the average OGRS score was 34.52 (SD = 21.83, range 2–92). This difference in mean scores was also significantly different to chance ($t(1077) = -3.17, p < 0.01; d = 1.51$) resulting in a large effect size (Cohen, 1992).

The ability of the OGRS to distinguish between patients with ID who will or will not be re-convicted is of interest as professionals will be tasked to judge who amongst a population of patients with ID is at risk of re-offending in the future. The AUCs for the OGRS to predict general and violent recidivism at two year post discharge are displayed in Table 3.

The AUCs for general and violent recidivism both result in exceptionally large effect sizes (Rice & Harris, 2005). This suggests that the OGRS is an excellent predictor of risk of recidivism within a population of patients with ID. This is true both for general recidivism and when trying to predict the rarer cases of violent offences. Before this conclusion is accepted it is necessary to note a limitation to this result. Because convictions are relatively rare in offenders with ID, these AUCs are based on only seven individuals who received a violent re-conviction and 13 individuals who received a general re-conviction (and of course the many others that did not receive such convictions). However, the AUCs produced by the ROC analyses are non-parametric statistics and thus may be regarded as a conservative estimate of efficacy.

The OGRS was developed on a construction sample of general offenders ($n = 30\,000$) and therefore pertains to the base rate of offending (measured through re-convictions) in this population. The average OGRS score in the present study was 39.9 and therefore the OGRS predicts that 39.9% of these offenders with ID would be re-convicted with a general offence in a two-year period. In fact 13/85 (15.3%) were re-convicted with a general offence: therefore the OGRS is over-predicting risk in this ID population by about a factor of 2.

Table 3. Area under the curves for the OGRS and general and violent recidivism in offenders with ID.

	General recidivism			Violent recidivism		
	<i>n</i>	AUC	SE	<i>n</i>	AUC	SE
OGRS probability	85	0.902***	0.035	79	0.853**	0.045

** $p < 0.01$ *** $p < 0.001$.

Discussion

The aim of Study 2 was to test the predictive efficacy of the OGRS (a criminogenic risk assessment instrument) in offenders with ID, a population on which the OGRS had not been previously tested so far as we are aware. The OGRS was found to have excellent predictive abilities in this population, surpassing even the very high AUCs previously reported for other mentally disordered offenders. Gray et al. (2004) reported an AUC of 0.81 and Snowden et al. (2007) reported an AUC of 0.79 in mentally disordered offenders. The predictive efficacy of the OGRS in offenders with ID supports the burgeoning research literature on risk assessment instruments that have good predictive efficacy in offenders with ID (Gray et al., 2007; Lindsay et al., 2008; Morrissey et al., 2005, 2007a; Quinsey et al., 2004).

The present study found the OGRS to over-predict the absolute risk of re-offending in offenders with ID compared to general offenders. However, previous research has shown that the OGRS also over-predicts risk of re-offending in other mentally disordered offender groups (Snowden et al., 2007). This over-prediction is most likely a limitation of using re-convictions as the outcome measure in an ID population. Convictions for offences only represent the 'tip of the iceberg' of actual offences committed (Holland et al., 2002). This could be especially true for offenders with ID as there is evidence that offenders with ID are more frequently diverted from the criminal justice system compared to other offender populations (for example, Turner, 2000; Johnston, 2002; Green, Gray, & Wilner, 2002). Therefore offenders with ID tend to have different base rates for convictions compared to other offender populations (Gray et al., 2007). In the original construction sample re-convictions were also employed as the outcome measure but they would not have been subject to these additional limitations. Further, the AUCs produced by the OGRS are based upon a very small number of offenders with ID who went on to be re-convicted of a general ($n=13$) or a violent offence ($n=7$). Although AUCs are immune to base rates, the confidence interval, which determines if the AUC is significantly different to chance, is not. Further studies to increase statistical power are needed to see if the large effect sizes are replicated.

Despite the relative over-prediction of the OGRS, the key finding is the ability of the OGRS to distinguish between offenders with ID who are more or less likely to re-offend. The strong predictive efficacy of the OGRS within a sample of offenders with ID indicates that the OGRS could be a very useful tool to aid professionals in identifying which offenders within a population of offenders with ID are more or less likely to re-offend. The finding that the OGRS is predictive of recidivism in offenders with ID adds to the evidence base of risk assessment instruments that have predictive efficacy in offenders with ID (the VRAG, PCL-R (and its variants) and the HCR-20).

