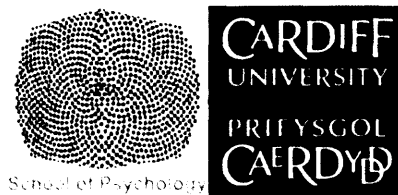# Risk assessment of violence

in offenders with learning disability

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Thesis Summary

Methods to predict dangerousness (recidivism and institutional violence) in mentally disordered offenders are well established in the research literature. In stark contrast there have been fewer developments in the prediction of violence in offenders with learning disabilities (LD), a subgroup of mentally disordered offenders. Chapter 1 reviewed the prevalence of offending and recidivism in offenders with LD and concluded that risk assessment of violence was an area that required further research. The literature regarding the risk factors for offending in this population illustrated that it was unclear if the risk factors for offending are qualitatively different to other mentally disordered offenders without LD. This was tested in Chapter 2 and it was found that the factors related to offending in offenders with LD were not different to other mentally disordered offenders. This provided evidence for the criterion validity of 'best practice' risk assessment instruments, the VRAG, the PCL-R and the HCR-20, already validated in mentally disordered offenders (the predictive efficacy of these instruments was also reviewed in Chapter 1).

Chapter 3 and 4 tested the predictive efficacy of the VRAG, the PCL-R (and its variants) and the HCR-20 in offenders with LD by evaluating the ability of the risk assessment instruments to predict long-term re-convictions (Chapter 3) and institutional violence (Chapter 4) in offenders with LD in comparison to a control group of other mentally disordered offenders. It was found that the VRAG, the PCL-R (and its variants) and the HCR-20 have comparable or superior predictive efficacy in offenders with LD. Chapter 5 served to complement these findings with the development of a screening tool for risk of violence in offenders with LD. The research contained in this thesis has extended the evidence base on risk assessment in offenders with LD and should hopefully serve to improve evidence based practice and service provision in forensic services for people with LD.

Chapter 1

Introduction

1.1   Definitions

Diagnostic classification systems such as ICD-10 (World Health Organisation, 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. Mental retardation is summarised as a condition of arrested or incomplete development of mind. Various terms are used throughout the research literature to describe these criteria: mental retardation, learning disabilities, developmental disabilities and intellectual disabilities. These terms all refer to the same cluster of criteria. In the present context the term learning disabilities (LD) will be used as it is the term used in UK health services.

Those with LD have been described as a heterogeneous group with differing but overlapping aetiologies (Holland, 2004). Some with LD have a biological basis for their LD (such as a specific genetic disorder or brain damage); such people are reportedly found across all socio-economic groups (Birch, Richardson, Baird, Horobin & Illsley, 1970), whereas others have an environmental basis (such as social deprivation) who will more likely be of low socio-economic status (Birch et al., 1970). Due to these different aetiologies there may be many pathways and processes that lead to maladaptive behaviour in this group. Holland (2004) further states that

the two groups will present with complex needs that are unrecognised and untreated

by society. Cullen (1993) adds that those with LD have poor self control and focus on

their immediate needs being met. This, coupled with the absence of appropriate

behaviour repertoires, leads to maladaptive behaviour. As a result of their mental

disorder, those with LD who offend are transferred from the criminal justice system to

the mental health system (for example, Murphy & Mason, 1999).

The emphasis of the proposed new Mental Health Act is public protection

(Holland, 2004). The accurate prediction and management of future dangerousness

(recidivism and violence) in mentally disordered offenders is therefore 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 both to accurately assess the risk that a

patient will be dangerous in the future, and to identify the risk factors/contexts that

may trigger such behaviour. There are a number of risk assessment instruments that

have been developed to aid clinicians to conduct risk assessments of future violence

in mentally disordered offenders. The evidence base to support their predictive

validity is presented below (Section 1.4). However, offenders with LD represent a

subgroup of mentally disordered offenders that have thus far been largely ignored in

the literature on methods of risk assessment of future violence (Barron, Hassiotis &

Barnes, 2004; Johnston, 2002). Quinsey, Book & Skilling (2004) state that based on

the progress made in using actuarial measures to predict long-tem risk in forensic and

correctional facilities little research has been developed for those with LD. Similarly,

Lindsay, Elliot and Astell (2004), state that compared to the field of mainstream

criminality the literature on how to predict future offences for those with LD is less

clear. Johnston (2002) says there is little direct evidence concerning risk assessment

instruments in this population.

1.2   Are those with LD at increased risk of offending?

Historically it has been reported that those with LD are at increased risk of

offending (for reviews see, Holland, 2004; Lindsay & Beail, 2004). There are three

ways of studying if those with LD are more or less likely to offend compared to

others. (1) Cohort studies can inform on the rate of offending of those with LD

compared to the general population. (2) The prevalence of offending in those with

LD gives an indication of the base rate of offending in this population. (3) The

prevalence of those with LD in the criminal justice system can inform on the

prevalence of offending perpetrated by those with LD compared to the general

offender population. The literature based on each of these methods will be reviewed

in an attempt to summarise this literature and address the question: Are those with LD

at increased risk of offending?

1.2.1   The prevalence of offending in those with LD in the community

Hodgins (1992) followed a cohort in Sweden from birth (in 1953) until age 30

($n = 15, 117$) and reported that men with LD (defined as those who had attended a

special class for the mentally retarded) were three times more likely to commit an

offence than those without LD. This increased to being five times more likely for

violent offences. This study is limited by the definition of LD as it does not reflect

the criteria required for a definition of LD according to ICD-10 (WHO, 1992) or

DSM-IV-TR (APA, 2004) and LD was only assessed in childhood. Hodgins,

Mednick, Brennan, Shulsinger and Engberg (1996) in a total population study in

Denmark (those born between 1944 and 1947, followed until age 43) also reported

that those with LD had an increased risk of being convicted for an offence. In this

study LD was defined as those admitted to a psychiatric ward for LD and so it is more

likely that this cohort received a psychiatric diagnosis of LD. Although this definition

is more valid, it excludes those with LD in the community and so may reflect a high

risk population which may have in turn biased the results. These studies provide

some limited evidence that LD (as measured in these studies) is related to criminal

behaviour, though retrospective studies do not enable cause to be distinguished from

effect. It is possible that people were assigned to special classes (Hodgins, 1992) or a

psychiatric ward (Hodgins et al., 1996) due to difficult antisocial or challenging

behaviour.

The best way to study if those with LD are more or less likely to commit

offences is to study the general population prospectively and compare those with LD

to those without LD. In a truly prospective study, West and Farrington (1973)

conducted a long-term follow up of working class boys in London ($n = 411$). Those

who committed offences (one third of the total population studied, by age 32) were

more likely to have LD, defined as low intelligence as assessed by the Ravens

Matrices, a test of non-verbal intelligence (Ravens, Court & Ravens, 1990) amongst

other variables (performing poorly in school, being smaller, more hyperactive and

more impulsive at age 10 and more likely to have come from larger, poorer families).

It should be noted that 6% of those who committed offences were responsible for over

half of all of the offences and so the characteristics found to be pertinent to offending

may be unduly influenced by a few individuals. As in the retrospective cohort studies

(Hodgins, 1992; Hodgins et al., 1996) the definition of LD does not meet the criteria

set out in ICD-10 (WHO, 1992) or DSM-IV-TR (APA, 2004). The study by West

and Farrington (1973) is frequently cited as evidence that those with LD are more

likely to offend than those without. However, the relationship between low

intelligence and criminal behaviour did not hold out over a longer follow up period.

Farrington et al. (2006) have now followed these participants until age 50.

Intelligence was deemed a much less important predictive factor for offending and did

not significantly predict persistent offenders. Low non-verbal intelligence (measured

by the Ravens Matrices) did significantly predict those who started offending later in

life compared to those who did not offend.

Cohort studies have the benefit of being very large and thus are statistically

powerful research designs. There is some limited evidence from these cohort studies

that those with LD are more likely to offend than those in the general population.

However, this is based on just three studies.

1.2.2   Offending in those with a learning disability known to services

A handful of studies (specified below) have looked at offending behaviour in

those with LD in the UK. The most frequently cited study of this design is Lyall,

Holland and Collins (1995a) who investigated the extent and nature of offending of

those in residential placements in all non-forensic LD services in Cambridge. Details

of offences committed were taken from interview with senior staff and from case

files. Of 385 people just seven (2%) had contact with the criminal justice system

during 1992. The criminal justice system discontinued one case due to a lack of

evidence and the remaining cases were given an informal warning. None of the seven

cases were prosecuted. Lyall et al. (1995a) comment on the extremely high tolerance

to offences by staff in these services. Theft and criminal damage were rarely

reported, staff in just 40% of establishments said that they would report a major

assault to the police and staff in just 10% of services said that they would report a

serious offence such as a sexual offence. McNulty, Kissi-Deborah and Newsom-

Davies (1995) found similar results in a review of cases in two community services

providers in London (consisting of 180 clients with LD residing in 60 non-forensic

supported accommodation homes). Nine (5%) clients had contact with the police.

See also Kiernan, Dixon and Smith (1995) and Seaward and Rees (2001).

These studies have measured offending behaviour by surveying staff that work

with those in receipt of LD services and asking them which of their clients have been

aggressive in the past (or over a set period of time). This requires staff to accurately

recall which clients have had contact with the police. It may be better to have the data

collected from the criminal justice system by an independent researcher. In addition,

what is lacking from these studies is a measure of the incidents that took place in the

supported accommodation that did not involve the police, in order to provide an

indication of the rate of incidents and the corresponding involvement of the police.

McBrien, Hodgetts and Gregory (2003) go some way to provide this data. Through

interview with professionals familiar with each case 348/1326 (26%) of clients (in

receipt of non-forensic LD services in Plymouth) were identified to exhibit behaviour

that constituted offending or whose behaviour placed them at risk of offending. The

majority of this group (63%) had had no contact with the criminal justice system,

despite their risky behaviour. The authors report that this translates to 9.7% of all

those known to health and social services due to LD having had contact with the

criminal justice system (measured through arrests).

All studies measuring the prevalence of offending behaviour have focused on

those in receipt of non-forensic LD services and so are limited in their generalisability

to other groups of those with LD, such as those with LD in the community or in

forensic services. When considering forensic psychiatric populations in addition to

purely LD services, Barron et al. (2004) reported an increased prevalence of 14.8% of

those in receipt of both LD and forensic services (in four London Boroughs) to have had contact with the criminal justice system.

The existing literature is only able to provide snap shots of the criminal activity of those in specific LD services. Ideally any study that attempted to assess the prevalence of offending in those with LD would draw figures from across the UK to incorporate any differences across services. From the available literature it seems that there is a low base rate of offending, between 2% and 9.7% of service users. However, these figures may be under-estimated due to staff working with LD minimising offending behaviour in those with LD (Lyall et al., 1995a; McBrien et al., 2003; McNulty et al. 1995). It is possible that these figures reflect a working culture that minimises aggression in this population. Alternatively, it is possible that patients in non-forensic LD services are aggressive but the aggressive behaviour does not warrant police contact. This requires further study as Puri, Lekh and Treasaden (2000) found no significant difference in the number of previous convictions or number of previous prison sentences for those in a medium secure unit for those with LD and those in a medium secure unit for other mentally disordered offenders.

1.2.3 The prevalence of offenders with LD throughout the criminal justice system

The prevalence rates of those with LD are taken from different stages of the criminal justice system (police stations, in court, remand prisoners and convicted prisoners). At each stage of prosecution a decision has to be made (by the relevant person) as to whether to proceed to the next stage of the criminal justice system or not. For example, a victim may not report a crime to the police or the Crown Prosecution Service may decide that there is insufficient evidence to justify taking the case to court. The further through the criminal justice system that the prevalence

figures are taken from, the less likely it is that the number of offenders in the system represents the actual number of offenders who have committed a crime. Consequently convicted offenders are likely to only represent the 'tip of the iceberg' of actual offenders (Holland, 2004; Holland, Clare & Mukhopadhyay, 2002; Johnston, 2002; Murphy & Mason, 1999). This makes it difficult to compare prevalence figures across the system. To aid comparison across studies the literature will be divided into studies that have measured the prevalence of offenders with LD within each of the various stages of the criminal justice system; in police stations, in court and in prison. The literature will also be divided into international studies and studies based in the UK so as not to compare prevalence rates from different social and political systems.

1.2.3.1 Police Stations

The prevalence of offenders with LD would be expected to be highest when being measured in police stations as this is the first point of contact in the criminal justice system and so there are fewest opportunities for the case to have been diverted from the criminal justice system or dropped prior to this stage.

Cockram and Underwood (2000) state that offenders with LD are over-represented in police stations in Australia. As far as I am aware, there are no other international studies that have measured the prevalence of offenders with LD in police stations. Studies of note that have attempted to measure the prevalence of those with LD in police stations in the UK are Gudjonsson, Clare, Rutter & Pearse (1993), Lyall, Holland and Collins (1995b) and Winter, Holland and Collins (1997). See also Irving (1980); Irvine and McKenzie (1989).

Gudjonsson et al. (1993) report that 9% (14/156) of offenders at a London police station had a Full Scale IQ below 70 (Learning disability range; Wechsler Adult Intelligence Scale, WAIS-R; Wechsler, 1981). IQ was assessed using three

subscales of the WAIS-R (Wechsler, 1981) and so was not a complete assessment of IQ. The accuracy of the IQ assessment may have been compromised as it is not standardised procedure to administer just three subscales of the WAIS-R when completing a full cognitive assessment.

Lyall et al. (1995b) reviewed those taken into police custody in Cambridge city police station. LD was measured through self-report questions (an adapted measure by Clare & Gudjonsson, 1993) which ascertained if the person had reading or writing difficulties, if they had been to a special school, or if they had received extra help in a mainstream school. Of those screened 4.4% had attended a school for children with learning disabilities and a further 10.4% had attended a school for children with emotional or behavioural difficulties or had received learning support within a mainstream school.

Winter et al. (1997) built on these two earlier studies and measured the prevalence of LD at the same Cambridge police station as Lyall et al. (1995b). A prevalence rate of 20% of offenders in police custody were positively screened by the self report measure, however, just 9.5% had a Full Scale IQ below 70. The decrease in prevalence rate when the more robust measure of IQ was taken suggests that the screening measure may over-identify those with LD. Considering the similarities in design between Lyall et al. (1995b) and Winter et al. (1997) there are quite large differences in the prevalence rate of offenders with LD reported by the screening measure which suggests that the measure has low reliability. This is further supported by the similarities in the prevalence rate of offenders with LD when using the more robust IQ measure, 9% reported by Gudjonsson et al. (1993) and 9.5% reported by Winter et al. (1997). The screening method (Lyall et al., 1995b; Winter et al. 1997) is further limited as the accuracy of the data relies upon the suspects being willing and

able to disclose their history (in addition to the possibility that offenders may be motivated to lie, a characteristic of learning disability is a poor memory (Wecshler, 1997)). Furthermore, measuring attendance at special school is influenced by the historical and social context of whether to educate people with LD in mainstream or specialist schools.

None of the studies employed a measure of LD that measures all of the criteria required for a diagnosis of LD (APA, 2004; WHO, 1992). It is not clear from Gudjonsson et al. (1993), Lyall et al. (1995b) or Winter et al. (1997) how many of these persons would have met the full criteria for LD. Therefore it is difficult to conclude the prevalence of those with LD in police stations in the UK, though approximately 9% of those arrested had a Full Scale IQ below 70, an important contribution to a diagnosis of LD.

1.2.3.2 Courts

Not all people arrested for an offence are taken to court for that offence and so it would be expected that the prevalence of offenders with LD would be lower when taking figures from those presenting at court compared to those in police stations.

In the US the prevalence of those with a Full Scale IQ below 70 has been reported to be between 2.4% and 2.6% in three separate studies; Bromberg and Thompson (1937) and Messinger and Apfelburg (1961). See Kunjukrishnan (1979) for a Canadian study that reports that offenders with LD are over-represented in court. In Australia, Hayes (1993; 1996a), reports a high prevalence rate of those with a Full Scale IQ below 70 in court (42% and 36% respectively). In these studies LD was measured using an un-timed non-verbal test. The majority of these participants were Aboriginal which represents a very limited sub-group of offenders, though the over-

representation of offenders with LD has been supported by Cockram (2005) in non-Aboriginal Australians.

There are many studies that have assessed the success of court diversion schemes in the UK (set up to divert those with mental health problems from the criminal justice system into the mental health system) which have reported on the prevalence of those with LD presenting to court; Bangaree, O'Neill-Byrne, Exworthy and Parrott (1996); Cooke (1991); Exworthy and Parrott (1993); Holloway and Shaw (1992); James (1996); Joseph and Potter (1993); Robertson, Dell, James and Grounds (1994); Rowlands, Inch, Rodger and Soliman (1996). These studies involve a psychiatrist or a community nurse (Rowlands et al., 1996) assessing the presence of a mental disorder for those referred to the diversion scheme. The prevalence rate of those with a diagnosis of LD in these studies ranges from 0% to 6.8%, which is, in the main, lower than those reported in police stations. However, in none of the studies was an assessment of cognitive functioning completed which is necessary for a diagnosis of LD. An assessment of intellectual functioning in the absence of a cognitive assessment is questionable.

The only study in the UK to specifically measure the prevalence rate of offenders with LD presenting to court is French, Brigden and Noble (1995). French et al. (1995) report that 1.4% of offenders presenting to court had LD. This is again lower than the prevalence rate of offenders with LD identified in UK police stations. French et al. (1995) identified LD using the Quick test (a verbal-perceptual test of intelligence; Ammons & Ammons, 1962) in combination with the screening report used by Lyall et al. (1995b) and Winter et al. (1997). It is possible that the differences in prevalence rates reported represent a true difference in rates of offenders with LD at different stages of the criminal justice system, with more offenders with LD

presenting to police stations than to court due to decisions being made to discontinue cases at the police station. It is difficult to conclude this with any confidence as different studies employed different assessment techniques.

1.2.3.3 Prisoners on remand

Remand prisoners are those detained awaiting trial. Defendants are remanded if they do not meet the criteria for bail (if they are deemed too dangerous) or if they are vulnerable (to re-offending) in the community. Those found on remand in UK prisons reflect a similar cohort to those presenting to court diversion schemes as they contain a high number of defendants who have been remanded awaiting a psychiatric assessment (Taylor & Gunn, 1984).

The prevalence figures of offenders with LD who are on remand in the UK also varies depending upon the design of the study. Coid (1988) reported that 10.2% (34/334) of remand prisoners were of 'sub-normal intelligence': 5.1% (17/334) had a Full Scale IQ score below 75 and 5.1% (17/334) had at some time in the past received healthcare services for LD. Birmingham, Mason & Grubin (1996) report a prevalence rate of 13% measured by a Full Scale IQ score below 70, but just 1% based on psychiatric interview alone. Using the Quick Test and psychiatric interview Brooke, Taylor, Gunn and Maden (1996) report a prevalence rate of 0.77%; Gunn, Maden and Swinton (1991) report a prevalence rate of 0.4%. This method of assessment is close to the actual method employed in diagnosing LD, though a Full Scale IQ should be measured using a standardised IQ test such as the WAIS. These prevalence rates are lower than the prevalence of offenders with LD that were identified in UK police stations and may reflect the successful employment of the diversion scheme to divert those with LD away from the criminal justice system and into the mental health service.

Murphy, Harnett and Holland (1995) employed the screening measure used by

Lyall et al. (1995b) and Winter et al. (1997) and found 21% of remand prisoners self-

reported learning difficulties (compared to 20% reported by Winter et al., 1997, and

4.4% - 10.4% reported by Lyall et al., 1995b, in police stations), however, none of

this index group had a Full Scale IQ below 70. This adds further weight to the notion

that self-reported LD is an unreliable measure and over identifies LD. The studies of

remand prisoners taken together further adds to the inconsistency in prevalence rates

noted in police stations and court studies due to a lack of consistency in assessment

measures. As stated in section 1.2.3.1 (with regard to studies in police stations) no

studies of remand prisoners have measured LD across different geographical areas or

services.

1.2.3.4 Convicted prisoners

Noble and Conley (1992) review the prevalence literature in US prisons and

identify two major studies that have measured the prevalence of offenders with LD in

the prison system across the US. Based on a Full Scale IQ below 70, Brown and

Courtless (1971) report a prevalence rate of 9.5% and Denkowski and Denkowski

(1985) report a prevalence rate of 2% (this latter figure is supported by MacEachron,

1979, who reviewed the prevalence rate across two US states). Noble and Conley

(1992) note that the lower prevalence rates are reported when using individual IQ

tests and not group tests as employed by Brown and Courtless (1971) and conclude

that the prevalence rate of 9.5% reported by Brown and Courtless (1971) is an over-

estimation of the prevalence of offenders with LD. Day (1993) also reviewed the

literature in US prisons (and in UK prisons). Hayes (1988, as cited in Kilmecki,

Jenkinson & Wilson, 1994) tested prisoners in all New South Wales prisons on the

Kaufman Brief Intelligence Test (Kaufman & Kaufman, 1990) and 2.4% of this

Australian prison population had a Full Scale IQ below 70 and 10.5% had a Full Scale

IQ below 80 (Borderline learning disability range; Wechsler, 1997). However, Hayes

(1993) tested 113 prisoners on the same measure and reported that 14.2% of the

prison population had a Full Scale IQ below 70. See also Jones and Coombes (1990)

who reported a prevalence rate of 3.6% of prisoners with a Full Scale IQ below 80

and Cashin, Butler, Levy and Potter (2006) who report a prevalence rate of 3%.

In Ireland, Carey, Harrold, Mulrooney and Murphy (2000) report that 28% of

prisoners had a Full Scale IQ below 70. The only study to have recruited a stratified

sample of all prisoners in England and Wales (Singleton, Meltzer, Gatward, Coid &

Deasy, 1998) assessed LD according to the Quick Test and ICD-10 criteria of social

and adaptive functioning deficits (a measure that reflects an actual diagnosis of LD)

and report a prevalence rate of offenders with LD of 11%. However, unfortunately

the diagnostic interview was conducted by a lay person not by a psychiatrist. This is a

higher prevalence rate than that reported in remand prisoners and offenders identified

in police stations. This may therefore refute the suggestion that prevalence rates

decline throughout the criminal justice system due to the use of diversion schemes,

but more probably simply highlights the inconsistencies in the research literature due

to employing different and unreliable assessment techniques. Indeed, Hayes,

Shackell, Mottram and Lancaster (2007) report that 7.1% of a random sample

(140/1400) of prisoners in a UK prison had a Full Scale IQ below 70 and 10.1% had a

Vineland Adaptive Behaviour Scales (VABS; Sparrow, Balla & Cicchetti, 1984)

score below 70. However, only 2.9% of the sample had both a Full Scale IQ and a

VABS score below 70.

1.2.3.5 Probation

Offenders on probation represent convicted offenders who have been given community orders as opposed to incarceration at sentencing. It is possible that there are social and political factors that influence the number of those sentenced to prison and the number given a probation order. For example, if prisons are full there may be pressure on the courts to give community sentences, possibly even in cases that would have previously received a custodial sentence. Conversely, the government may amend the law to give longer sentences for certain offences in order to deter people from committing such crimes. For example, presently the government is reportedly 'cracking down' on knife crime. There are two studies from one research group (Mason & Murphy, 2002a; Mason & Murphy, 2002b) that have measured the prevalence of LD in offenders on probation.

Mason and Murphy (2002a) screened for LD in probationers in one single probation service using a number of methods of assessment; by simply asking probation officers to identify those on their case load who they thought might have LD; interviewing probationers using the screening questions developed by Clare and Gudjonsson (1993); administering two subscales of the British Ability Scales, a numerical skills test and a reading test (Elliott, Murray & Pearson, 1983). Of seventy probationers, sixteen (22.8%) were identified as having LD.

This research design was widened to examine the prevalence of LD in the probation service in one county in England (Mason & Murphy, 2002b). This study developed the use of an assessment technique designed to reflect the criteria necessary for a diagnosis of LD according to ICD-10, the Learning Disabilities in the Probation Service (LIPS; Mason & Murphy, 2002c). Mason & Murphy (2002b) report the LIPS to be highly correlated with the WAIS-R. Using the LIPS a prevalence rate of 19%

(17/90 probationers) was identified. Although this is one of the few studies (see also

Singleton et al., 1998) with an ecologically valid assessment of LD, the use of the

LIPS to assess LD requires replication.

1.2.3.6 Summary of the prevalence of those with LD in the criminal justice system

The prevalence rate of offenders with LD tends to be lower in US studies

compared to UK studies. For example, based on IQ assessments, studies in the US

consistently report the prevalence of those with a Full Scale IQ less than 70 to be

2.5% (2.4% - 2.6%) in court and in prison compared to 9% and 11% (full assessment)

in the UK. The prevalence rate of offenders with LD tends to be lower in the UK

compared to studies in Australia where studies consistently report very high

prevalence rates. These differences in prevalence rates may be due to social and

political factors specific to those countries.

There are also differences in prevalence rates within UK studies. A key

difference across studies is the method used to assess LD (methods include

behavioural observations, self-reported learning difficulties, cognitive assessment, IQ

or part IQ assessment). Employing different measures to assess LD makes it difficult

to compare prevalence figures across studies as some methods over-represent those

with LD. For example, the screening measure employed by Lyall et al. (1995b);

Murphy and Mason (2002a); Mason and Murphy (2002b) and Winter et al. (1997)

resulted in prevalence figures ranging from 4.4% to 21%. Other methods may

underestimate the prevalence of those with LD. For example, IQ tests, Gudjonsson et

al. (1993) and Winter et al. (1997) result in prevalence rates of about 9% compared to

a full assessment (Murphy & Mason, 2002b; Singleton et al., 1998) which resulted in

a prevalence rates of 11%-19%. It is therefore very difficult to summarise this

literature.

A normal distribution of intelligence necessitates that 2.2% of the population

have an IQ lower than 70, the cut-off score for a diagnosis of LD (Wechsler Adult

Intelligence Scale, Third Edition, WAIS-III; Wechsler, 1997). If a diagnosis of LD is

a risk factor for offending a prevalence rate greater than the normative 2.2% would be

expected to be evident in the criminal justice system[1]. The reported prevalence of

those with LD in police stations ranges from 4.4% to 20%, though based on IQ

assessments the prevalence rate was fairly consistently about 9% (from 9% to 9.5%).

In those presenting to court the prevalence figures ranged from 0% to 6.8% based on

psychiatric diagnosis in the absence of a cognitive assessment. The prevalence of

remand prisoners in the UK identified as having LD ranged from 0.77% to 20%.

These figures are based on a variety of assessment techniques. A recent

comprehensive study of prisons in England and Wales estimated a prevalence figure

of 11% based on an assessment that attempted to measure the criteria necessary for a

diagnosis of LD. Using a similar technique in offenders on probation a prevalence of

19% has been reported (Mason & Murphy, 2002b). This literature suggests that those

with LD are over-represented in the criminal justice system, but this is largely based

on methodologically flawed literature.

It is also necessary to consider that offenders with LD are diverted out of the

criminal justice system and into the mental health system (Holland et al., 2002;

McBrien, 2003). Sansom & Cumella (1995) report that of 100 admissions to a

medium secure unit for those with LD, 93 were admitted due to an offence and 60 had

a criminal history prior to being admitted. Eighty-eight (88%) of the admissions were

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[1]

This does not take into account the small number of people who receive a diagnosis of LD due to sub-
average adaptive functioning abilities but whose Full Scale IQ is greater than 70.

admitted through the criminal justice system, though only 22 of these were detained in prison. The rate at which people are diverted from the criminal justice system is influenced by the political climate (which of course is a dynamic influence) and so prevalence figures in both the criminal justice system and mental health system will change over time without necessarily an actual change in the rate of offenders with LD. Special hospital figures (Woods & Mason, 1998) reveal that 12.6% of admissions to high secure hospitals over the preceding 20 years had a diagnosis of mental impairment (akin to LD).

The majority of the evidence that is available does suggest an increased risk of offending in those with LD. However, it is not possible (based on the existing literature) to conclude with confidence if a diagnosis of LD increases a person's risk of offending and/or violence. Even if the literature were able to inform if LD is a risk factor for future violence, then this information remains of only limited use to clinicians. Such studies do not inform which offenders from a population of offenders with LD will be violent in the future and therefore with whom services need to intervene. Based on published recidivism rates for offenders with LD (reported below in section 1.2.5) this is a considerable problem for professionals working with this population.

1.2.4   Recidivism rates

Cockram (2005) reports that those with LD have a higher base rate of re-offending compared to general offender populations in Australia. This was a large and comprehensive study of all those with LD (77% of the total LD population known to health, disability and education services in Western Australia were included) followed over 11 years. Approximately 1/3 (30.6%) of this index group were in receipt of services, though the type of service that they were in receipt of was not

specified. Therefore it is not clear what percentage of the index group were in receipt

of forensic services (or non-forensic services). The index group (non-aboriginal

males with LD; $n = 304$) had higher probabilities of re-arrest and they re-offended at a

greater rate. Twenty percent of the index group were re-arrested at least five times

and 12% of a comparison group ($n = 2442$) were re-arrested at the same rate.

Offenders were identified as those who had been arrested (data taken from a national

database) at least once. See also Kilmecki et al. (1994) for a review of recidivism in

offenders with LD in Australia.

There is evidence that offenders with LD in the UK re-offend at rates

comparable to general offenders; 30% compared to 43% (Lindsay & Taylor, 2005),

and is reported to be as high as 40% - 70% by Lindsay, Steele, Smith, Quinn and

Allan (2006). In their study, following offenders with LD in the community for 12

years, 59% re-offended (see also Lindsay, Smith, Law, et al., 2004). These figures

were higher compared to sex offenders with LD and female offenders with LD.

Unfortunately it was not possible to directly compare these figures to other offender

populations (without LD). Alexander, Crouch, Halstead and Piachaud (2006)

followed 64 patients discharged from a medium secure unit for those with LD and

found that 11% of this sample were re-convicted within the 12 year follow up period

and a further 11% received a police caution. Halstead, Cahill and Fernando (1995)

report that 1/3 of those discharged from a medium secure unit for those with LD re-

offended over a five year period but just one person was re-convicted.

These studies highlight how recidivism figures are subject to the same

limitations as the prevalence rate studies. Using convictions as a measure of

offending results in the 'tip of the iceberg' of actual offences committed being

recorded (for example, Holland, 2004). Turner (2000) comments that offending

behaviour among people with LD is labelled as challenging behaviour and frequently does not involve the full legal process, which makes it very difficult to circumscribe. Further, Johnston (2002) notes that there is an underestimation of risk in offenders with LD due to the use of fitness to plead legislation in the UK. Similarly, other mentally disordered offenders may present with offending behaviour but, for a range of reasons, do not get convicted for such behaviour. There is a gap in the literature to adequately compare the base rate of offending in offenders with LD to other offender populations.

In addition to criminal justice figures, Alexander et al. (2006) report that 58% (38/64) were reported by their current institution to present with offending behaviour that did not receive a conviction. This was serious behaviour including attacking others, attempts to strangle, threats to kill, threats of arson, sexual assault/inappropriate sexual behaviour, theft, drug abuse and damage to property. It may be that many of these offending like behaviours would have led to police contact had the person been residing in the community at the time. The ability to identify offenders with LD who will re-offend is a problem that needs addressing as recidivism is costly to services and to society. Indeed, Lindsay and Taylor (2005) conclude that there is a considerable problem of lack of information about risk of re-offending in those with LD. Several reviews of the literature (for example, Holland et al., 2002; Johnston, 2002) have identified risk assessment of future offending in offenders with LD to be a priority area of research. The majority of the literature to-date that has attempted to address this issue has evaluated the risk factors for offending in offenders with LD.

1.3   Risk factors for offending in offenders with LD

Offenders with LD are a subgroup of mentally disordered offenders who are treated as a specialist group in the mental health system in the UK (Murphy & Mason, 1999). In addition, the literature indicates that those with LD offend at a higher rate than the general population (Hodgins, 1992; Hodgins et al., 1996; West & Farrington, 1973) and that offenders with LD are over-represented in the criminal justice system (for example, Murphy & Mason, 2002b; Singleton et al., 1998) and offenders with LD in the mental health system have a high rate of recidivism (Lindsay & Taylor, 2005; Alexander et al., 2006), at least as high as general offender groups. Consequently there is a large literature that has investigated the risk factors for offending in those with LD[2].

There are many studies in the literature that simply describe the characteristics of offenders with LD but do not employ a control group to compare the characteristic of offenders with LD to (these references are presented and discussed below). A control group of the general LD population would enable risk factors for offending to be identified for treatment/management in this group. In addition a control group of other offender groups (general offenders or other mentally disordered offenders) could inform if offenders with LD should be treated as an offender group with specialist needs. There are just a handful of studies that have employed a control group. Lund (1990) and Winter et al. (1997) compared offenders with LD to non-offenders with LD. Cockram (2005); Finn (1992) and Murphy et al. (1995) compared offenders with LD to general offenders in prison populations. Puri et al. (2000) and Woods and Mason (1998) compared offenders with LD to other mentally disordered

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[2] Studies that have looked at the characteristics of those with LD with challenging behaviour are not reviewed here as they are not deemed relevant, see McClintock, Hall and Oliver (2003) for a review and Crocker, Mercier, Allaire & Roy (2007) for a recent paper.

offenders in forensic psychiatric settings and Alexander et al. (2006) compared

offenders with LD who recidivated to offenders with LD who did not in order to

identify risk factors for offending.

The risk factors discussed in the literature could be broadly defined as

personal demographic variables, deviant lifestyle variables, criminal history variables

and clinical variables and will be reviewed within these categories.

1.3.1 Demographic variables

It has consistently been reported in the literature that offenders with LD are

more likely to be male than female (Barron et al., 2004; Brooke, 1998; Kearns &

O'Connor, 1988; Linhorst, McCutchen & Bennett, 2003; Lund, 1990; Lyall et al.,

1995b; Mabile, 1982; Sansom & Cumella, 1995; Simpson & Hogg, 2001; Thomson,

1997; Winter et al., 1997). The percentage of male offenders ranges from 74% to

95% in these studies. There are no studies that report a higher prevalence of females

in groups of offenders with LD. Lindsay, Smith, Quinn et al. (2004) considered the

risk factors for offending in female offenders with LD. Female offenders with LD

were more likely to have a major mental illness, to have been sexually abused and to

have lower prevalence rates of offending than their male counterparts (data was

compared with previously published data). See also Lindsay, Steele, et al. (2006).

Simpson and Hogg (2001) in a review of the literature state that there is

evidence that offenders with LD are older than other offenders (based on the existing

literature, not through direct comparison; this is supported by Day, 1988; Hodgins,

1992; Kearns & O'Connor, 1988; Kilmecki, et al., 1994; Lund, 1990; Lyall et al.,

1995b; Mabile, 1982; Murphy et al., 1995; Sansom & Cumella, 1995; Thomas &

Singh, 1995; Winter et al., 1997) though this is contested by others (Barron et al.,

2004; Glaser & Deane, 1999; Lindsay, Smith, Law, et al., 2004; Lindsay, Steele, et

al., 2006; Linhorst et al., 2003; Thomson, 1997). Furthermore, those studies that did

employ a control group and directly compared offenders with LD to mentally

disordered offenders (Puri et al., 2000; Woods & Mason, 1998) reported offenders

with LD to be significantly younger at the time of the study, at the time of the index

offence and at the time of the first conviction. Alexander et al. (2006) also found

being young increased the likelihood of re-offending in offenders with LD. Due to

the conflicting evidence in the literature it is difficult to conclude if offenders with LD

differ to mentally disordered offenders in this regard. Lindsay, Steele, et al. (2006)

discuss this issue and suggest that de-institutionalisation in the 1990's may have

unnaturally inflated the age of offenders with LD (studied at that time) as for those

offenders with LD discharged into the community who then offended, the age of first

offence would be older as any previous offences that occurred whilst in the institution

would not have been processed by the criminal justice system. On the balance of the

research it may be more reliable to suggest that offenders with LD are younger (at the

time of offending).

There are many studies that report that the majority of offenders with LD are

of low socio-economic status (Day, 1988; Kilmecki et al., 1994; Mabile, 1982;

Murphy et al., 1995; Simpson & Hogg, 2001). This is supported by those studies that

have compared the socio-economic status of offenders with LD to a control group of

non-offenders (Lund, 1990; Winter et al., 1997). There are two studies that have

compared the characteristics of offenders with LD to the general offender population.

Cockram (2005) in a large cohort study in Australia reported no differences in

demographic variables across the two groups. Similarly, Finn (1992) found no

differences in age or gender between offenders in the prison system in the US with an

IQ in the learning disability, borderline or normal ranges. Further, Puri et al. (2000)

do not report any significant difference in socio-economic status, though in the offenders with LD group 20% of their fathers were unemployed compared to none in the mentally disordered offender group and significantly more of those with LD were unemployed (these factors could be taken as an indication of low socio-economic status). Therefore there is some agreement that low socio economic status is a risk factor for offending in this population, though this is based upon some indirect findings.

1.3.2 Deviant lifestyle variables

Lund (1990) in a Danish cohort study compared offenders with LD (a subgroup of 274 offenders with LD; $n = 72$) to a matched sample of those with LD who had not offended ($n = 72$) on clinical and demographic variables. Lund (1990) reported that offenders with LD significantly differed to non-offenders on the prevalence of behaviour disorder (and socio-economic status) but no other clinical or demographic variables. This is supported in the UK by Winter et al. (1997) who investigated the characteristics of those with LD in police stations compared to a control group of those with LD who had not offended (taken from a database of young people with learning difficulties of a similar age, sex and IQ range); they reported that the offender group were more likely to have behavioural problems at school and a history of substance abuse or dependence. Murphy et al. (1995) compared offenders with LD with general offenders and report that drug use in those with LD was slightly higher and the percentage of those coming off drugs was considerably higher in the LD group. However, those with LD were more likely to be coming off cannabis whilst the control group were more likely to be coming off heroin. Drug type may have implications for treatment and risk management as the consequences of relapse may be different. Crucially, Murphy et al. (1995) did not

report if these differences were significant or not. There is also evidence that alcohol

abuse is a problem for offenders with LD (Hayes, 1996b; Lindsay, Steele, et al.,

2006). This literature suggests that drug abuse and alcohol abuse may be factors for

offending in offenders with LD.

1.3.3   Criminal history variables

Bernal and Hollins (1995) reviewed the literature and suggest that arson and

sex offences are over-represented in offenders with LD who have been given a

hospital order. This has also been discussed in other reviews (for example, Johnston,

2002). The over-representativeness of arson is supported by some (Bradford &

Dimock, 1986; Cullen, 1993; Enanyan, Grann, Lubbe & Fazel, 2008; Halstead, et al.,

1995; Hawk, Rosenfield & Warren, 1993; Hogue et al., 2006; Leong & Silva, 1999;

Prins, 1980; Rasanen, Hakko & Vaisanen, 1995; Walker & McCabe, 1973).