In conclusion, Study 1 highlighted the importance of criminal history variables as risk factors associated with recidivism in offenders with ID. These are the same risk factors as those in general offenders and other mentally disordered offenders. The application of this finding is that the OGRS, a criminogenic risk assessment instrument designed for use with general offenders, has been found in Study 2 to be highly effective at identifying who within a population of offenders with ID are at higher risk for both general and violent offending.

Notes

1. Diagnostic classification systems such as ICD-10 (World Health Organization, 1992) and DSM-IV-TR (American Psychiatric Association, 2004) outline the criteria required for a diagnosis of mental retardation to be: significantly sub-average intellectual functioning with an IQ of less than 70 (confidence interval of 67–75); a concurrent deficit of adaptive functioning; and age of onset before 18 years. Various terms are used throughout the research literature to describe these criteria: namely mental retardation, learning disabilities, developmental disabilities and intellectual disabilities (Holland, Clare, & Mukhopadhyay, 2002). These terms all refer to the same cluster of criteria required to satisfy a diagnosis of mental retardation (Holland et al., 2002). In the present paper it has been decided to use the term intellectual disabilities as it is the most widely used term in the research literature.
2. This particular point did not precisely replicate Bonta et al. (1998), with fewer days hospitalized predicting recidivism in the Phillips et al. (2005) study and more days hospitalized predicting recidivism in the Bonta et al. (1998) analysis. The reasons for this discrepancy may lie with the samples employed, but requires further study and is beyond the remit of the present study.
3. Quinsey et al. (2004) evaluated the ability of the VRAG to predict violence in a community sample of offenders with ID, although the violence recorded in the study was only against other clients and staff in their community accommodation and therefore it is felt to be akin to institutional violence.
4. Unless otherwise stated, we do not differentiate between the two versions of the test which will collectively be termed the OGRS.

References

- Alexander, R.T., Crouch, K., Halstead, S., & Piachaud, J. (2006). Long-term outcome from a medium secure service for people with intellectual disability. *Journal of Intellectual Disability Research, 50*, 305–315.
- American Psychiatric Association (2004). *Diagnostic and Statistical Manual of Mental Disorders* (4th edn, text revision) (DSM-IV-TR). Washington, DC: APA.
- Barron, P., Hassiotis, A., & Banes, J. (2004). Offenders with Intellectual Disability: A prospective comparative study. *Journal of Intellectual Disability Research, 48*, 69–76.
- Bonta, J., Law, M., & Hanson, K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders. A meta-analysis. *Psychological Bulletin, 123*, 123–142.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155–159.
- Copas, J., & Marshall, P. (1998). The offender group reconviction scale: A statistical reconviction score for use by probation officers. *Applied Statistics, 47*, 159–171.
- Dawes, R. M., Faust, D., & Meehl, P. E. (1989). Clinical versus actuarial judgment. *Science, 243*, 1668–1674.
- French, A., Brigden, P., & Noble, S. (1995) Learning Disabled Offenders in Berkshire. Research report on mentally disordered offenders & others requiring similar services (the Reed Committee) Centrally Assisted Initiatives. East Berkshire NHS Trust.
- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism. What works! *Criminology, 34*, 575–607.
- Gray, N.S., Snowden, R.J., MacCulloch, S., Phillips, H., Taylor, J., & MacCulloch, M.J. (2004). Relative efficacy of criminological, clinical and personality measures of future risk of offending in mentally disordered offenders: A comparative study of the HCR-20, PCL-SV, and OGRS. *Journal of Consulting and Clinical Psychology, 72*, 523–530.
- Gray, N.S., Fitzgerald, S., Taylor, J., & Snowden, R.J. (2007). Predicting future reconviction in offenders with intellectual disabilities: The predictive efficacy of VRAG, PCL-SV and the HCR-20. *Psychological Assessment, 19*, 474–479.
- Green, G., Gray, N.S., & Wilner, P. (2002). Factors associated with criminal convictions for sexually inappropriate behaviour in men with learning disabilities. *Journal of Forensic Psychiatry, 13*, 578–599.