However, Lindsay, Steele, et al. (2006) in a follow up of offenders with LD over a 12

year period did not find arson to be over-represented in this population. The over-

representation of sex offences is also supported by some (Cullen, 1993; Day, 1988;

Day, 1993; Hawk et al., 1993; Hayes, 1991; Murphy et al., 1995; Murrey, Briggs &

Davis, 1992; Puri et al., 2000; Robertson, 1981; Sansom & Cumella, 1995; Walker &

McCabe, 1973). Hogue et al. (2006) report that 50% of all offenders with LD (in

low/medium security and high security compared to those in the community) had a

history of sex offending. However, the sex offences were qualitatively different,

being more likely to involve a weapon in high and low/medium security compared to

those in the community.

Alexander et al. (2006) report that a history of theft and burglary compared to

other offences predicted recidivism in offenders with LD. It has also been reported

that offenders with LD are more likely to commit a violent index offence and/or have

a history of violent offences (Alexander et al., 2006; Baroff, 1996; Barron et al., 2004; Glaser & Deane, 1999; Lindsay, Smith, Law, et al., 2004 (though this was a group of offenders with LD compared to a group of sex offenders also with LD); Noble & Conley, 1992) or an index offence / history of damage to property (Cockram, 2005; Kearns & O'Connor, 1988; Su, Yu, Yang, Tsai & Chen, 2000; Woods & Mason, 1998). Lund (1990) in a cohort study reported that there was a trend in the type of offences that offenders with LD in Denmark ($n = 274$) were committing, with crimes against property decreasing between 1973 and 1984 whilst crimes against the person, sexual offences and arson were increasing. Day (1994) observes that the cohort offence rate / types may have been influenced by de-institutionalisation in Denmark at this time.

Woods and Mason (1998) conducted a review of the patients in high secure hospitals in the UK over the previous 20 year period. They report that offenders with LD were significantly more likely to be admitted for damage to property offences compared to the control group of mentally disordered offenders without LD. The most frequent reason for admission in those with LD was physical attacks against others and this was not significantly different to the control group (though those with LD were less likely to have an index offence of murder or attempted murder). This is a useful study, especially as it compared the characteristics of offenders with LD over a long time period, but it is noteworthy that this data may reflect political and social agendas influencing the type of patients admitted to high secure hospital. As offenders with LD are treated as a specialist sub group of mentally disordered offenders, it is possible that the social and political climate over this time period affected the two groups differentially.

From this literature it is not possible to conclude if offenders with LD are at

increased risk for certain offence types as even those studies with a suitable control

group (Alexander et al., 2006; Puri et al., 2000; Woods & Mason, 1998) are

conflicting in their findings. Hogue et al. (2006) report that offenders with LD also

differ within the population, with different levels of violent offences in different

levels of secure provision (with more violent offences being more prevalent in

conditions of higher security).

1.3.4 Clinical variables

Reviews of the literature (for example, Simpson & Hogg, 2001; Turner, 2000)

report that there is an increased chance that offenders with LD are likely to have a co-

morbid psychiatric history. As to the specific type of mental disorder, some in the

literature suggest that offenders with LD are more likely to have a co-morbid

diagnosis of mental illness (Barron et al., 2004; Brooke, 1998; Ho, 1996; Murphy et

al., 1995 (compared to general offenders)) though the reverse has also been reported

(Day, 1988; Goldberg, Gitta & Puddephatt, 1995; Khan, Cowan & Roy, 1997;

Lindsay, Hogue, et al., 2006; Lund, 1990; Puri et al., 2000; Sansom & Cumella, 1995;

Woods & Mason, 1998).

Lindsay, Hogue, et al. (2006) note that an increased prevalence of a diagnosis

of personality disorder in offenders with LD may be due to the similarities in

dependent / immature personality disorder to the developmental problems faced by

those with LD (see section 1.1); see also Corbett (1979). Alexander and Cooray

(2003) and Reid, Lindsay, Law and Sturmey (2004) add to this and note the lack of

reliable diagnostic instruments (for personality disorder) employed in the research

literature. Lindsay, Hogue, et al. (2006) report that across three levels of security

39.3% of offenders with LD had a co-morbid diagnosis of personality disorder, mostly anti-social personality disorder.

Hogue et al. (2006) compared the characteristics of offenders with LD across different levels of security and found that those in conditions of high security were more likely to have a co-morbid diagnosis of personality disorder with most of those with a co-morbid diagnosis of mental illness residing in the community (the smallest percentage of offenders with LD with a co-morbid diagnosis of mental illness were residing in the low/medium secure unit). In a regression analysis anti-social traits of criminal damage, a lifetime conviction for murder and a diagnosis of personality disorder contributed to level of secure provision required. Lindsay, Hogue, et al. (2006) note that the group is highly selected, which is why it is crucial to have a control group of mentally disordered offenders. From the studies with a control group (Alexander et al., 2006; Puri et al., 2000; Woods & Mason, 1998) it seems offenders with LD are less likely to have a co-morbid diagnosis of mental illness (or more likely to have a personality disorder). A recent review (Torr, 2008) reported that a diagnosis of personality disorder (especially anti-social personality disorder) in offenders with LD is associated with poorer long-term outcomes: admission to high security, serious and repeat offending.

1.3.5   Summary of risk factors for offending in offenders with LD

This literature is limited as many of the studies tend to focus in one health district or service. This makes it very difficult to generalise the results to other offenders with LD as the characteristics of those studied may simply reflect service provision in a given area. There is little consensus in the literature as to what are the risk factors for offending in offenders with LD. However, there is some evidence to suggest that offenders with LD are young males with behavioural and substance abuse

problems and an increased likelihood of a diagnosis of personality disorder. Due to a

lack of research designs that have employed a control group it is difficult to conclude

if these risk factors are different to other offender populations. However, a meta-

analysis of the research literature pertinent to other mentally disordered offenders

(Bonta, Law & Hanson, 1998) suggests that these risk factors are amongst the

important risk factors for recidivism in other mentally disordered offenders. There is

also little consensus as to whether offenders with LD are more or less likely to

commit certain types of crimes, namely sex offences and arson. Considering the

recidivism rates reported by Lindsay, Steele, et al. (2006) and others (Alexander et al.,

2006; Lindsay, Smith, Law, et al., 2004; Lindsay & Taylor, 2005) this is a large

omission in the research literature. It is beneficial to know if / what the risk factors

for offending are in offenders with LD and crucially if these risk factors are different

to other mentally disordered offenders.

1.4   Best Practice in violence prediction in mentally disordered offenders

The aim of this section is to highlight the best practice in the prediction of

violence in mentally disordered offenders. Historically violence prediction was

completed by clinicians based on their expert opinion of the likelihood that the

individual will be violent in the future. Risk assessment of violence has since been

enhanced with the development of actuarial measures and structured clinical guides.

In addition to the development of specific risk assessment instruments it has

consistently been reported that the measure of psychopathy (the Psychopathy

Checklist-Revised; PCL-R, Hare, 1991; Hare, 2003) is crucial in any risk assessment

of violence (Hart, 1998). Indeed the PCL-R features in the leading actuarial measure,

the Violence Risk Appraisal Guide (VRAG; Harris, Rice & Quinsey, 1993) and the

leading structured clinical guide, the Historical, Clinical and Risk Management-20

(HCR-20; Webster, Douglas, Eaves & Hart, 1997). The research literature regarding

these 'best practice' methods of risk assessment will be reviewed.

1.4.1   Clinical Judgement

Risk assessment of violence based upon clinical judgement is simply the

subjective judgement of the clinician to assess if the patient is at risk of behaving

dangerously in the future (Grove, Zald, Lebow, Snitz & Nelson, 2000). The

Baxstrom versus Herald ruling (1966) identified that Johnnie Baxstrom who had been

detained beyond his prison sentence in a hospital for the criminally insane should be

released or provided with a civil commitment hearing where the state would have to

prove that he was dangerous. This resulted in the release of 966 mentally disordered

offenders from maximum security into the community or into settings of lower

security. Four years post-discharge only 3% had been returned to a hospital for the

criminally insane (Steadman & Cocozza, 1974). This landmark finding resulted in the

ability of expert clinicians to assess the risk of violence in mentally disordered

offenders being brought into question. Monahan (1981) reviewed the literature that

assessed the ability of clinicians to predict violence, termed the first generation of

studies (Cocozza & Steadman, 1976; Kozol, Boucher & Garafolo, 1972; Steadman &

Cocozza, 1974; Steadman & Keveles, 1972; Thornberry & Jacoby, 1979), and

concluded that clinicians accurately predicted violence once in every three cases.

Monahan (1984, p. 13) stated that 'there were so many nails in that coffin [that

clinicians were poor at predicting violence] that I propose we declare the issue

officially dead'. Since this seminal paper a number of studies have attempted to

understand why clinicians were found to be poor at predicting violence and reported

on the reliability of clinical judgements and how clinicians disseminated information

in order to assess risk. These studies will not be reviewed, see Elbogen (2002);

Quinsey, Harris, Rice & Cormier (2006); Slovic and Monahan (1995) and Slovic,

Monahan and McGregor (2000) for good examples of such papers.

Monahan (1984) spurred the 'second generation' of research studies that

moved towards investigating the ability of clinical judgement compared to

demographic factors (termed actuarial models in these papers) to predict violence. A

number of studies found that clinicians could predict violence at above chance levels,

but could not outperform the ability of demographic factors to predict violence

(Gardner, Lidz, Mulvey & Shaw, 1996; Lidz, Mulvey & Gardner, 1993; Mulvey &

Lidz, 1998). Holland, Holt Levi and Beckett (1983) found clinicians to be better than

chance when predicting violence and Binder (1999) in a review of the literature

suggested that clinicians were able to make predictions over the short-term. Despite

these positive reports, a number of meta-analyses have highlighted the superiority of

actuarial models when predicting violence (Dawes, Faust & Meehl, 1989; Garb, 1994;

Holland et al., 1983; Holt, 1970; Marchese, 1992; Meehl, 1954; Otto, 1992; Sines,

1971; Wiggins, 1981).

In what has been described as a landmark paper, Mossman (1994) re-analysed

58 data sets from 44 studies of violence prediction using Receiver Operating

Characteristic (ROC) curve analysis (see Chapter 3 results section for a summary of

ROC analysis). The average Area Under the Curve (AUC) for analyses that predicted

violence using clinical judgement ($k = 17$) was 0.67 (a medium effect size; Cohen,

1992) compared to 0.71 for analyses that employed actuarial models ($k = 14$; a large

effect size; Cohen, 1992). It seems clinical judgement had some predictive utility,

though this was not as good as the actuarial models.

Litwack (2001) criticises Mossman (1994) for the combining of a large

number of datasets in the meta-analysis, as each study had a different population and

outcome variable. Mossman (1994) himself noted that the dataset consisted a broad

variety of studies, population sizes, base rates and methodology. It is therefore

difficult to isolate the possible reasons for the ability or lack of ability for clinical

judgement or the actuarial models to predict violence. In addition, Litwack (2001)

observed that Mossman (1994) did not include any studies that directly compared

clinical judgement to an actuarial model within the same study (and so with the same

research design). Grove et al. (2000) conducted a meta-analysis that only included

studies that compared at least one clinical judgement to at least one actuarial

formulation of risk in the same study (therefore based on the same available

information and when trying to predict the same outcome criterion). The finding

remained that the actuarial methods had greater predictive validity than clinical

judgement, being on average 10% more accurate than clinical judgement. The

superiority of actuarial models remained true across tasks, judges, judges' experience,

or type of data. A major problem with this meta-analysis is that it included any

clinical prediction, including medical predictions, for example, predicting a sore

throat, though the trend was greatest in forensic samples. Egisdottir et al. (2006)

replicate this finding in a meta-analysis of violence prediction and report that actuarial

models were 17% more accurate than clinical judgment at predicting violence (also

see Hilton, Harris & Rice, 2006, for a recent review).

The poor predictive validity of clinical judgement is a robust finding in the

literature and has been replicated in prospective studies more recently by Odeh, Zeiss

and Huss (2006) and Huss and Zeiss (2004). Huss and Zeiss (2004) report an

improved ability of clinicians to make risk predictions if group decisions are made

(this is supported by Fuller & Cowan, 1999, in a study with high ecological validity).

It is clear from the literature that clinical judgement has improved predictive accuracy

since the damning reviews of Monahan (1981; 1984). However, it has consistently

been reported that actuarial models are better able to predict violence in mentally

disordered offenders. Borum (1996) in a review of this literature which reiterated the

legal and ethical obligations of mental health professionals to make accurate

predictions of risk, recommended that more needs to be done to develop instruments

and technology to aid clinicians to conduct risk assessments. There has been a wealth

of research into developing risk assessment instruments that have been shown to

improve upon the ability of clinicians to predict violence.

1.4.2   Actuarial measures

Actuarial measures take a set of risk factors known to be predictive of future

violence (from the research literature or from a construction sample) and combine

them in a formula to predict an individual's risk of future violence (Meehl, 1954).

The variables included in the instrument may not differ to the variables deemed

important in the assessment of risk by clinicians, but the formulation of risk is

different. The key difference to clinical judgement is the use of a formula to derive

risk, as opposed to making a clinical judgement. An advantage of actuarial

instruments is that the statistical model is highly reliable, free from personal bias, and

reduces a large number of possible risk factors into a manageable number of

variables. The most well validated actuarial instrument in the research literature is the

VRAG therefore the VRAG reflects 'best practice' in actuarial risk assessment

instruments.

1.4.2.1 The Violence Risk Appraisal Guide

The VRAG comprises 12 historical static variables known to be linked to re-

offending (e.g. history of alcohol problems, criminal history, age at index offence,

psychopathy score as measured by the PCL-R). Each variable of the VRAG is

weighted according to how different the individual is from the overall violent

recidivism rate of the construction sample (+/- 5% from the mean rate is one weighted

point). The VRAG produces a score (ranging from -24 to +36) and a risk category

between one and nine (based upon this score) by statistically combining the individual

items to calculate an individual's risk of future offending. The variables included in

the VRAG were derived from a series of regression analyses to establish which

factors were the most predictive of violent re-offending based on a construction

sample of forensic psychiatric patients in Canada and an individual's score on the

VRAG is compared to that construction sample to produce a percentage chance of re-

offending (at seven years and 10 years post-discharge). The VRAG is atheoretical.

The items of the VRAG were included based purely on their ability to predict future

violence in this sample, not based on any literature of risk prediction.

Harris et al. (1993) developed the VRAG with a construction sample of 618

male forensic psychiatric patients, deemed violent, treated in a maximum security

psychiatric hospital (about half received a conviction for their index offence and half

were found not guilty by reason of insanity and were committed to the same facility).

Approximately 31% committed another offence within an average follow-up period of

seven years post-discharge (into the community or into a psychiatric facility with

community access; all had the opportunity to re-offend). The VRAG was found to

predict future violent offences with an AUC of 0.76. This was later extended to a

follow-up period of 10 years by Quinsey, Harris, Rice and Cormier (1998) who

reported AUCs between 0.73 and 0.77. Rice and Harris (1994) conducted a cross

validation study of the VRAG using a sample of 159 sex offenders (not included in

the original sample) and the predictive efficacy of the VRAG remained and Rice and

Harris (1995) found the predictive efficacy of the VRAG was maintained over different follow up periods: three and a half years, six years and 10 years, producing AUCs of 0.75, 0.74 and 0.74 respectively.

This high standard of predictive efficacy of the VRAG has been repeatedly replicated. For example, Harris, Rice and Camilleri (2004), report that the VRAG has been validated in more than 25 studies in at least five different countries. For further validation studies in Canadian forensic psychiatric samples see Douglas and Webster (1999) who illustrated the concurrent validity of the VRAG with other risk assessment instruments; Harris and Rice (1997); Harris, Rice and Cormier (2002); Quinsey, Coleman, Jones and Altrows (1997). The validation of the VRAG to predict violent offences in those for whom it was designed (Canadian forensic psychiatric patients) is supported by the literature.

The VRAG has also been validated in Canadian correctional (prison) samples. For example, Douglas, Yeomans and Boer (2005) reported that the VRAG predicted violent recidivism with a large AUC of 0.79 when released prisoners were followed over a mean follow up period of 7.68 years ($SD = 1.31$, range, 6 – 11 years). This is supported by Glover, Nicholson, Henmati, Bernfield and Quinsey (2002) and Kroner and Mills (2001) though others (Kroner, Stadtland, Eidt & Nedopil, 2007; Loza, Villeneuve & Loza-Fanous, 2005; Mills, Jones & Kroner, 2005) have reported the over-prediction of risk made by the VRAG in this population. However, Kroner et al. (2007); Loza et al. (2005) and Mills et al. (2005) did not assess the ability of the VRAG to distinguish who amongst Canadian incarcerated violent offenders would be more or less likely to re-offend (the relative risk). Therefore this should not be taken as an indication that the VRAG has no utility in that population.

The predictive ability of the VRAG has also been extended to civil psychiatric

samples in Canada (Harris, Rice & Camilleri, 2004); see also Edens, Skeem and

Douglas (2006), and has been extensively validated in Europe (Grann, Belfrage &

Tengstrom, 2000; Kroner et al., 2007; Pham, Ducro, Marghem & Reveillere, 2005;

Tengstrom, 2001; Urbaniok, Noll, Grunewald, Steinbach & Endrass, 2006) though

there has been some conflicting evidence in Swedish incarcerated offenders (Endrass,

Rossegger, Frischknecht, Noll & Urbaniok, 2008)

1.4.2.1.1 Validation of the VRAG in the UK

Doyle, Dolan and McGovern (2002) in 87 mentally disordered offenders

residing in a medium secure unit in the UK found the VRAG to predict institutional

violence in the first 12 weeks of admission with a large effect size. They report an

AUC of 0.71 for violence that involved physical assault or any violence that resulted

in injury to a person and an AUC of 0.70 for threats of violence or damage to

property. The sample were mainly men and mainly had a diagnosis of mental illness.

The authors state that they were representative of the MSU population.

Snowden, Gray, Taylor and MacCulloch (2007) in a larger study ($n = 421$)

that recruited patients from medium secure units across the UK, report that the VRAG

risk categories separated the sample well. Those in the higher risk bins were re-

convicted post discharge more than those in the lower risk bins. This remained true

over different time periods (6 months, 1, 2, 3 and 5 years). However, the VRAG

overestimated the absolute risk of re-convictions with a violent offence (at 7 years

post-discharge) compared to the construction sample (Harris et al., 1993). This may

be because in the construction sample a re-offence was defined as a charge,

conviction or re-admission to hospital whereas in the Snowden et al. (2007) study

only reconvictions were used.

Snowden et al. (2007) employed ROC analysis to test the efficacy of the

VRAG to rank participants within the study. The ROC at two years post discharge for

general offences was 0.74 and for violent offences it was 0.78 (large effect sizes; Rice

& Harris, 2005) and the VRAG produced large effect sizes across all follow up

periods. The authors concluded that the VRAG is able to accurately distinguish those

who are a higher risk of general and violent re-convictions in mentally disordered

offenders in the UK.

In conclusion, there is extensive evidence that the VRAG is able to predict

violent recidivism in general offenders and mentally disordered offenders in many

different settings.

1.4.3   Personality assessment: The Psychopathy Checklist Revised

The PCL-R is a clinical construct rating scale and is scored through case

review and clinical interview. The PCL-R (Hare, 1991; 2003) was originally

developed to measure the construct of psychopathy, based on the description by

Cleckley (1976), rather than as a risk assessment tool. The PCL-R has been found to

be highly predictive of many types of offending (Hare, 2001; Hare, 2006; Hare,

Clarke, Grann & Thornton, 2000), and thus is routinely used in clinical practice to

assess the risk of future violence (Hare, 2001). Therefore in the present context it will

be treated as a risk assessment instrument despite its original purpose. Scores on the

20 items range from 0 - 2 and therefore the total score is out of 40. A score of 40

represents the prototypical psychopath and the individual score reflects the extent to

which the individual matches this prototype. The PCL-R contains two Factor scores;

Factor 1 measures selfish and callous personality and relates mainly to interpersonal

and affective traits. Factor 2 measures socially deviant behaviour and past

criminality. There are also four Facet scores. Facet 1 measures interpersonal

variables, Facet 2, affective variables, Facet 3, lifestyle variables and Facet 4

antisocial behaviour variables.

The Psychopathy Checklist-Screening Version (PCL-SV; Hart, Cox & Hare,

1995) is a shortened version of the PCL-R and was developed to assess psychopathy

in civil psychiatric populations and to screen for psychopathy in offender populations.

The PCL-SV has 12 items each scored from 0 - 2 (range of scores 0 - 24). The PCL-

SV has two parts, Part 1 measures interpersonal and affective traits and Part 2

measures anti-social behaviour traits. Cooke, Michie, Hart and Hare (1999) evaluated

the structural properties of the PCL-SV and found that it is a good substitute for the

PCL-R with eight out of 12 items being strongly parallel to their PCL-R equivalents.

The remaining four items were found to be equal to their equivalent PCL-R items in

terms of discrimination.

There are many studies in the research literature that have provided evidence

for the predictive efficacy of the PCL-R (and its variants) to predict future

dangerousness (both institutional violence and recidivism). For reviews of this

literature see Hare (2006); Hare et al. (2000); Hart, (1998); Hemphill and Hare (1998;

2004) and for meta-analyses of the literature see Gendreau, Goggin and Smith (2002);

Guy, Edens, Anthony and Douglas (2005); Leistico, Salekin, DeCoster and Rogers

(2008); Salekin, Rogers and Sewell (1996) and Walters (2003). Meta-analyses

consistently report that the PCL-R is able to predict institutional violence and

recidivism in incarcerated offenders with a moderate effect size (Guy et al., 2005;

Leistico et al., 2008; Salekin et al., 1996; Walters, 2003). This also applies to Factor

1 and Factor 2 scores though Factor 2 scores consistently out-perform Factor 1 scores.

However, such studies include many different research designs and populations and

do not distinguish between these in the results (for example, sex offenders and

adolescent offenders as well as violent offenders). A challenge to this literature is put

forward by Gendreau et al. (2002) who argue that the PCL-R is not 'unparalled' (as it

had been described in the literature) in its ability to predict recidivism as another risk

assessment instrument (the Level of Service Inventory- Revised, Andrews & Bonta,

1995) out performed the PCL-R (the PCL-R was the second best predictor) in

predicting recidivism (both general and violent recidivism). It could be argued that

this meta-analysis simply reflects developments in risk assessment instruments.

Further, the PCL-R was not developed as a risk assessment instrument and it is

reasonable that a tool designed specifically for this purpose may out perform the PCL-

R.

There are studies that have looked at women (Richards, Casey & Lucerte,

2003) and ethnic minorities (Hemphill, Newman & Hare, 2001) in North American

incarcerated populations. Hare et al. (2000) reviewed the cross cultural validity of the

PCL-R and note that although the majority of studies are based on Canadian and

American incarcerated samples, there is supportive evidence for the predictive

validity of the PCL-R in psychiatric patients (references below).

In the development of the VRAG (based on the construction sample of 618

forensic psychiatric patients, Harris et al., 1993; see also Harris, Rice & Cormier

1991; 2002; Rice & Harris, 1995) the PCL-R was deemed the most important risk

factor for future violence and accordingly was given the most heavily weighted

scoring in the VRAG. In the original study (Harris et al., 1993) the PCL-R had the

strongest relationship with violent recidivism ($r = .34$). For further studies that

illustrate the ability of the PCL-R in North American forensic psychiatric samples see,

Gacono, Meloy, Speth and Roske (1997); Hart and Hare (1989); Heilbrun, Hart, Hare,

Gustafson, Nunez and White (1998); Hill, Rogers and Bickford (1996) and Kosson,

Steuerwald, Forth and Kirkhart (1997); though this last study looked only at escapes

as the outcome measure). Nicholls, Ogloff and Douglas (2004) extend this finding to

female forensic psychiatric patients.

There are also many studies that illustrate the predictive efficacy of the PCL-R

and its variants (the PCL-SV) in civil psychiatric populations. Steadman et al. (1999)

in the MacArthur Violence Risk Assessment Study (the largest study to assess the

prediction of violence in a psychiatric sample) assessed the predictive utility of 134

potential risk factors for violence (in 939 civil psychiatric patients discharged into the

community) and the PCL-SV was the single most important risk factor for violence in

the community (self-reported and through collateral sources). The same was found by

Silver, Mulvey and Monahan (1999) and Skeem and Mulvey (2001). See also

Douglas, Ogloff and Nicholls (1997); Douglas, Ogloff, Nicholls and Grant (1999);

Edens et al. (2006); Harris, Rice and Camilleri (2004) and McNeil, Gregory, Lam,

Sullivan and Binder (1995).

The PCL-R (and its variants) have also been shown to have good predictive

efficacy for institutional violence and non-violent misconduct as well as criminal

recidivism across Europe; In Sweden (Dernevik, Grann & Johansson, 2002; Grann,

Langstrom, Tengstrom & Kullgren, 2000; Tengstrom, 2001); Germany (Dahle, 2006;

Freese, Muller-Isberner & Jockel, 1996; Huchzermeier, Bruss, Geiger, Godt, von

Nettelbladt & Aldenhoff, 2006); Switzerland (Urbaniok, Endrass, Rossegger & Noll,

2007); Netherlands (Hildebrand, deRuitter & Nijman, 2004); Belgium (Pham et al.,

2005; Pham, Remy, Dailliet & Lienard, 1998); Spain (Molto, Poy & Torrubia, 2000)

and Portugal (Goncalves, 1999).

1.4.3.1 Validation of the PCL-R in the UK

Dolan et al. (2002) in their study of institutional violence in a UK medium

secure unit found the PCL-SV to be the best predictor of institutional violence

compared to the VRAG and the HCR-20 and noted that the PCL-SV was a significant

contributor to these risk assessment scales. Gray, McGleish, MacCulloch, Hill,

Timmons and Snowden (2003) also in mentally disordered offenders residing in a

medium secure unit ($n = 34$), assessed the ability of the PCL-R to predict different

types of institutional violence, and report the PCL-R was able to predict the rarer

incidents of physical aggression and aggression to property with large effect sizes.

Dolan and Davies (2006) more recently found the PCL-SV to be significantly

associated with criminal attitude, poor work ethic and an increased incidence of

institutional violence in a sample of mentally disordered offenders (with a diagnosis

of schizophrenia) in the UK. Somewhat at odds with this literature Reiss, Grubin and

Meux (1999) report that in a sample of forensic psychiatric patients in high security

the PCL-R was significantly able to predict sexually inappropriate behaviour but not

violent behaviour over a four year follow up period within the institution. Reiss et al.

(1999) suggest that the lack of significant result is due to violence being recorded less

often in those who were frequently violent (due to staff being accustomed to the

behaviour), resulting in poor reliability of ratings.

Gray et al. (2004) report that the PCL-SV was able to predict criminal

recidivism with an AUC of 0.66 (Part 1 produced an AUC of 0.57 and Part 2 an AUC

of 0.72). These findings again support the literature from North America that

consistently reports that Factor 2 / Part 2 of the PCL-R / PCL-SV is better at

predicting future violence and offences (than Factor 1 / Part 1). Doyle and Dolan

(2006) attempted to replicate the findings of the MacArthur Violence Risk

Assessment study in a UK sample, though their sample included both civil psychiatric patients and forensic psychiatric patients. They report that the PCL-SV was significantly higher in those who were violent (self-report and official records) in the 24 week follow up period compared to those who were not violent. In addition, the PCL-SV was able to predict violence with an AUC of 0.69 (Part 1 predicting self-reported violence with an AUC of 0.67 and Part 2 with an AUC of 0.68).

Reiss, Meux and Grubin (2000) failed to find a significant relationship between PCL-R score and recidivism in a sample of mentally disordered offenders in a high security hospital in the UK (though they did find that the PCL-R was able to identify psychopaths in this population). Reiss et al. (2000) completed a retrospective file review of those identified as psychopathic ($n = 89$) who had been discharged from supervision. Psychopathy score and outcome measure (recidivism) were dichotomised. It is possible that this reduced the statistical power of the analysis and thus produced a non-significant result. In addition, as all patients were identified as psychopathic it is possible that all scored highly on the PCL-R and so there was a lack of variance in the analysis that also contributed to the null result.

There is considerable evidence of the ability of the PCL-R (and its variants) to predict both institutional violence and criminal recidivism in general offenders and mentally disordered offenders and civil psychiatric patients throughout North America and Europe. It is also consistently reported that Factor 2 is better than Factor 1 at predicting these outcomes. In addition, a strength of the PCL-R is its superior ability to predict violence (rarer events and so harder to predict) compared to general misconduct and general recidivism.

1.4.4 Structured clinical guides

Structured clinical guides combine static variables with dynamic clinical variables that have been found to be associated with risk of future dangerousness (recidivism and violence) in mentally disordered offenders. Such instruments aid the clinician to focus on risk factors that have been proven by research to have predictive value for future dangerousness (recidivism and violence) and can also be repeatedly administered, so could potentially be used to gauge any change in the assessed level of risk. The most widely studied structured clinical guide is the History, Clinical, Risk-Management-20 Version 2 (HCR-20; Webster et al., 1997). The HCR-20 was developed from a review of the literature (on the risk factors for violence in those with a mental disorder) and consultation with experts in the field. The HCR-20 comprises three subscales, the Historical subscale that measures 10 static risk factors for violence (that have occurred until the moment in time of the assessment), such as a history of violence, the Clinical subscale that measures five dynamic risk factors related to the individuals clinical presentation, such as current symptoms of mental illness and the Risk Management subscale that measures five risk factors that will effect the ability of the individual and the clinical team to manage their behaviour in a given context, such as social support. Each of the 20 items is scored 0 - 2 and so the HCR-20 total score is out of 40.

The HCR-20 was designed for use in any population with a high incidence of violence, of note, incarcerated offenders, forensic psychiatric patients and civil psychiatric patients (Webster et al., 1997). Early validation studies based in Canada were retrospective in design but validated the use of the HCR-20 in these populations. These findings were largely disseminated through conference papers (see Douglas, Guy & Weir, 2005, for a summary of these findings) and sparked a wealth of other

validation studies, in correctional settings, forensic psychiatric patients and civil

psychiatric patients.

In correctional settings Douglas, Ogloff and Hart (2003) compared the HCR-

20 to other risk assessment instruments (including the VRAG and the PCL-R) and in a

step-wise regression model only the HCR-20 predicted violence. See also Douglas,

Webster and Wintrup (1996); Douglas and Webster (1999); Douglas, Yeomans, et al.

(2005) and Dunbar, Quinones and Crevecoeur (2005) for validation studies with this

population. The only study to report non-significant predictive abilities of the HCR-

20 in general offenders is Kroner and Mills (2001). The predictive ability of the

HCR-20 may have been compromised as Kroner and Mills (2001) only included

institutional offences that resulted in a conviction which would have resulted in an

under-estimation of violent behaviour. The HCR-20 has also been validated in

forensic psychiatric patients (Douglas, 1996; Douglas, Klassen, Ross, Hart &

Webster, 1998; Douglas, Webster, Eaves, Wintrup & Hart, 1996; Klassen, 1996,

McNeil, Gregory, Lam, Binder & Sullivan, 2003; Nicholls, Vincent, Whittemore &

Ogloff, 1999) and in civil psychiatric settings (Douglas et al., 1999; Ross, Hart &

Webster, 1998).

There is also evidence for the use of the HCR-20 in forensic psychiatric

patients in ethnic minorities. Fujii, Tokioka, Lichton and Hishinuma (2005) report no

significant differences in the ability of the HCR-20 to predict institutional violence in

Asian-Americans, Euro-Americans and native Hawaiians. There is some limited

evidence for the predictive efficacy of the HCR-20 in incarcerated women (Warren et

al., 2005).

Outside of Canada the HCR-20 has been validated in Europe (including the

UK, see below), most extensively in Sweden (Belfrage, Fransson & Strand, 2000;

Belfrage, Fransson & Strand, 2004; Dernevik, Grann & Johansson, 2002; Grann,

Belfrage & Tengstrom, 2000; Strand, Belfrage, Fransson & Levander, 1999;

Tengstrom, 2001). Of note, Belfrage et al. (2000) prospectively tested the ability of

the HCR-20 to predict institutional violence, in forensic psychiatric patients, in a

maximum secure facility. This design enabled the HCR-20 to be completed with the

benefit of interviewing the patient to increase the ability to complete the clinical and

risk management items. This is highly ecologically valid. Belfrage et al. (2000)

reported that just 8/41 (19.5%) patients were violent in the follow up period, but the

HCR-20 total score (and the clinical and risk-management subscale scores) was able

to significantly differentiate between those who recidivated and those that did not (p

<.001). The fact that the HCR-20 was able to predict such a low base rate of violence

is impressive.

The HCR-20 has also been translated into German and this version has been

validated with forensic psychiatric patients (deVogel & deRuitter, 2006; AUC = 0.75-

0.85 (depending on how made the assessment)), a prison population (Dahle, 2006; $r =$

0.21-0.37) and a civil psychiatric population (Muller-Isberner, Sommer, Ozokyay &

Freese, 1999). Furthermore, the HCR-20 has been validated for use in Belgium

forensic psychiatric (Pham et al., 2005; predicting recidivism AUC = 0.73, p <.01)

and a prison population (Claix & Pham, 2004). There is also some limited evidence

as to the predictive efficacy of the HCR-20 in female offenders and psychiatric

patients, see Nicholls et al., (2004; predicting institutional violence in females AUC =

0.56-0.59) and Strand and Belfrage (2001) who offer a discussion of the risk factors

for violence, measured by the HCR-20 in men and women; though this is not wholly

consistent, see deVogel and deRuitter (2005; HCR-20 total score AUC = 0.59, risk

judgement based on the HCR-20 AUC = 0.86, p <.01).

1.4.4.1 Validation of the HCR-20 in the UK

The HCR-20 has been validated in forensic psychiatric services in the UK. Doyle et al. (2002) were the first to validate the ability of the HCR-20 to predict institutional violence in a medium secure unit ($n = 87$), though unfortunately they only tested the Historical part of the HCR-20, which was found to be moderately related to institutional violence (see above this study also validated the PCL-SV and the VRAG and the PCL-SV was the most predictive of institutional violence). Grevatt, Thomas-Peter and Hughes (2004) developed this and tested the ability of the History and the Clinical subscales (they termed this the HC composite) in a secure service in the UK ($n = 44$). Grevatt et al. (2004) report that the HC composite was not able to predict institutional aggression (AUC = 0.48). The outcome measure of institutional aggression was measured using incidence forms within the hospital. This may have led to an underestimation of institutional aggression as completion of official records depends on the subjective judgement of the staff member to complete an incident form and therefore official incident forms may not reflect all violence and certainly do not include less serious violence. This study is at odds with the rest of the research literature, though the research design would have resulted in a loss of statistical power which may account for the non significant effect. Indeed, Gray et al. (2003) have validated the HCR-20 in a truly prospective study of institutional violence in the UK completing the HCR-20 in its entirety. The HCR-20 produced a large effect size (AUC = 0.80) when predicting violence over a three month period. This study coded violence directly from nursing observations in order to reduce reporter bias, increase reliability of ratings and maximise statistical power.

Studies in the UK have also validated the use of the HCR-20 to predict recidivism in the community post-discharge. Dolan and Khawaja (2004) reported that

the HCR-20 was not able to predict convictions but was able to significantly predict

re-admission to hospital (AUC = 0.85). Dolan and Khawaja (2004) failed to complete

the HCR-20 in its entirety, omitting the psychopathy item. Hart (1998) states that any

risk assessment that does not consider psychopathy is unreasonable (legal term) and

unethical. It is currently unclear whether the efficacy of the HCR-20 to predict

offending is significantly depleted by omitting the PCL-R item. This research awaits

to be done. In addition, as noted in the above section, convictions only represent the

tip of the iceberg of actual offences committed (for example, Holland, 2004) and so

this too may have led to an underestimation of offences perpetrated and a subsequent

loss of statistical power (in the Doyle & Khawaja, 2004, research design). Gray et al.

(2004) validated the HCR-20 (completed in its entirety) in a large sample of forensic

psychiatric patients from across the UK ($n = 315$) followed up in the community for a

minimum of two years. The predictive validity of the HCR-20 was extended to

general offences with a moderate effect size (AUC = 0.61), though this lowered when

considering serious offences (AUC = 0.56). These somewhat lower AUCs may

reflect the limitations of the outcome measure of reconvictions. Gray, Taylor and

Snowden (2008) in a later study, with an increased sample size ($n = 887$) of male

patients discharged from medium secure units found the HCR-20 to be able to predict

violent recidivism with a large effect size over two years (AUC = 0.71) and general

recidivism with a moderate –large effect size (AUC = 0.69). The AUCs were slightly

higher at shorter follow up periods, 0.76 both at six months and one year post

discharge for violent offences and 0.75 at six months and 0.70 at one year post-

discharge for general offences, and slightly lower at five years post-discharge (0.70

and 0.69 respectively). This is also illustrated by Dolan and Doyle (2006) who report

a very high standard of predictive efficacy to predict violence in the community

(AUC = 0.80) over a shorter follow up period of 24 weeks. This study included self-reported violence in addition to re-convictions and so the multiple methods of data collection may have increased the power of the statistical analysis.

There is substantial evidence as to the predictive validity of the HCR-20 in incarcerated offenders, forensic psychiatric patients and civil psychiatric patients across the world, including the UK. There is also some evidence for the use of the HCR-20 in minority offender groups (different ethnic groups (Fujii et al., 2005) and female offenders (deVogel & deRuitter, 2005)).

1.4.5   Summary of best practice in risk assessment in mentally disordered offenders

There is clearly a wealth of evidence that illustrates the developments that have been made in risk assessment of dangerousness (recidivism and institutional violence) in mentally disordered offenders. Many studies demonstrate the predictive efficacy of the VRAG, the PCL-R and the HCR-20 in the populations for which they were intended; the VRAG was developed on Canadian forensic psychiatric patients, the PCL-R was first validated in North America and Canada and the HCR-20 is designed for use in any population with a high incidence of violence and is based on the literature of risk factors related to violence in mentally disordered offenders. 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. Importantly there is also evidence that these risk assessment instruments maintain high standards of predictive efficacy in populations for which they were not originally intended, different countries and minority offender groups. Some studies have also focussed on specific diagnostic groups. Considering the literature that has described the risk factors for offending in offenders with LD it is unclear if the risk

factors for offending in offenders with LD are qualitatively different to mentally

disordered offenders and so it is possible that the risk assessment instruments

identified as best practice in mentally disordered offenders are not valid in this

subgroup of mentally disordered offenders, offenders with LD. Clinicians seem to

believe that these instruments will not be effective in a sample of offenders with LD,

evident by the fact that such risk assessment instruments are not routinely used in this

population (Turner, 2000; McMillan, Hastings & Coldwell, 2004). It remains

necessary to evaluate the predictive efficacy of these 'best practice' risk assessment

instruments in offenders with LD.

1.5   Risk assessment in offenders with LD

Very few studies have directly addressed the question of whether established

risk assessment instruments (the VRAG, the PCL-R and its variants, and the HCR-20)

are effective at predicting future violence in an LD population. The few that have are

reviewed here.