- Green, D.M., & Swets, J.A. (1996). *Signal detection theory and psychophysics*. New York: John Wiley.
- Gudjonsson, G.H., Clare, I.C.H., Rutter, S., & Pearse, J. (1993). *Persons at risk during interviews whilst in police custody: The identification of vulnerabilities*. Royal Commission on Criminal Justice Research Study No. 12., HMSO, London.
- Hanson, R.K., & Harris, A.J.R. (2000). Where should we intervene? Dynamic predictors of sexual offence recidivism. *Criminal Justice and Behavior*, 27, 6–35.
- Hare, R.D. (1991). *The Psychopathy Checklist – Revised*. Toronto, Ontario, Canada: Multi-Health Systems.
- Hare, R.D. (2003). *The Psychopathy Checklist – Revised 2nd Edition*. Toronto, Ontario, Canada: Multi-Health Systems.
- Harris, G.T., Rice, M.E., & Quinsey, V.L. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior*, 20, 315–335.
- Hart, S.D., Cox, D.N., & Hare, R.D. (1995). *The Psychopathy Checklist – Screening Version (PCL-SV)*. Toronto, Ontario, Canada: Multi-Health Systems.
- Holland, T., Clare, I.C.H., & Mukhopadhyay, T. (2002). Prevalence of ‘criminal offending’ by men and women with intellectual disability and the characteristics of ‘offenders’: Implications for research and service development. *Journal of Intellectual Disability Research*, 46, 6–20.
- HOOI. (2001). [Data file]. Home Office Offenders Index. London, UK: Home Office: Research, Development, Statistics.
- Johnston, S. (2002). Risk assessment in offenders with intellectual disability: The evidence base. *Journal of Intellectual Disability Research*, 46, 47–56.
- Lindsay, W.R., & Beail, N. (2004). Risk assessment: Actuarial prediction and clinical judgement of offending incidents and behaviour for intellectual disability services. *Journal of Applied Research in Intellectual Disabilities*, 17, 229–234.
- Lindsay, W.R., Elliott, S.F., & Astell, A. (2004). Predictors of sexual offence recidivism in offenders with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, 17, 299–305.
- Lindsay, W.R., Hogue, T.E., Taylor, J.L., Steptoe, L., Mooney, P., O’Brien, G. et al. (2008). Risk assessment in offenders with intellectual disability. *International Journal of Offender Therapy and Comparative Criminology*, 52, 90–111.
- Lund, J. (1990). Mentally retarded criminal offenders in Denmark. *British Journal of Psychiatry*, 156, 726–731.
- Lyall, I., Holland, A.J., Collins, S., & Styles, P. (1995). Offending by adults with learning disabilities: Identifying need in one health district. *Mental Handicap Research*, 8, 99–109.
- McBrien, J. (2003). The intellectually disabled offender: Methodological problems in identification. *Journal of Applied Research in Intellectual Disabilities*, 16, 95–105.
- McBrien, J., Hodgetts, A., & Gregory, J. (2003). Offending and risky behaviour in community services for people with intellectual disabilities in one local authority. *Journal of Forensic Psychiatry and Psychology*, 14, 280–297.
- McMillan, D., Hastings, R., & Coldwell, J. (2004). Clinical and actuarial prediction of physical violence in a forensic intellectual disability hospital: A longitudinal study. *Journal of Applied Research in Intellectual Disabilities*, 17, 255–265.
- McNulty, C., Kissi-Deborah, R., & Newsom-Davies, I. (1995). Policed involvement with clients having intellectual disabilities: A pilot studying south London. *Mental Handicap Research*, 8, 129–136.
- Monahan, J. (1981). *The clinical prediction of violent behaviour*. Washington DC: US Government Printing Office.
- Monahan, J. (1984). The prediction of violent behaviour: Toward a second generation of theory and policy. *American Journal of Psychiatry*, 141, 10–15.
- Monahan, J. (1988). Risk assessment of violence among the mentally disordered: Generating useful knowledge. *International Journal of Law and Psychiatry*, 11, 249–257.
- Morrissey, C., Hogue, T.E., Mooney, P., Lindsay, W.R., Steptoe, L., Taylor, J., & Johnston, S. (2005). Applicability, reliability and validity of the Psychopathy Checklist – Revised in