1.5.1 Clinical judgement in offenders with LD

McMillan et al. (2004) compared the predictive ability of clinical judgement

and an actuarial model in a UK forensic learning disability sample (n = 124). The

vast majority of the sample (90%) had a mild learning disability, were male and the

mean age of the sample was 33. Unfortunately the authors do not describe the

samples' forensic histories. Clinical risk assessments were taken from medical

records and had been judged by a clinical team at a clinical meeting. Assessments

were made on a nine point scale assessing risk in everyday situations (termed medium

risk context). This is a highly ecologically valid measure of a clinical judgement risk

assessment of violence. The actuarial model was simply the number of violent

incidents in the six months preceding the date of the clinical team meeting when the clinical judgement risk assessment had been made. Each risk assessment method was used to predict incidents of institutional violence in the six month period subsequent to the date of the clinical team meeting where the clinical risk assessment had been made. There was a high incidence of violence reported by McMillan et al. (2004) with 46.8% of patients having at least one incident of violence in the six months following the date of the clinical team meeting. The clinical judgement risk assessment produced an AUC of 0.74 and the actuarial risk assessment produced an AUC of 0.77. Each of the risk assessment methods were significantly better than chance at predicting future incidents of violence (but were not significantly different to each other).

Incidents of violence were taken from official records and so only reflect incidents deemed serious enough to warrant recording in this system. McMillan et al. (2004) note that they could not control the decision to record an incident of violence, and this decision would have been affected by the subjective judgement of the staff member recording the incident. This would have worked against the actuarial method to a greater degree as it would have affected both the independent and the dependent variable in that particular analysis. Further affecting the predictive ability of the risk assessments is the likelihood that risk management strategies would have been put in place following the clinical team's risk assessment which should have reduced the incidents of violence. (This should have affected both techniques equally.)

The authors suggest that the clinical team's risk assessment may have inflated variance due to the influence of different team members applying different criteria in their judgement of risk. However, Huss and Zeiss (2004) and Fuller and Cowan (1999) suggest that clinical judgement based on a team decision has increased

accuracy over individual clinical judgements. This may have worked in favour of the clinical judgement risk assessment in the McMillan et al. (2004) study.

It is encouraging that despite these methodological drawbacks both the clinical judgement risk assessment and the actuarial risk assessment were able to predict subsequent incidents of violence with a large effect size. The findings of the study indicate that even a very crude actuarial method was able to predict future violence above chance level. It would be expected that the clinical judgement risk assessment, which also had this information available to them, should be able to improve upon this predictive ability. There is no information available to indicate if the clinical team used such information in forming their judgement of risk of violence.

Fifty-two patients had to be excluded from the McMillan et al. (2004) study as no clinical judgement risk assessment had been made. This indicates that conducting risk assessment of violence is not routine practice on all inpatients in this particular setting. This is supported by Turner (2000) who reviewed risk assessments conducted in clinical practice in LD service providers and reported that 42% of patients had a risk assessment completed. This highlights the need to validate risk assessment instruments and incorporate them into clinical practice in this population.

1.5.2   The Violence Risk Appraisal Guide in offenders with LD

Quinsey, Book and Skilling (2004) evaluated the ability of the VRAG to predict violence and hands on sex offences committed by those with LD discharged from institutions into supervised homes into the community ($n = 58$) in Canada (two dynamic assessments of risk were also taken but are not included here as they are not relevant to the present study). All patients had a history of anti-social behaviour, 70% of which were hands on sex offences. The authors do not report previous convictions, but do state that many patients had charges which were dropped on admission to the

institution. All patients were male, with a mean age of 40. (This rather high mean age supports the claim by Lindsay, Steele, et al., 2006, that those with LD released from institutions will have an inflated age at first recorded incident of aggression due to being institutionalised). The majority of the sample (59%) also had a co-morbid diagnosis of personality disorder, 36% also had a diagnosis of paraphilia and 11% had a diagnosis of psychosis.

Based on the VRAG scores, on average 50% of the sample were deemed likely to commit violence in the 10 years post assessment. The VRAG was found to have a significant, moderate relationship with violent and sexual incidents ($r = 0.32$; AUC = 0.69), as reported by staff, in the 16 month follow up period. As found by McMillan et al. (2004) there was a high base rate of violence in the follow up period with 47% having at least one incident. However, just two patients were responsible for over half of the incidents. Quinsey et al. (2004) compared the findings to that found between the VRAG total score and violence for the initial construction sample (Quinsey et al., 1998) and for a subgroup of offenders with LD within that construction sample, each yielding $r = 0.45$. Quinsey et al. (2004) speculate that the lower correlation in the 2004 sample may be due to missing data, which has been reported to affect the accuracy of risk predictions (Harris, Rice, Quinsey, Lalumiere, Boer & Lang, 2003). Quinsey et al. (2004) also note a positive correlation between VRAG score and level of subsequent professional support and suggest that increased supervision of those with a high VRAG score may have lowered subsequent violence. Again, this implies a confounding factor of enhanced risk management strategies being applied to the higher risk patients.

The validity of the VRAG may have been compromised as the PCL-R item was substituted with the Childhood and Adolescent Taxon (CAT; Harris, Rice &

Quinsey, 1994; Quinsey et al. 1998), as it is reportedly easier to score for offenders

with LD. Consequently the VRAG total score may be different to that completed in

general offender / mentally disordered offender population studies. Modifying the

PCL-R item is particularly important as the PCL-R score attracts the highest

weighting of all of the variables in the VRAG and therefore can have a large impact

on total score (see also Hart, 1998). Nonetheless, Quinsey et al. (2004) provide some

preliminary evidence that the VRAG has predictive validity for those with LD

residing in the community (non forensic sample). Lindsay et al. (2008) also provide

some evidence that the VRAG has predictive efficacy in a forensic LD sample. This

study is reviewed in section 1.5.4 as the study also measured the predictive efficacy of

the HCR-20 and the research design builds upon the studies reviewed in the following

section (1.5.3).

1.5.3   Psychopathy Checklist-Revised in offenders with LD

Morrissey et al. (2005) investigated the ability of a modified PCL-R (rated

using guidelines that consider the diagnosis of LD upon each item score produced by

Morrissey, 2003) to predict institutional violence. Two-hundred and three male

patients recruited from forensic psychiatric patients residing across three levels of

security, from the community ($n = 69$), a low/medium secure unit ($n = 70$) and a high

secure hospital ($n = 73$), were rated on the PCL-R. Eighty-two percent of the sample

had a diagnosis of LD (mostly mild LD) with an average Full Scale IQ of 66. Many

had a previous conviction for a violent offence (51.7%) and/or a previous conviction

for a sexual offence (52.2%). The average PCL-R score was 16.02 ($SD = 7.3$). The

guidelines produced by Morrissey (2003) although makes changes to the item

descriptions, they do not modify the scoring of the items of the PCL-R (each item is

scored 0, does not apply, 1, possibly applies, 2, definitely applies) and the scoring

structure is based upon the PCL-R 2nd Edition manual (Hare, 2003). Though PCL-R

scores were higher in higher settings of security the difference was not significantly

different. PCL-R assessments were completed with a full interview, as recommended

in the PCL-R manual, however, the timing of the PCL-R assessment was not

adequately controlled for and the authors note that the PCL-R could have been

completed within the six month period that the outcome measure of institutional

violence was taken from. Therefore it is possible that some of the outcome measure

also influenced the PCL-R scores (the authors do not specify if the PCL-R assessors

had access to this information at the time of the assessment).

Approximately 1/3 of the sample (31%) had at least one incident of aggression

in the six month follow up period. The PCL-R was found to be weakly but

significantly correlated with incidents of violence over the six month period ($r =$

0.18). This relationship was found to be stronger for Factor 2 than for Factor 1 (this is

consistent with the evidence in general offenders and mentally disordered offenders

(e.g. Walters, 2003)). The PCL-R score had a stronger relationship with the

Emotional Problem Scales: Behaviour Rating Scale (EPS: BRS; Prout & Stromher,

1991) ratings of verbal aggression, physical aggression, non-compliance and

hyperactivity. It is possible that the formalisation of incidents with the EPS: BRS

improved the reliability of coding of incidents and thus improved predictive validity.

The PCL-R was also found to be significantly related to the HCR-20 ($r = 0.54, p$

<.001) and VRAG scores ($r = 0.49, p$ <.001)[3] and a DSM-IV-TR (APA, 2004)

diagnosis of anti-social personality disorder.

It would have been beneficial to have a comparison group for whom the PCL-

R was rated in its original format, not using the guidelines developed by Morrissey

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[3]

Risk assessment scores were taken as indication of risk, though validation of these instruments, in this
population, is still required.

(2003). There is no conclusive evidence to date that the PCL-R requires modification

for offenders with LD. Indeed, 59% of the sample had all items completed compared

to an average figure of 85.4% of items completed in the samples reported in the PCL-

R manual (Hare, 2003). The authors speculate that this may be due to the use of the

guidelines (advising to omit items as a cautionary technique rather than to use proxy

behaviour for some items). A comparison with the original PCL-R could have

highlighted any benefit of the guidelines in this population and further illustrated any

predictive abilities of the PCL-R items without modification.

1.5.4   Comparison of risk assessment instruments in offenders with LD

Morrissey et al. (2007a) present findings for a subsample of the 2005 sample,

those in high security (n = 60), followed up over a 12 month follow up period.

Patients were rated on the PCL-R and the HCR-20. The sample characteristics were

similar to the previous study (Morrissey et al., 2005) with 81% having a diagnosis of

LD and with a mean Full Scale IQ score of 66.2. The mean PCL-R score was slightly

higher at 18.3 (SD = 7.2). The mean HCR-20 score was 22.5 (SD = 4.5). Institutional

violence was recorded from incident forms completed over the 12 month period. In

this sample the PCL-R was not found to be related to institutional aggression (r =

0.11, ns; AUC = 0.54). This remained true when looking specifically at physical

aggression or aggression to property/verbal aggression. The HCR-20 was

significantly positively related to institutional aggression (r = 0.45, p <.001) and also

to both physical aggression and aggression to property/verbal aggression (r = 0.42;

AUC = 0.68, p <.05 and r = 0.44; AUC = 0.77, p <.01, respectively). (The HCR-20

AUCs were significantly higher than those for the PCL-R.) It was not stated by the

authors if the PCL-R item of the HCR-20 was completed using the original manual or

the modified version.

Morrissey et al. (2007a) provide some promising preliminary evidence for the

predictive efficacy of the HCR-20 in this population. It is unclear why the PCL-R did

not predict institutional aggression in this study. Morrissey et al. (2007a) speculate

that this may be because those in high security represent a high risk group of patients

with reduced variance resulting in the non-significant result. However, the standard

deviations for the PCL-R scores were almost identical to the 2005 study where

participants were recruited from across three levels of security (7.2 compared to 7.3).

It might be expected that a sample from high security would have restricted

opportunity to act aggressively. However, there was a much higher base rate of

violence compared to the earlier study (59% of participants had at least one incident

of violence compared to 31% in the 2005 study). Unfortunately the variance of the

outcome measure of institutional aggression was not reported in the two papers and so

could not be directly compared; however, this argument would also apply to the HCR-

20 which was found to have good predictive abilities in this sample. The 2005 study

employed a sample of $n = 203$ compared to $n = 73$ in the 2007a study. The

relationship between PCL-R and institutional violence was little better than chance in

each study ($r = 0.18$ in the 2005 study and AUC = 0.54 in the 2007a study) and so the

non-significant result in the 2007a study may be due to a lack of statistical power.

The authors note the inconsistent results across the studies and suggest that further

research into the predictive efficacy of the PCL-R in offenders with LD is imperative.

Morrissey, Mooney, Hogue, Lindsay and Taylor (2007b) recently reported that

the PCL-R and the HCR-20 were both significantly inversely related to treatment

progress. That is a lower PCL-R and HCR-20 score resulted in movement to

conditions of lower security two years post-assessment. This study was based on the

subsample of offenders with LD from high secure settings reported in Morrissey et al.

(2005; $n = 73$). In this study the PCL-R added incremental validity to the HCR-20 but

the reverse was not found to be true. This is inconsistent with the Morrissey et al.

(2007a) institutional aggression paper that found the HCR-20 to have better predictive

validity than the PCL-R. This set of studies (Morrissey et al., 2005; Morrissey et al.,

2007a; Morrissey et al., 2007b) is based on the same sample and the inconsistent

findings of the predictive efficacy of the PCL-R and the HCR-20 indicate the need for

further studies.

Lindsay et al. (2008) tested the predictive abilities of the VRAG and the HCR-

20 in the same sample as Morrissey et al. (2005; also described by Hogue et al. 2006),

recording incidents of violence from nursing observations rather than from official

incidents forms (recording incidents of violence from nursing observations would

result in more incidents of aggression being recorded and consequently a more

powerful research design). Unfortunately Lindsay et al. (2008) do not report the base

rate of incidents of aggression and so it is not possible to directly compare the base

rate of incidents to previous studies. Of the risk assessment instruments measured,

pertinent to the present study are the VRAG and the HCR-20. The VRAG and the

HCR-20 were completed in their entirety with the PCL-R item included. The authors

did not specify that the PCL-R item was removed or substituted; therefore it is

assumed that it was measured in its original form. This is an improvement upon

Quinsey et al. (2004) who substituted the PCL-R item with the CAT and Morrissey et

al. (2005); Morrissey et al. (2007a) and Morrissey et al. (2007b) who employed

guidelines specific to offenders with LD in completion of the PCL-R (without direct

evidence that these modifications were necessary). Predicting violent incidents,

verbal aggression, inappropriate sexual behaviour and aggression to property across

one year the VRAG and the HCR-20 were able to predict future violence significantly

above chance levels producing AUCs of 0.71 and 0.72 respectively. Lindsay et al. (2008) do not report on the predictive efficacy of the PCL-R (though this data would have been available if the PCL-R was included in the VRAG and the HCR-20). This study provides evidence for the predictive validity of the VRAG and the HCR-20 in forensic psychiatric patients with LD (in high security, medium/low security and in the community) in the UK.

1.6   Aims of the thesis

The majority of research to date that has investigated the ability of risk assessment instruments to predict violence has modified the risk assessment instrument (Quinsey et al., 2004; Morrissey et al., 2005; Morrissey et al., 2007a). Therefore the predictive efficacy of the VRAG, the PCL-R (and its variants) and the HCR-20 in their original form remain to be tested in offenders with LD.

It is a requirement of mental health professionals working with offenders with LD to predict and manage the risk of violence in the institutional setting within which patients reside and also to predict any violence or offending behaviour if discharged into the community. The existing literature has investigated the ability of risk assessment instruments to predict institutional violence but has not evaluated the ability of the risk assessment instruments to predict criminal recidivism. This remains to be done.

Crucially none of the studies that have evaluated the predictive efficacy of the best practice risk assessment instruments in offenders with LD have employed a control group of mentally disordered offenders for whom the predictive validity of the VRAG, the PCL-R and the HCR-20 is well established (see section 1.4). Johnston (2002) notes the need for comparative studies between offenders with LD and other offender populations. It is necessary to employ a control group of mentally

disordered offenders in order to compare the predictive efficacy of the risk assessment

instruments with a population for whom the predictive efficacy is well established. A

control group could illustrate to what degree the predictive efficacy of the risk

assessment instruments is the same or different in offenders with LD compared to

other mentally disordered offenders. The aim of the present study was to test the

ability of the VRAG, the PCL-R (and its variants), and the HCR-20 in their original

form to predict violence and recidivism in offenders with LD compared to a control

group of other mentally disordered offenders (those with mental illness and

personality disorder).

Chapter 2

Recidivism in offenders with learning disabilities: are the factors related to recidivism different to other mentally disordered offenders?[4]

2.1   Introduction

The majority of the existing literature pertinent to offenders with LD has

investigated whether a diagnosis of LD is itself a risk factor for future offending by

studying the prevalence of people with LD in the criminal justice system (for a review

of this literature see Holland et al., 2002) or by studying the prevalence of offending

behaviour in patients with LD (for example, Lyall et al., 1995; McNulty et al., 1995).

Due to inconsistencies in the definition of LD and the comparison of offenders with

LD at different stages of the criminal justice system it is not possible to conclude with

confidence from this literature if a diagnosis of LD increases a person's risk of

offending; though there is some evidence that offenders with LD are over-represented

in the criminal justice system (for example, Murphy & Mason, 2002b; Singleton et

al., 1998).

Even if the literature were able to inform if a diagnosis of LD is a risk factor

for future offending, then this information remains of limited use to clinicians. Such

studies do not inform which offenders, from a population of offenders with LD, will

re-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

instruments to inform upon such a task, professionals may be forced to keep people in

secure settings to ensure safety (individual and/or public) or may unwittingly

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[4]

This data, in slightly different form, is in press (Psychology, Crime and the Law). The short title of this Chapter is the 'Risk Factor study' and this is how it will be referred to from this point forward.

discharge offenders who are likely to re-offend in the future. Accurate risk

assessment can identify the risk factors for offending in individual cases and so enable

professionals to manage the risk of future offending more effectively. It is necessary

to know what the risk factors for offending are in offenders with LD. Crucially, in

order to be able to employ the best practice risk assessment instruments (identified in

section 1.4) that are routinely employed in other mentally disordered offenders, in this

population, it is first necessary to examine the risk factors for offending and directly

assess if these factors are the same or different to other mentally disordered offenders.

There is little consensus in the literature (reviewed in section 1.3) as to what

the risk factors for offending in offenders with LD are. Many of the studies to date

have simply described the characteristics common to offenders with LD (Holland et

al., 2002). Lindsay, Smith, Law, et al. (2004) note that such studies are limited as

they do not indicate if the characteristics pertinent to offenders with LD are different

to non-offenders with LD or other offender populations. Furthermore, there is a lack

of research studies that have examined the relationship between risk factors and

recidivism in offenders with LD. Alexander et al. (2006); Lindsay, Smith, Law, et al.

(2004) and Lindsay, Steele, et al. (2006) are the only studies that have related the risk

factors common to offenders with LD to the likelihood of re-offending in this

population.

There are a handful of studies that have described offenders with LD

compared to other mentally disordered offenders or compared to non-offenders with

LD. To summarise the literature there is some evidence to suggest that offenders with

LD are young males (Alexander et al., 2006; Holland et al., 2002; Puri et al., 2000;

Woods & Mason, 1998) with behavioural and substance abuse problems (Lund, 1990;

Murphy et al., 1995; Winter et al., 1997) with an increased likelihood of a diagnosis

of personality disorder (Lindsay, Hogue, et al., 2006; Puri et al., 2000; Woods & Mason, 1998). Considering the recidivism rates reported by Lindsay, Smith, Law, et al. (2004) and Lindsay, Steele, et al. (2006) and others (Alexander et al., 2006; Cockram, 2005; Lindsay & Taylor, 2005) the lack of consistent knowledge regarding the risk factors for offending in this subsample of mentally disordered offenders is a serious omission in the research literature.

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 the focus has been on psychopathological risk factors and clinical variables (Bonta et al., 1998). Bonta et al. (1998) claim that this focus 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. 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). Risk factors in Bonta et al.'s (1998) meta-analytic review were split into personal demographic variables, deviant

lifestyle variables, criminal history variables and clinical variables. The most predictive were the 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 criminal history (DSM-IV-TR; APA, 2004). In addition, the number of hospital admissions and days hospitalised were significantly related to recidivism. Again, it is possible that days hospitalised were linked to the criminal history variable of institutional adjustment (defined as such in the Bonta et al., 1998, meta-analysis), although this would need further study.

Phillips et al. (2005) replicated this finding via a pseudo-prospective research design in a sample of mentally disordered offenders. Phillips et al. (2005) found that age, number of previous offences and number of days hospitalised (this particular finding did not precisely replicate Bonta et al., 1998, for further consideration of this finding see section 2.5.2), 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 were 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 more predictive of recidivism than clinical factors in mentally

disordered offenders.

Considering the research literature related to offenders with LD (Alexander et

al., 2006; Lindsay, Smith, Law, et al., 2004; Lindsay, Steele, et al., 2006; Puri et al.,

2000; Woods & Mason, 1998) it seems that the risk factors present in offenders with

LD are similar to those found to be predictive of re-offending in mentally disordered

offenders (Bonta et al., 1998; Phillips et al., 2005). However, only Alexander et al.

(2006) and Lindsay, Smith, Law, et al. (2004) and Lindsay, Steele, et al. (2006)

assessed the relationship between risk factors and recidivism in offenders with LD

and these two studies failed to employ a control group of other mentally disordered

offenders to directly compare the risk factors for offending in offenders with LD to

other mentally disordered offenders. If offenders with LD are no different to other

mentally disordered offenders then treating them as a specialist group when

conducting risk assessments of future offending is unnecessary. The predictive

validity of the risk assessment instruments with an existing evidence base identified as

best practice in other mentally disordered offenders could then be tested in offenders

with LD.

2.1.1   Aim of Chapter 2

From the existing literature that is specific to offenders with LD it is unclear

what the risk factors for re-offending are and if the risk factors for re-offending are

qualitatively different in offenders with LD compared to other mentally disordered

offenders. This has an impact on the ability of professionals to conduct accurate risk

assessments of future offending in this subgroup of mentally disordered offenders.

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 related to recidivism in offenders with LD.

2.2 Method

2.2.1 Design

The study was a retrospective case-note analysis of patients discharged from four independent sector medium secure units in the United Kingdom (UK). Those who were re-convicted (general reconvictions at two years post-discharge) were compared to those who were not re-convicted on personal demographic variables, deviant lifestyle variables, criminal history variables and clinical variables. Further, those with a diagnosis of LD (LD group) were compared to those without a diagnosis of LD (non-LD group) to establish if the relationship between general re-convictions and these variables differed across the two diagnostic groups.

2.2.2 Sample

A total of 1312 patients were discharged from four independent sector medium secure units in the UK (between 1990 and 2001). Patients were excluded if any of the following applied: they resided in the hospital for less than seven days (n = 8), they died during their stay at the hospital (n = 11), their files were incomplete or missing (n = 11), their records of conviction(s) from the Home Office Offenders Index (2000) were missing (n = 100), or if the patient's Responsible Medical Officer (RMO) did not specify a psychiatric diagnosis in their case notes (n = 41). The final sample consisted of 1141 patients.

Patients were admitted to hospital on the basis of having a major mental illness, psychopathic disorder or mental impairment and either having been convicted of a criminal offence (n = 881) or having exhibited behaviour that might have led to a

conviction in different circumstances, i.e. they were deemed to be a high enough risk

of offending to warrant detention in a medium secure unit, or did not receive a

conviction for an offence, but were detained as a result of that offence (n = 260).

Diagnoses were made by a consultant psychiatrist on admission to the medium secure

unit using the ICD-10 classification system (WHO, 1992). The specific frequency

and percentage of patients with different diagnoses (grouped according to ICD-10

categories) are outlined in Table 1.

Table 1: *Frequency of diagnoses across the sample (n = 1141)*

Diagnosis	Number (%)
Organic, including symptomatic, mental disorders	28 (1.9)
Mental and behavioural disorders due to psychoactive substance use	142 (9.6)
Schizophrenia, schizotypal and delusional disorders	708 (47.7)
Affective disorders	149 (10.0)
Neurotic, stress-related and somatoform disorders	22 (1.5)
Behavioural syndromes associated with physiological disturbances and physical factors	2 (0.1)
Disorders of adult personality and behaviour	275 (18.6)
Mental impairment	145 (9.8)
Disorders of psychological development	6 (0.4)
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	8 (0.5)

The sample ($n = 1141$) was divided into two groups. Those in the LD group ($n = 145$) all had a diagnosis of Mental Impairment (MI) as defined by ICD-10 (codes F70 - F79). For a diagnosis of MI the person must have a Full Scale IQ of less than 70 and impaired adaptive functioning. Thus these diagnoses are synonymous with that of mental retardation as defined by DSM-IV-TR (APA, 2004). The LD group consisted of 121 patients with Mild MI (ICD-10 code F70), 18 patients with Moderate MI (ICD-10 code F71), five patients with Severe MI (ICD-10 code F72), and one patient with Unspecified MI (ICD-10 code F79). In the LD group 49 patients had a diagnosis of MI alone and 96 patients had a diagnosis of MI and a co-morbid diagnosis of another mental disorder. The non-LD group ($n = 996$) consisted of all the other patients, all of whom had some combination of mental disorder(s) but without MI. The numbers of those in the LD group and the non-LD group with a mental illness / personality disorder / other diagnosis are outlined in Table 2. In the LD group the diagnoses outlined in Table 2 are all in addition to a diagnosis of MI.

In the LD group there were 118 (81.4%) men and 27 (18.6%) women with a mean age at the time of discharge of 31.54 years ($SD = 8.94$). In the non-LD group there were 843 (84.6%) men and 153 (15.4%) women with a mean age at the time of discharge of 31.95 years ($SD = 9.28$). The two groups did not significantly differ on gender ($\chi^2 = 1.01$, df = 1, $p = .31$), or age at discharge (t (1139) = -0.50, $p = .62$).

In the LD group 117 (80.7%) 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. Ethnicity was unknown for seven (4.8%) of the LD group. In the non-LD group 659 (66.1%) patients were of White ethnic origin, 229 (23.0%) were of Black ethnic origin, 25 (2.5%) were of

Asian ethnic origin, 29 (2.9%) were of mixed ethnicity, seven (0.7%) were of 'other'

ethnicity and ethnicity was not known for 47 patients (4.7%). The two groups did

significantly differ on ethnicity (χ^2 = 29.50, df = 14, p <.01) with more of those in the

LD group being of White ethnic origin.

Table 2: *Frequency of co-morbid diagnoses in patients with LD and without LD*

Diagnoses	LD *n* (%)	Non-LD *n* (%)
LD (no co-morbid diagnosis)	49 (33.8)	
Mental illness[a]	34 (23.4)	644 (64.7)
Personality disorder[b]	35 (24.1)	94 (9.4)
Other diagnosis[c]	10 (6.9)	73 (7.3)
Mental illness and personality disorder	10 (6.9)	72 (7.2)
Mental illness and other diagnosis	4 (2.8)	62 (6.2)
Personality disorder and other diagnosis	3 (2.1)	28 (2.8)
Mental illness, personality disorder and other diagnoses	0 (0.0)	23 (2.3)

[a] A diagnosis of mental illness includes schizophrenia, schizotypal and delusional disorders, affective

disorders and neurotic, stress-related and somatoform disorders. [b] Personality disorders are simply any

disorders of adult personality and behaviour. [c] Other 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.

The patients in the sample were discharged from hospital between 1990 and 2001. Those in the LD group were discharged between 18/01/1990 and 22/12/2000 and those in the non-LD group were discharged from hospital across the same time span (04/01/1990 – 11/09/2001). The average length of stay for those in the LD group was 776 days (SD = 642, median = 668) and in the non-LD group it was 418 days (SD = 482, median = 418). The average length of stay significantly differed across the two groups (U = 42805, N_1 = 145, N_2 = 996, p <.001), with those in the LD group being admitted for longer (on average).

The LD group on average had 8.30 previous convictions (SD = 13.05, median = 3.00) and the non-LD group on average had 11.80 previous convictions (SD = 16.35, median = 5.00). The number of previous convictions significantly differed across the two groups (U = 63365, N_1 = 145, N_2 = 996, p <.05). This difference is covered in the Discussion.

2.2.3   Measures

Convictions prior to admission to hospital and post-discharge were obtained from the Home Office Offenders Index (2000). The specific sub categories of offences are based upon the offence categories provided by the Home Office Offenders Index (2000). The exception being that the present study combined offences from the burglary, robbery and theft categories and termed all such offences 'acquisitive' and separated breach offences from 'other' offences. All convictions committed post-discharge were included in the definition of general re-conviction, including violence against the person.

Across diagnostic groups (LD versus non-LD) those who were re-convicted were compared to those who were not re-convicted on:

- personal demographic variables, specifically, age, gender, ethnicity

  (Caucasian versus non-Caucasian; due to the small number of people in ethnic

  minority groups in the LD group it was not possible to conduct a more discrete

  analysis) and marital status (single/never married versus married/ever

  married).

- criminal history variables, specifically, number of previous convictions, age at

  first conviction, number of previous violence against the person convictions

  (murder, manslaughter, attempted murder, threat or conspiracy to murder,

  wounding, assault, cruelty to or neglect of children, child abduction, blackmail

  and kidnap), number of previous convictions for sexual offences (rape,

  buggery, indecent assault, incest, indecent exposure, procuration, and

  possession of obscene material), number of previous convictions for

  acquisitive offences (burglary or attempted burglary, robbery, theft, and

  handling stolen goods), number of previous convictions for fraud (obtaining

  goods by false pretences, company fraud, property fraud, and forgery), number

  of previous convictions for criminal damage (arson, criminal damage

  endangering life, and criminal and malicious damage), number of previous

  convictions for drug offences (supply or using illicit drugs), number of

  previous convictions for motoring offences (vehicle licensing offences,

  dangerous driving, and driving after consuming drugs or alcohol), number of

  previous convictions for breach of bail (absconding whilst released on bail or

  from lawful custody and any breaches of requirements of a probation order)

  and number of previous convictions for other offences (perjury, perverting the

  course of justice, offences against public order, drunk and disorderly and

  vagrancy offences).

- Deviant lifestyle variables; a history of alcohol abuse and a history of drug abuse.

- Clinical variables; any co-morbid diagnoses, length of admission in present medium secure unit, number of previous admissions to psychiatric hospital and age at first referral to psychiatric services.

2.2.4   Procedure

Ethical committee approval was obtained from the Ethical Committee of the School of Psychology, Cardiff University. Four psychology assistants (employed as research assistants as part of a larger study) completed data collection. Psychology assistants were trained and supervised by a Consultant Clinical and Forensic Psychologist in gathering information from medical records. Due to differences across the sample in the quality of the medical records provided by the medium secure unit, it was not possible to gather exactly the same data for all patients. 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 sub-samples 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 (χ^2 = 4.28, df = 1, $p < .05$), with more females not included than included.

2.3   Results

2.3.1   Base rate of offending in offenders with LD compared to mentally disordered offenders

General re-conviction was defined as any offence post-discharge recorded in the Home Office Offenders Index (2000). The LD group were followed for an average of 2390 days (SD = 892 days); the non-LD group were followed for an average of 2284 days (SD = 779 days). The average follow up time did not significantly differ across the two diagnostic groups (t (177.40) = 1.51, p = .17[5]). Of the 145 patients in the LD group 25/145 (17.2%) were re-convicted within the overall follow up period and in the non-LD group 281/996 (28.2%) were re-convicted within the overall follow up period.

Survival analysis was conducted to measure the base rate of general re-convictions in the two diagnostic groups as it takes into account the time taken to be re-convicted and the participants had different follow up periods. A survival analysis revealed that the LD group were re-convicted at a slower rate than the non-LD group (Log Rank (1) = 8.19, p < .01; Figure 1). The difference in base rate of convictions across the two groups makes it more difficult to measure any relationship involving convictions in the LD group than in the non-LD group (thus increasing the chances of a Type II error in the LD group, but not in the non-LD group).

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[5]
The Levene's test indicated that there was not equality of variance (i.e. the Levene's test was p < .05) and therefore the appropriate t statistic, df and p value were reported (Brace, Kemp & Snelgar, 2003).
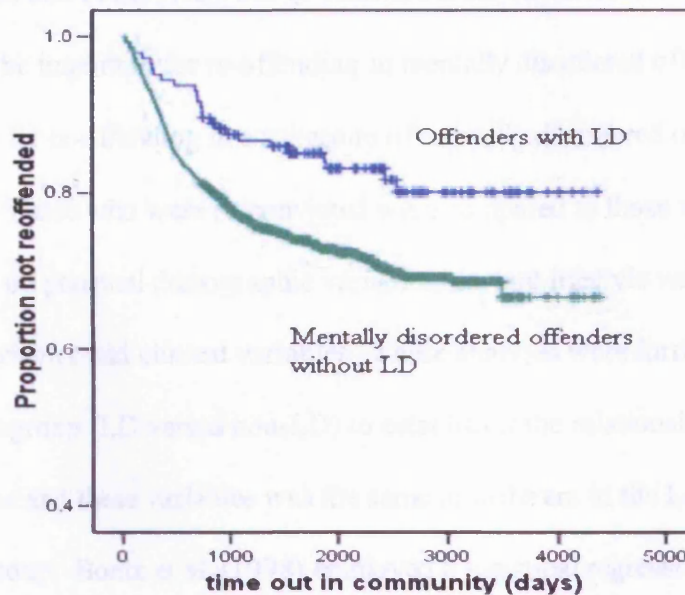
Figure 1: Survival curves for offenders with LD and mentally disordered offenders without LD, indicating differences in base rates of convictions across the two groups.

General re-conviction at two years post discharge was employed as the offending measure as all patients were followed for a minimum of two years. Fourteen of the LD group (9.7%) were re-convicted and 186 (18.7%) of the non-LD group were re-convicted within this period. When considering just violent offences only seven (4.8%) of the LD group were re-convicted for a violent offence (defined as any re-conviction categorised by the Home Office Offenders Index, 2000, under 'violence against the person' or any convictions for kidnap, arson, robbery, rape or indecent assault) and 113 (11.35%) of the non-LD group were re-convicted for a violent offence. In view of this small sample of violent offenders with LD it was decided not to pursue further this statistical analysis as the chances of making Type II errors were regarded as being too great.

2.3.2 Risk Factor analysis

The aim of the study was to establish if the variables identified by Bonta et al.

(1998) to be important for re-offending in mentally disordered offenders are also

important for re-offending in a subgroup of mentally disordered offenders, offenders

with LD. Those who were re-convicted were compared to those were not re-

convicted on personal demographic variables, deviant lifestyle variables, criminal

history variables and clinical variables. These analyses were further split by

diagnostic group (LD versus non-LD) to establish if the relationship between re-

convictions and these variables was the same or different in the LD compared to the

non-LD group. Bonta et al. (1998) employed a logistical regression to establish

which variables were most strongly related to re-offending in mentally disordered

offenders. In the present study this type of analysis was not employed as the aim of

the study was to establish how each of the variables found to be important in the

Bonta et al. (1998) analysis performed in the LD and the non-LD group, rather than

which variables 'came out on top' in the LD group and in the non-LD group.

Two-way Analysis of Variance (ANOVA) with the factors of offender group

(re-convicted versus not re-convicted) and diagnostic group (LD versus non-LD) were

employed with continuous variables. The main aim of the present study was to

establish if the relationship between re-convictions and the variables was the same /

different in the LD group compared to the non-LD group. Therefore in the ANOVA

analyses the key statistic was any interaction between offender group and diagnostic

group with each of the variables. In order to achieve this it was necessary to also

calculate the main effect of diagnostic group and the main effect of offender group.

These analyses therefore provide additional statistics pertaining to the descriptive

differences between the LD group and the non-LD group on each of the continuous

variables and if re-convictions were related to each of the variables across the entire sample. These findings will be reported but any descriptive differences between diagnostic groups will not be discussed as such data do not address the research question of the present study. In the absence of an interaction between offender group and diagnostic group with a variable, a main effect of offender group will be taken to indicate that the variable is related to re-convictions in both the LD group and the non-LD group. It is important to note that the power of the interaction analyses will be restricted by the smallest group (offenders with LD who were re-convicted, $n = 14$) and so non-significant interactions may be due to a lack of statistical power.

Chi square was employed to compare those who were re-convicted to those who were not (within each diagnostic group) on the categorical variables. Unfortunately the chi square analyses did not allow for a direct comparison of the relationship between re-convictions and each of the variables across the two diagnostic groups. Therefore a measure of effect size was taken (Phi; Rosenthal, 1991) to test for any differences in the size of the relationship between re-convictions and each of the categorical variables in the LD group and the non-LD group. Correlations known as Pearson's r, Spearman's rho, phi or point-biseral 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.

2.3.2.1 Personal demographic variables

The descriptive statistics for the personal demographic variables are outlined below in Table 3.

Table 3: *Descriptive statistics of those who were re-convicted and those who were*

not displayed across diagnostic groups for personal demographic variables

Variables	LD		Non-LD	
	Re-convicted (%)[a]	Not re-convicted (%)[b]	Re-convicted (%)[c]	Not re-convicted (%)[d]
Age at discharge	26.45[e]	32.08[e]	27.65[e]	32.93[e]
	(5.41)	(9.09)	(6.81)	(9.49)
Gender				
Male	92.9	80.2	92.5	82.8
Female	7.1	19.8	7.5	17.2
Ethnicity				
Caucasian	91.7	86.5	77.3	70.4
Non-Caucasian	8.3	13.5	22.7	29.6
Marital status				
Single/never married	92.9	91.6	76.0	75.9
Married/ever married	7.1	8.4	24.0	24.1

[a] $n = 14$ (except for ethnicity, $n = 12$). [b] $n = 131$ (except for ethnicity, $n = 126$). [c] $n = 186$ (except for ethnicity, $n = 176$ and marital status, $n = 173$). [d] $n = 810$ (except for ethnicity, $n = 773$ and marital status, $n = 792$). [e] Mean (*SD*)

The variable 'age at discharge' was subjected to an ANOVA to test for differences on the factors of offender group (re-convicted versus not re-convicted)

and diagnostic group (LD versus non-LD) and to further establish any interaction

between diagnostic group and offender group with age at discharge. There was a

significant main effect of offender group ($F_{(1, 1137)}$ = 17.08, p <.001); those who were

re-convicted were more likely to be younger at discharge. There was no main effect

of diagnostic group (F < 1). There was no interaction between offender group and

diagnostic group with 'age at discharge' (F < 1).

The categorical variables gender, ethnicity and marital status were each

subjected to a chi square analysis (within each diagnostic group) to test for any

differences in those who were re-convicted compared to those who were not[6]. A

measure of effect size (Phi) was taken to test for any differences in the size of the

relationship between re-convictions and each of the variables in the LD group and the

non-LD group.

In the LD group there was no significant difference in the gender of those who

were re-convicted compared to those who were not (χ^2 = 1.35, df = 1, p = .22). In the

non-LD group there was a significant difference in gender (χ^2 = 10.80, df = 1, p

<.001), those who were re-convicted were more likely to be male than female. It is

felt that the non-significant effect in the LD group is a power issue as effect size

calculations revealed that the size of the effect is the same in both groups (r = 0.10 in

both groups; a small effect size, Cohen, 1992). The non-significant result is likely

due to the difference in group size, n = 145 in the LD group compared to n = 996 in

the non-LD group.

In both the LD group and the non-LD group there was no significant

difference in the ethnicity of those who were re-convicted compared to those who

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[6]

In the LD group the expected cell count for those who re-offended was less than five for each of these
analyses. Therefore the Fishers exact test was used to test for significance (Siegel & Castellan, 1988).

were not ($\chi^2 = 0.26$, df = 1, $p = .52$ and $\chi^2 = 3.36$, df = 1, $p = .07$ respectively). There

was no relationship between re-convictions and ethnicity in both groups; $r = 0.04$ in

the LD group and $r = 0.05$ in the non-LD group (Cohen, 1992). Similarly, in both the

LD group and the non-LD group there was no significant relationship between re-

convictions and marital status ($\chi^2 = 0.03$, df = 1, $p = .67$ and $\chi^2 = 0.00$, df = 1, $p = .98$

respectively). There was no relationship between re-convictions and marital status in

both groups; $r = 0.01$ in the LD group and $r = 0.00$ in the non-LD group (Cohen,

1992).