- offenders with intellectual disabilities: Some initial findings. *International Journal of Forensic Mental Health*, 4, 207–220.
- Morrissey, C., Hogue, T., Mooney, P., Allen, C., Johnston, S., Hollin, C. et al. (2007a). Predictive validity of the PCL-R in offenders with intellectual disability in a high secure hospital setting: Institutional aggression. *Journal of Forensic Psychiatry and Psychology*, 18, 1–15.
- Morrissey, C., Hogue, T., Mooney, P., Johnston, S., Lindsay, W.R., & Taylor, J.L. (2007b). Predictive validity of psychopathy in offenders with intellectual disability in high security: Treatment progress. *The Journal of Intellectual and Developmental Disability*, 32, 125–133.
- Mossman, D. (1994). Assessing predictions of violence: Being accurate about accuracy. *Journal of Consulting and Clinical Psychology*, 62, 783–792.
- Murphy, G.H., Harnett, H., & Holland, A.J. (1995). A survey of intellectual disabilities amongst men on remand in prison. *Mental Handicap Research*, 8, 81–98.
- Newcombe, R. (2006). Confidence intervals for an effect size measure based on the Mann–Whitney statistic. Part 1: General issues and tail-area-based methods. *Statistics in Medicine*, 25, 543–557.
- Phillips, H.K., Gray, N.S., MacCulloch, S.I., Taylor, J., Moore, S.C., Huckle, P. et al. (2005). Risk assessment in offenders with mental disorders. *Journal of Interpersonal Violence*, 20, 833–847.
- Puri, B.K., Lekh, S.K., & Treasaden, I.H. (2000). A comparison of patients admitted to two medium secure units, one for those of normal intelligence and one for those with learning disability. *International Journal of Clinical Practice*, 54, 300–305.
- Quinsey, V.L., Book, A., & Skilling, T.A. (2004). A follow-up of deinstitutionalised men with intellectual disabilities and histories of antisocial behaviour. *Journal of Applied Research in Intellectual Disabilities*, 17, 243–253.
- Rice, M.E., & Harris, G.T. (2005). Comparing effect sizes in follow-up studies: ROC area, Cohen's d, and r. *Law and Human Behavior*, 29, 615–620.
- Rosenthal, R. (1991). *Meta-Analytic Procedures for Social Research*. Revised Edition. London: Sage Publications.
- Snowden, R.J., Gray, N.S., Taylor, J., & MacCulloch, M.J. (2007). Actuarial prediction of violent recidivism in mentally disordered offenders. *Psychological Medicine*, 37, 1539–1549.
- Swets, J. A. (1988). Measuring the accuracy of diagnostic systems. *Science*, 240, 1285–1293.
- Taylor, R. (1999). *Predicting Reconvictions for Sexual and Violent Offences using the Revised Offender Group Reconviction Scale*. Home Office Research Development and Statistics Directorate, Research findings no. 104 (www.homeoffice.gov.uk/rds/rf1999.html).
- Turner, S. (2000). Forensic risk assessment in intellectual disabilities: The evidence base and current practice in one English region. *Journal of Applied Research in Intellectual Disabilities*, 13, 239–255.
- Webster, C.D., Douglas, K.S., Eaves, D., & Hart, S.D. (1997). *HCR-20: Assessing risk for violence (Version 2)*. Vancouver, British Columbia, Canada: Simon Fraser University.
- Winter, N., Holland, A.J., & Collins, S. (1997). Factors predisposing to suspected offending by adults with self-reported learning disabilities. *Psychological Medicine*, 27, 595–607.
- Woods, P., & Mason, T. (1998). Mental impairment and admission to a Special hospital. *British Journal of Developmental Disabilities*, 44, 119–131.
- World Health Organization (1992). *ICD-10 Classification of Mental and Behavioural Disorders. Clinical conditions and Diagnostic Guidelines*. Geneva: WHO.