2.3.2.2 Deviant lifestyle variables

The descriptive statistics for the deviant lifestyle variables are outlined below

in Table 4.

As with the personal demographic variables, the deviant lifestyle categorical

variables, a history of alcohol abuse and a history of drug abuse, were subjected to chi

square analyses and a measure of effect size (Phi) was taken to test for any differences

in the size of the relationship between re-convictions and each of the variables in the

LD group and the non-LD group. In the LD group those who were re-convicted were

significantly more likely to have a history of alcohol abuse ($\chi^2 = 3.92$, df = 1, $p < .05$).

This was also the case in the non-LD group ($\chi^2 = 10.36$, df = 1, $p < .01$). The

relationship between re-convictions and a history of alcohol abuse was a small-

medium effect size in the LD group ($r = 0.17$) and a small effect size in the non-LD

group ($r = 0.11$; Cohen, 1992). Similarly, in the LD group those who were re-

convicted were significantly more likely to have a history of drug abuse ($\chi^2 = 13.70$,

df = 1, $p < .001$). This was also the case in the non-LD group ($\chi^2 = 35.00$, df = 1, $p <$

.001). The relationship between re-convictions and a history of drug abuse was a

medium effect size in the LD group ($r = 0.32$) and a small-medium effect size in the

non-LD group ($r = 0.19$; Cohen, 1992). The effect size calculations suggest that there

was a bigger effect in the LD group compared to the non-LD group.

Table 4: *Descriptive statistics of those who were re-convicted and those who were not*

displayed across diagnostic groups for deviant lifestyle variables

Variables	LD		Non-LD	
	Re-convicted (%)[a]	Not re-convicted (%)[b]	Re-convicted (%)[c]	Not re-convicted (%)[d]
Alcohol abuse				
Yes	69.2	40.5	79.9	67.3
No	30.8	59.5	20.1	32.7
Drug abuse				
Yes	69.2	21.4	89.8	67.5
No	30.8	78.6	10.2	32.5

[a] history of alcohol abuse and history of drug use $n = 13$ [b] history of alcohol abuse $n = 116$, history of

drug abuse, $n = 112$ [c] history of alcohol abuse $n = 169$, history of drug abuse, $n = 176$ [d] history of

alcohol abuse $n = 736$, history of drug abuse, $n = 750$

2.3.2.3 Criminal history variables

The survival analysis in section 2.3.1 revealed that the LD group and the non-

LD group differ in base rate of convictions. Therefore analyses including the criminal

history variables may be unduly influenced by this difference (as one of the factors

and the dependent variables in the ANOVA analyses involve convictions). Despite

this difference in baseline of recorded convictions, it was decided to compare the

criminal history variables on the factors of offender group (re-convicted versus not re-convicted) and diagnostic group (LD group versus non-LD group) to enable a direct comparison to Bonta et al. (1998). The descriptive statistics for the criminal history variables are outlined below in Table 5.

For the variable 'number of previous convictions' there was a significant main effect of offender group ($F_{(1, 1137)} = 40.59$, $p < .001$), those who were re-convicted being more likely to have a higher number of previous convictions. There was a main effect of diagnostic group ($F_{(1, 1137)} = 5.64$, $p < .05$), with the LD group having fewer previous convictions compared to the non-LD group. There was a non significant interaction between diagnostic group and offender group with number of previous convictions ($F_{(1, 1137)} = 3.35$, $p = .07$).

For the variable 'age at first conviction' there was a significant main effect of offender group ($F_{(1, 854)} = 9.93$, $p < .01$), re-convictions being more frequent in those who were younger at age at first conviction. There was no main effect of diagnostic group ($F < 1$). There was no interaction between diagnostic group and offender group with age at first conviction ($F < 1$).

Table 5: *Descriptive statistics of those who were re-convicted and those who were not*
displayed across groups for criminal history variables

Variables	LD		Non-LD	
	Re-convicted	Not re-convicted	Re-convicted	Not re-convicted
	M (SD)[a]	M (SD)[b]	M (SD)[c]	M (SD)[d]
No. of previous	17.07 (17.00)	7.36 (12.27)	26.06 (23.30)	8.52 (12.13)
Age first convict	17.51 (3.83)	21.47 (7.10)	17.34 (4.64)	20.83 (7.96)
Violent	2.25 (2.56)	1.66 (3.55)	3.20 (3.22)	2.09 (2.78)
Sexual	0.75 (1.60)	0.61 (1.91)	0.21 (0.83)	0.21 (0.71)
Acquisitive	9.42 (10.19)	4.70 (7.21)	14.85(14.57)	5.60 (7.67)
Fraud	0.17 (0.39)	0.33 (0.94)	1.20 (3.18)	0.59 (1.72)
Criminal damage	4.58 (3.47)	2.12 (3.56)	2.56 (3.47)	1.66 (3.06)
Drugs	0.42 (0.52)	0.08 (0.34)	0.90 (1.97)	0.45 (1.29)
Motor	0.33 (0.78)	0.21 (1.00)	1.51 (4.86)	0.18 (0.93)
Breach	1.25 (1.55)	0.46 (1.92)	1.60 (2.70)	0.70 (1.60)
Other	0.75 (0.97)	0.33 (0.81)	1.06 (1.53)	0.52 (1.31)

Note. See method section 2.2.3 for definitions of offence types

[a] n = 12 (except for number of previous convictions and age first conviction, n = 14). [b] n = 92 (except for number of previous convictions, n = 131, age first conviction n = 93). [c] n = 179 (except for previous convictions, n = 186 and age first conviction, n = 185). [d] n = 575 (except for number of previous convictions, n = 810 and age first conviction, n = 589).

For the variable 'number of previous violent convictions' there was no main effect of offender group ($F_{(1, 854)} = 3.21, p = .07$). There was no main effect of diagnostic group ($F_{(1, 854)} = 2.11, p = .15$). There was no interaction between diagnostic group and offender group with previous violent convictions ($F < 1$).

For the variable 'number of previous convictions for sexual offences' there was no main effect of offender group ($F < 1$), there was a main effect of diagnostic group ($F_{1, 854} = 9.56, p < .01$), suggesting that the LD group had more previous convictions for sexual offences than the non-LD group and there was no interaction between diagnostic group and offender group with number of previous convictions for sexual offences ($F < 1$).

For the variable 'number of previous convictions for acquisitive offences' there was a significant main effect of offender group ($F_{(1, 854)} = 21.20, p < .001$), those who were re-convicted being more likely to have a higher number of previous convictions for acquisitive offences. There was a main effect of diagnostic group ($F_{(1, 854)} = 4.36, p < .05$). The LD group had fewer previous convictions for acquisitive offences compared to the non-LD group. There was no interaction between diagnostic group and offender group ($F_{(1, 854)} = 2.23, p = .14$).

For the variable 'number of previous convictions for fraud' there was no main effect of offender group ($F < 1$). There was a main effect of diagnostic group ($F_{(1, 854)} = 4.00, p < .05$), with the LD group having fewer previous convictions for fraud compared to the non-LD group. There was no interaction between diagnostic group and offender group with number of previous convictions for fraud ($F_{(1, 854)} = 1.38, p = .241$).

For the variable 'number of previous convictions for criminal damage' there was a significant main effect of offender group ($F_{(1, 854)} = 10.59, p < .01$), those who

were re-convicted being more likely to have a higher number of previous convictions for criminal damage. There was a main effect of diagnostic group ($F_{(1,854)} = 5.78$, $p < .05$), with the LD group having more previous convictions for criminal damage compared to the non-LD group. There was no interaction between diagnostic group and offender group with number of previous convictions for criminal damage ($F_{(1,854)} = 2.28$, $p = .13$).

For the variable 'number of previous convictions for drug offences' there was no main effect of offender group ($F_{(1,854)} = 3.20$, $p = .07$). There was no main effect of diagnostic group ($F_{(1,854)} = 3.71$, $p = .06$), with those with LD being less likely to have drug related convictions. There was no interaction between diagnostic group and offender group with number of previous convictions for drug offences ($F < 1$).

For the variable 'number of previous convictions for motor offences' there was a marginal main effect of offender group ($F_{(1,854)} = 3.71$, $p = .054$), there was no main effect of diagnostic group ($F_{(1,854)} = 2.35$, $p = .13$), and no interaction between diagnostic group and offender group with number of previous convictions for motor offences ($F_{(1,854)} = 2.53$, $p = .11$).

For the variable 'number of previous breaches' there was a significant main effect of offender group ($F_{(1,854)} = 7.66$, $p < .01$), with those re-convicted being more likely to have a higher number of previous breaches. There was no main effect of diagnostic group ($F < 1$). There was no interaction between diagnostic group and offender group with number of previous convictions for breaches ($F < 1$).

For the variable 'number of previous convictions for other offences' there was a significant main effect of offender group ($F_{(1,854)} = 5.21$, $p < .05$), those who were re-convicted being more likely to have a higher number of previous other convictions. There was a main effect of diagnostic group ($F_{(1,854)} = 1.44$, $p = .23$), the LD group

had fewer previous convictions for other offences compared to the non-LD group.

There was no interaction between diagnostic group and offender group with number

of previous other offences ($F < 1$).

2.3.2.4 Clinical variables

The descriptive statistics for the clinical variables are outlined below in Table

6.

The categorical variables of any diagnosis of mental illness and any diagnosis

of personality disorder were each subjected to a chi square analysis (within each

diagnostic group) to test for any differences in those who were re-convicted compared

to those who were not[7]. A measure of effect size (Phi) was also taken to test for any

differences in the size of the relationship between re-convictions and each of the

variables in the LD group and the non-LD group.

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[7]

In the LD group the expected cell count for those who re-offended was less than five for each of these
analyses. Therefore the Fishers exact test was used to test for significance (Siegel & Castellan, 1988).

Table 6: *Descriptive statistics of those who were re-convicted and those who were not*

displayed across diagnostic groups for clinical variables

	LD		Non-LD	
Variables	Re-convicted M (SD)[a]	Not re-convicted M (SD)[b]	Re-convicted M (SD)[c]	Not re-convicted M (SD)[d]
Personality Disorder	50.0[e]	31.3[e]	29.6[e]	20.0[e]
No personality disorder	50.0	68.7	70.4	80.0
Mental illness	35.7[e]	32.8[e]	65.6[e]	83.8[e]
No mental illness	64.3	67.2	34.4	16.2
Length of admission (days)	553.00 (446.23)	799.63 (656.32)	278.98 (368.30)	449.69 (499.08)
No. of previous admissions	3.67 (4.38)	3.47 (4.29)	3.01 (3.19)	4.74 (5.01)
Age first psychiatric referral	14.75 (5.01)	16.99 (8.03)	19.72 (7.03)	21.24 (7.14)

[a] $n = 14$ (except for number of previous psychiatric admissions and age at first psychiatric referral, $n = 12$). [b] $n = 131$ (except for number of previous psychiatric admission and age at first psychiatric referral $n = 108$). [c] $n = 186$ (except for number of previous psychiatric admissions, $n = 162$ and age at first psychiatric referral, $n = 163$). [d] $n = 810$ (except for number of previous psychiatric admissions, $n = 704$ and age at first psychiatric referral, $n = 734$). [e] Percentages

In the LD group re-convictions were not related to a diagnosis of mental illness ($\chi^2 = 0.05$, df $= 1$, $p = .52$), though re-convictions were significantly related to

mental illness in the non-LD group (χ^2 = 31.95, df = 1, p < .001). Examination of

those who were re-convicted in the non-LD group suggests that a diagnosis of mental

illness is a protective factor as it was negatively related to re-convictions as more of

those who were not re-convicted had a diagnosis of mental illness (the percentages of

those with a diagnosis of a mental illness were about equal in those who were re-

convicted compared to those who did not in the LD group). There was no relationship

between mental illness and re-convictions in the LD group (r = 0.02) and a small-

medium effect (*r* = 0.18) in the non-LD group (Cohen, 1992). This suggests that the

relationship between re-convictions and a diagnosis of mental illness is less important

in the LD group compared to the non-LD group.

In the LD group re-convictions were not significantly related to a diagnosis of

personality disorder (χ^2 = 2.00, df = 1, p = .13), though in the non-LD group re-

convictions were significantly related to a diagnosis of personality disorder (χ^2 = 8.13,

df = 1, p < .01). It was felt that the lack of statistical significance in the LD group was

due to a lack of statistical power as the relationship between re-convictions and a

diagnosis of personality disorder was a small effect in both groups (*r* = 0.12 and *r* =

0.09 respectively; Cohen, 1992), but the LD group was much smaller than the non-LD

group (*n* = 145 compared to *n* = 996).

Length of admission, number of previous psychiatric admissions and age at

first psychiatric referral were each subjected to an ANOVA to test for differences on

the factors of offender group (re-convicted versus not re-convicted) and diagnostic

group (LD versus non-LD) and to further establish any interaction between diagnostic

group and offender group. For the variable 'length of admission' there was a

significant main effect of offender group ($F_{(1, 1137)}$ = 8.11, p <.01), with those who

were re-convicted more likely to have shorter admissions. There was a significant

main effect of diagnostic group ($F_{(1, 1137)}$ = 18.12, p <.001), with the LD group being admitted for longer than the non-LD group. However, there was no interaction between diagnostic group and offender group with length of admission (F < 1).

For the variable 'number of previous psychiatric admissions' there was a significant main effect of offender group ($F_{(1, 982)}$ = 1.07, p = .30), with those who were re-convicted having fewer previous admissions. There was no main effect of diagnostic group (F < 1). There was no interaction between diagnostic group and offender group with number of previous psychiatric admissions ($F_{(1, 982)}$ = 1.68, p = .20).

For the variable 'age at first psychiatric referral' there was no main effect of offender group ($F_{(1, 1013)}$ = 2.71, p = .10), there was a significant main effect of diagnostic group ($F_{(1, 1013)}$ = 16.37, p <.001), those in the LD group being younger at age at first psychiatric referral than those in the non-LD group. There was no interaction between diagnostic group and offender group with age at first psychiatric referral (F < 1).

2.4   Discussion

2.4.1   Summary of findings

The aim of the present study was to establish if the variables for offending in mentally disordered offenders (identified by Bonta et al., 1998, and replicated by Phillips et al., 2005) extend to offenders with LD, or if the variables related to offending are different in this subgroup of mentally disordered offenders. Those who were re-convicted were compared to those who were not on personal demographic variables, deviant lifestyle variables, criminal history variables and clinical variables (As in the Bonta et al., 1998, meta-analysis). Furthermore, the relationship between

these variables and re-convictions was compared across those with LD and those

without LD. The key finding of the present study was that the variables related to re-

convictions were very similar in offenders with LD compared to other mentally

disordered offenders (the few exceptions are discussed below).

2.4.2   Relation of findings to previous literature regarding mentally disordered offenders

Bonta et al. (1998) claim that the focus on psychopathological variables in

mentally disordered offenders resulted in inaccurate assessment of risk of recidivism

in this population as the social psychological explanations used to predict future

offending in general offender populations also more accurately predict recidivism in

this group. The personal demographic variable marital status differed in the present

study to Bonta et al. (1998) in that re-convictions were not found to be significantly

related to being single in mentally disordered offenders (or in offenders with LD).

However, both the present study and Bonta et al. (1998) found that the relationship

between re-convictions and marital status was a small effect size. As the present

study and Bonta et al. (1998) had very similar sample sizes ($n = 1141$ compared to $n =$

987 in the Bonta et al., 1998, meta-analysis) it would be expected that it would have

been possible to detect a significant effect in the present study. However, in the

present study the offending measure was restricted to re-convictions whereas in the

Bonta et al. (1998) analysis general reconviction included re-admission to hospital as

a result of criminal behaviour and thus Bonta et al.'s (1998) analysis may have been

more statistically powerful.

The relationship between re-convictions and the deviant lifestyle variables a

history of alcohol abuse and a history of drug abuse may be more important in

offenders with LD than in other mentally disordered offenders as the effect sizes were

larger in the LD group than the non-LD group. The relationship between re-
convictions and a history of alcohol abuse was a small-medium effect size in the LD
group and a small effect size in the non-LD group and the relationship between re-
convictions and a history of drug abuse was a medium effect size in the LD group and
a small-medium effect size in the non-LD group. However, it should be noted that
these differences are small and may be of little clinical significance.

The relationship between re-convictions and clinical variables in the present
study largely replicated Bonta et al. (1998). However, in the present study, days
hospitalised and previous psychiatric admissions were protective factors for
recidivism, in that those who were re-convicted had fewer days hospitalised and fewer
psychiatric admissions. In the Bonta et al. (1998) study there was no relationship
between treatment and re-offending and increased days in and admissions to hospital
increased the chance of recidivism. Phillips et al. (2005) also found fewer days and
fewer admissions led to increased recidivism (based on patients from the same sample
of mentally disordered offenders employed in the present study). To understand why
there may be differences in the success of treatment / admissions across studies it is
necessary to know the treatment received prior to discharge and the type of hospital
admitted to in the past. Bonta et al. (1998) do not describe the treatment received or
hospitals admitted to for the mentally disordered offenders included in the analyses,
though as it was a meta-analysis it is highly likely that there were many different
hospitals and treatments included. It is possible that numerous admissions reflect
'revolving door' civil psychiatric patients who are repeatedly admitted to hospital for
a short period of time for respite and so numerous admissions in this study may
actually reflect worse psychiatric illness (as opposed to increased treatment). In the
present study treatment was received in a medium secure unit where the average

length of stay was three years (this data was not available from Bonta et al., 1998). It is possible in the medium secure units that more, or more effective treatment was given, resulting in the negative relationship with re-offending. This needs further investigation and is beyond the remit of the present study.

The LD literature by and large simply describes offenders with LD and there is a small literature that describes offenders with LD compared to a control group (of mentally disordered offenders, general offenders or non-offenders) which collectively suggests that offenders with LD are young males (Alexander et al., 2006; Holland et al., 2002; Puri et al., 2000; Woods & Mason, 1998) with behavioural and substance abuse problems (Lund, 1990; Murphy et al., 1995; Winter et al., 1997) with an increased likelihood of a diagnosis of personality disorder (Lindsay, Hogue, et al., 2006; Puri et al., 2000; Woods & Mason, 1998). The findings of the present study support this literature and through direct comparison with other mentally disordered offenders add that the risk factors for re-conviction do not differ to other mentally disordered offenders.

2.4.3 Limitations

The present study was limited by the small number of offenders with LD who were re-convicted. The survival analysis revealed that offenders with LD were re-convicted at a slower rate than other mentally disordered offenders. The statistical power of the ANOVA interactions and the chi square analysis for the LD group would have been limited by the number of those with LD who were re-convicted ($n =$ 14/145). It is possible that if the study had included more offenders with LD who were re-convicted and increased the statistical power of these analyses then significant interactions between diagnostic group (LD versus non-LD) and offender group with the variables may have been found. The very small group of offenders

with LD who were re-convicted by two years post-discharge highlights the difficulties

in conducting research that examines offending in this subgroup of mentally

disordered offenders. This may also explain why there are so few studies in the

research literature that have examined recidivism in offenders with LD.

The rate of recidivism in the present study of 9.7% (n = 14/145) is comparable

to previous studies that have employed re-convictions as the outcome measure.

Alexander et al. (2006) followed 64 offenders with LD discharged from two medium

secure units for an average of 11 years; 11% were reconvicted in this time period and

a further 11% received a police caution. It is known that convictions represent just

the 'tip of the iceberg' of offences committed (for example, Holland et al., 2002, see

section 1.2). It is further reported that this problem is exacerbated in offenders with

LD due to the use of fitness to plead legislation (Johnston, 2002) and offending

behaviour in offenders with LD being termed challenging behaviour and not

involving the full legal process (Turner, 2000). It should be considered that the

difference in offending rates in offenders with LD compared to other mentally

disordered offenders could reflect true differences in the rates of offending behaviour

committed by these two groups. However, Lindsay, Steele, et al. (2006) reported that

59% of offenders with LD residing in the community re-offended over a 12 year

follow up period. This is much higher than the recidivism rate found in the present

study and those reported by Alexander et al. (2006) and may be due to the fact that

Lindsay, Steele, et al. (2006) did not restrict the definition of re-offending to offences

that received a conviction. Lindsay, Steele, et al. (2006) had close contact with those

in health and social services who were responsible for the supervision of the patients

studied whilst in the community. Therefore any offending behaviour known to

services, not just offending behaviour that resulted in a conviction, was included in

the outcome measure. It is likely that this method resulted in a more accurate

reflection of actual offences committed and suggests that re-offending in offenders

with LD is not uniquely low. The difference in the base rate of re-offending to re-

convictions in offenders with LD is highlighted by Halstead et al. (1995) who

reported that of 32 patients discharged from a medium secure unit, followed for five

years, 1/3 were involved in offending behaviour but just one (3%) received a

conviction for the offending behaviour. In addition, Lindsay, Steele, et al. (2006)

report that offenders with LD are given no formal disposal, as often as they are given

a formal disposal, following contact with the criminal justice system. This limitation

applies to all studies trying to predict long-term recidivism in offenders with LD. It is

extremely costly to follow patients as closely as Lindsay, Steele, et al. (2006) did,

especially over such a long period and the Lindsay, Steele, et al. (2006) sample is

fairly unique.

2.4.4 Conclusions

In the main, there were few differences in the variables related to general re-

convictions in offenders with LD compared to other mentally disordered offenders.

The variables related to re-convictions (at two years post-discharge) were personal

demographic variables, deviant lifestyle variables, criminal history variables and

some clinical variables. The research literature reviewed in section 1.4 illustrates that

the best practice in risk assessment instruments employed in mentally disordered

offenders (VRAG, the PCL-R and the HCR-20) have been extensively validated for

the mentally disordered offender population. Dawes et al. (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. The findings of the present study

(of great similarity of variables for those with LD who were re-convicted to those

without LD) suggest that risk assessment instruments developed in other populations

(e.g. VRAG) may have criterion validity in offenders with LD. However, it remains

necessary to evaluate the predictive validity of these best practice risk assessment

instruments in offenders with LD.

Chapter 3

Predicting future reconvictions in offenders with learning disabilities: The predictive efficacy of the VRAG, PCL-SV and the HCR-20[8].

3.1   Introduction

The accurate prediction and management of future recidivism and violence in mentally disordered offenders is a key concern for mental health professionals. Indeed, the emphasis of the proposed new Mental Health Act is public protection (Holland, 2004). 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 accurately assess the risk that a patient will be dangerous in the future, and to identify the risk factors/contexts that may trigger such behaviour.

Risk assessment instruments have been developed to meet this end in mentally disordered offenders. The 'best practice' in risk assessment instruments in mentally disordered offenders, the VRAG, the PCL-R (and its variants) and the HCR-20, were reviewed in section 1.4. There is a wealth of evidence to support the predictive validity of the VRAG, the PCL-R (and its variants) and the HCR-20 in mentally disordered offenders a) in the populations for which they were intended (essentially North America) and b) in populations for which they were not originally intended, different countries and minority offender groups. The VRAG, the PCL-R (and its

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The data from this study has been published elsewhere (Gray, Fitzgerald, Taylor & Snowden, 2007) in slightly different form. The short title of this chapter is 'Re-convictions study' and this is how the chapter will be referred to from this point forward.

variants) and the HCR-20 therefore hold great promise to validly predict offending in a subgroup of mentally disordered offenders, offenders with LD.

To date offenders with LD represent a subgroup of mentally disordered offenders that have been largely ignored in the literature on methods of risk assessment of future violence (Barron et al., 2004; Johnston, 2002). Quinsey et al. (2004) state that based on the progress made in using actuarial measures to predict long-tem risk in forensic and correctional facilities little research has been developed for those with LD. Similarly, Lindsay, Elliott, et al. (2004), state that compared to the field of mainstream criminality the literature on how to predict future offences for those with LD is less clear. Johnston (2002) says there is little direct evidence concerning risk assessment instruments in this population. The findings of the risk factor study suggest that the VRAG, the PCL-SV and the HCR-20 may have criterion validity in offenders with LD as offenders with LD did not differ to other mentally disordered offenders in the risk factors for recidivism. However, it remains necessary to evaluate the predictive validity of these risk assessment instruments in this population.

There are a handful of studies that have tested the ability of the VRAG, the PCL-R (and its variants) and the HCR-20 to predict institutional violence in offenders with LD (Lindsay et al., 2008; Morrissey et al., 2005; Morrissey et al., 2007a; Quinsey et al., 2004[9]). These studies collectively provide some evidence for the predictive validity of the VRAG, the PCL-R and the HCR-20 in offenders with LD. The VRAG has been reported to predict institutional violence with AUCs of 0.69 (Quinsey et al., 2004) and 0.71 (Lindsay et al., 2008). There is somewhat less

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[9] Quinsey et al., (2004) evaluated the ability of the VRAG to predict violence in a community sample of offenders with LD, though 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.
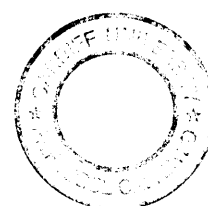
convincing evidence regarding the PCL-R with Morrissey et al. (2005; Morrissey et al., 2007a) reporting a small relationship between PCL-R and institutional violence (though using a modified PCL-R and with a lack of control over the timing of the risk assessment). Lindsay et al. (2008) report that the 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.

The majority of research to date that has investigated the ability of these risk assessment instruments to predict violence has modified the instrument (Quinsey et al., 2004; Morrissey et al., 2005; Morrissey et al., 2007a). Therefore the predictive efficacy of the VRAG and the PCL-R (and its variants) in their original form remains to be tested in offenders with LD. The existing literature has investigated the ability of risk assessment instruments to predict institutional violence but the ability of the VRAG, the PCL-R (and its variants) and the HCR-20 to predict criminal recidivism remains to be tested. Crucially none of the studies that have evaluated the predictive efficacy of these risk assessment instruments in offenders with LD have employed a control group of mentally disordered offenders for whom the predictive validity of the VRAG, the PCL-R and the HCR-20 is well established.

3.1.1   Aim of Chapter 3

The aim of the present study was to evaluate the predictive efficacy of the VRAG, the PCL-SV (this choice of PCL variant is explained in the method section) and the HCR-20 in their original (unmodified) form to predict long-term reconvictions in offenders with LD compared to a control group of other mentally disordered offenders.

3.2   Method

3.2.1   Design

The study was a pseudo-prospective case-note analysis of patients discharged

from four independent sector medium secure facilities in the UK. The design is

termed pseudo-prospective because the scoring of risk assessments was completed at

the point of discharge and blind to outcome. However, patients had been discharged

in the past and so the follow up data was already available, as the passage of time

required to follow a patient up in the community had already occurred. The data

pertains to patients who were discharged between 1990 and 2001 (see below) with

each patient followed for a minimum of two years for reconviction post-discharge.

The predictor variables were the risk assessment instrument scores, and the outcome

measures were criminal convictions post-discharge (general offending and violent

offending).

3.2.2   Sample

The sample employed in the present study was the same sample as that

employed in the risk factors study (Chapter 2). The sample characteristics are

detailed in section 2.2. To avoid repetition please refer to this section.

3.2.3   Measures

The VRAG (Harris et al., 1993) is an actuarial risk assessment instrument that

predicts risk of re-offending based on 12 historical static variables (e.g. history of

alcohol problems, criminal history, age at index offence, psychopathy score as

measured by the PCL-R or PCL-SV). See Appendix A for an outline of the items of

the VRAG. Each variable of the VRAG is weighted according to how different the

individual is from the overall violent recidivism rate of the VRAG construction

sample (+/- 5% from the mean rate is one weighted point). The VRAG produces a

score (ranging from -24 to +36) and a risk category between one and nine based upon

this score. VRAG scores can be completed from file review only. If, due to a lack of

information, it was not possible to score an item of the VRAG then it was pro-rated

(Quinsey et al., 1997). Inter-rater reliability (measured by intraclass correlations[10]) in

the present study was uniformly high for the VRAG (ICC = 0.95).

The PCL-SV (Hart et al., 1995) was used as only file information was

available and the PCL-SV is easier to score (than the PCL-R) without an interview

being completed. The PCL-SV has 12 items each scored from 0 - 2 (range of scores 0

- 24). See Appendix B for the items of the PCL-SV. The PCL-SV has two parts.

Part 1 measures selfish and callous personality and relates mainly to interpersonal and

affective traits. Part 2 measures socially deviant behaviour and past criminality. If,

due to insufficient information, it was not possible to score an item of the PCL-SV

then it was pro-rated according to the author's manual (Hart et al., 1995). The

reliability of the PCL-SV ratings for the current study was PCL-SV total: ICC = 0.76;

part 1: ICC = 0.73; part 2: ICC = 0.75.

The HCR-20 (Version 2; Webster et al., 1997) measures 20 variables related

to risk of future violence. See Appendix C for the items of the HCR-20. The HCR-

20 is divided into three subscales. The history subscale has 10 items related to a

history of mental illness, psychopathy (this is measured using the PCL-R or PCL-SV),

personality disorder, and substance misuse. The clinical subscale has five items

relating to the current status of dynamic risk markers (lack of insight, negative

attitudes, etc.). The risk management subscale has five items related to the

individual's future social and treatment circumstances and their estimated reaction to

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[10]

*Intra-class correlations measure the extent to which a variable is similar between two group members,
in this case two researchers risk assessment scores (see Shrout & Fliess, 1979, for an explanation).*

these (exposure to destabilisers, lack of personal support, etc). If, due to a lack of file

information, it was not possible to score an item of the HCR-20 it was pro-rated

(Webster et al., 1997). The current study's inter-rater reliability for the HCR 20 was

HCR-20 total: $ICC = 0.78$; history subscale: $ICC = 0.63$; clinical subscale: $ICC = $

0.58; risk management subscale: $ICC = 0.71$. The HCR-20 was measured at the point

of discharge.

The ratings were made in a set order of PCL-SV, HCR-20 and then VRAG.

The PCL-SV was rated first as it is a component of both the HCR-20 and the VRAG.

The HCR-20 was rated before the VRAG so as to minimise the influence of the more

objective VRAG on the more subjective HCR-20, though it should be noted that as

the instruments were all rated by the same rater there may be some contamination of

one assessment with that of another. However, in clinical practice this is also likely to

be the case.

The outcome measure was recidivism, with post discharge convictions being

collated from the Home Office Offenders Index (2000). The ability of the risk

assessment instruments to predict general and violent recidivism was investigated.

Snowden et al. (2007) report that risk assessment instruments designed to predict

general offending are as able to predict violent offending (and vice versa) and

conclude that if a risk assessment instrument is able to predict general offending, it

can also be assumed to be able to predict violent offending (in that given population).

It is methodologically easier to study general offending as such events are more

common than violent offending (enabling greater statistical power) and therefore it is

beneficial to be able to use general offending as a proxy for violent offending when

testing the efficacy of risk assessment instruments. It was decided to also investigate

violent offending independently as Snowden et al. (2007) state that if at all possible

then violent offences should be used to measure violent offences. Furthermore,

Snowden et al. (2007) studied mentally disordered offenders and so it could not be

assumed that the same holds true in offenders with LD (the present study should be

able to inform on this). Violent re-convictions included all offences classified as

violence against the person by the Home Office, plus kidnap, criminal damage

endangering life, robbery, rape and indecent assault. General re-convictions included

any offence post-discharge.

3.2.4   Procedure

Ethical Committee approval was obtained from the Ethical Committee of the

School of Psychology, Cardiff University. Five psychologists completed all

assessments by access to file-based information. All researchers were trained on the

scoring of the risk assessment instruments by a Consultant Clinical and Forensic

Psychologist. All background psychiatric and mental health reports on the patients

were obtained as were full criminal record history, admission and discharge reports,

social work and probation information, and nursing records. All convictions were

obtained from the Home Office Offenders Index (2000). Risk assessments were

completed blind to outcome by the use of 'computer masking' of offences following

date of discharge.

3.3   Results

The descriptive statistics for offenders with LD (the LD group) and offenders

without LD (the non-LD group) on the VRAG, PCL-SV and HCR-20 are outlined in

Table 8.

The two groups significantly differed on VRAG total score (t (533) = 3.72, $p <$

.01). It can be seen from Table 8 that the LD group have higher VRAG total scores in

this sample. The two groups significantly differed on PCL-SV total score (t (215.25)

= 3.72, p <.001), part 1 score (t (786) = 4.07, p <.001) and part 2 score (t (184.03) =

3.17, p < .01). The LD group have higher PCL-SV scores in this sample. The two

groups significantly differed on HCR-20 total score (t (1023) = 7.66, p < .001), the

history subscale score (t (203.12) = 3.94, p < .001) and the clinical subscale score (t

(196.97) = 14.95, p < .001), with the LD group having higher scores than the non-LD

group. The two groups did not significantly differ on the risk management subscale

score (t (1028) = 1.55, p = .13), though this subscale score was also higher in the LD

group.

Table 8: *Descriptive statistics of the VRAG, PCL-SV and HCR-20 scores for the LD*

and non-LD groups

Risk scale	n	LD group Mean (*SD*)	Range	n	Non-LD group Mean (*SD*)	Range
VRAG score	115	6.95 (8.60)	-14 - +29	420	3.00 (10.45)***	-24 - +36
PCL-SV Total	132	8.96 (4.79)	0-20	775	6.88 (4.94)***	0-22
PCL-SV Part 1	124	4.40 (3.06)	0-11	667	3.22 (2.97)***	0-12
PCL-SV Part 2	129	4.59 (2.56)	0-11	762	3.81 (2.81)**	0-12
Total HCR-20	139	22.32 (5.98)	10-37	896	17.95 (6.30)***	3-37
History subscale	139	12.43 (3.17)	6-19	886	11.26 (3.74)***	2-20
Clinical subscale	139	5.86 (2.08)	2-10	891	2.97 (2.35) ***	0-10
Risk subscale	138	4.09 (2.45)	0-10	892	3.73 (2.58)	0-10

Note. Differs from chance (0.5) at *p <.05, ** p <.01, *** p <.001.

Beyond this sample, it is extremely difficult to draw any conclusions or

generalisations as to why the LD group had higher risk assessment scores as the

VRAG, the PCL-SV and the HCR-20 scores may be influenced by many factors

pertinent to the population studied, including, but not limited to, diagnosis. For

example, it is possible that selection criteria for admission to the medium secure unit

were differentially applied to people with a diagnosis of LD compared to people

without a diagnosis of LD. This is discussed further in section 3.4.3.

3.3.1   Predictive abilities of the VRAG, PCL-SV and HCR-20 across diagnostic groups

The major aims of this study were:

(1)   to see if instruments known to predict future offending in mentally

disordered offenders could also have predictive validity in those with LD,

and

(2)   to compare the efficacy of these instruments across the two groups.

Survival analysis in the risk factor study revealed that the LD group were re-

convicted at a slower rate than the non-LD group and thus have a different base-rate

for offending compared to the non-LD group. In order to compare the efficacy of the

risk assessment instruments it was necessary to employ a statistical technique that is

relatively immune to changes in the base-rate. Signal Detection Theory (SDT; Green

& Swets, 1966) offers such a technique. In such analyses the score on the risk

assessment instrument can be used to predict future re-convictions. SDT plots the

proportion of hits (correctly predicting future recidivism) against the proportion of

false alarms (predicting future recidivism when it did not occur). By doing this for

each level (or score) of the instrument we can construct the Receiver Operating

Characteristic (ROC) for the instrument in each population studied. If the risk

assessment instrument has little predictive validity the proportion of false alarms will

be similar to the proportion of hits and the area under the curve (AUC) defined by the

ROC will be near 0.5 (chance level). If the risk assessment instrument has perfect

predictive validity the AUC will be 1.0. The use of SDT has been championed as a

succinct and accurate way of expressing the performance of risk assessment

instruments (Mossman, 1994). Using standard conventions an AUC of 0.50 is

chance, AUCs > 0.56 can be regarded as small effects, AUCs > 0.64 as medium

effects and AUCs > 0.71 as large effects (Rice & Harris, 2005). AUCs were

compared to see if they differed statistically from each other by the methods described

by Hanley and McNeil (1992).

3.3.1.1 Violence Risk Appraisal Guide

The two groups were compared on the VRAG for violent re-convictions five

years post-discharge and general re-convictions at one, two and five years post-

discharge. The associated AUCs are displayed in Table 9.

The AUC for predicting violent reconviction after a five-year follow-up period

in the LD group was 0.75 ($SE = 0.08$), which was significantly above chance levels (p

< .01), and constitutes a large effect size (Rice & Harris, 2005). This AUC was

nearly identical to that of the non-LD group (0.77), and this suggests that the VRAG

is as good at predicting violent reconvictions in the LD group as it is in the non-LD

group.

Table 9: *The Area Under the Curve (AUC), Standard Error (SE) and number (n) for the VRAG risk prediction of reconvictions across different follow up periods and offence types.*

Assessment instrument and follow up period	LD group			Non-LD group		
	AUC	SE	*n*	AUC	SE	*n*
VRAG 5 year follow up (violent reconvictions)	.75**	.08	76	.77***	.03	262
VRAG 1 year follow up	.85**	.08	115	.77***	.03	420
VRAG 2 year follow up	.77**	.07	115	.74***	.03	420
VRAG 5 year follow up	.74**	.07	84	.73***	.03	320

Note. None of the AUCs significantly differed across the two groups.

Figure differs from chance (0.5) at *p <.05, **p <.01, ***p <.001.

Before this conclusion is accepted it is necessary to note a limitation to this result. Because violent reconvictions are relatively rare, this necessarily means that the number of people actually receiving a violent reconviction in the LD group becomes quite small. Thus, this AUC of 0.75 for the LD group is based on only 11 individuals who received such a conviction (and of course the many others that did not receive such a conviction). In order to support the conclusion of comparative efficacy the data for general reconviction was also examined. Snowden et al. (2007) report that in mentally disordered offenders, risk assessment instruments designed to

predict general offending are also good at predicting violent offending (and vice

versa) and argue that these measures can be used somewhat interchangeably. It is

methodologically easier to study general offending, as such events are more common

(enabling greater statistical power), and therefore it is beneficial to be able to use

general offending as a proxy for violent offending when testing the efficacy of risk

assessment instruments. Of course, the ability to predict general offending may also

be of interest in itself (Gendreau et al., 1996). Table 9 also provides the AUCs for

predicting general re-convictions. The VRAG was an excellent predictor of general

re-convictions in the LD group and its efficacy did not differ statistically from its

ability to predict general re-convictions in the non-LD group. There is a slight

downward trend of the AUC as the length of follow up increases, but the AUC for the

LD group at five year follow up did not significantly differ to the AUCs at one and

two years follow up. Hence, all the evidence points to the ability of the VRAG to

predict both general and violent reconvictions in those with LD at a similar level of

efficacy as in those without LD.

3.3.1.2 Psychopathy Checklist – Screening Version

The LD group and the non-LD group were compared on the PCL-SV total,

part 1 and part 2 scores. The associated AUCs for each of the PCL-SV scores are

displayed in Table 10.

Table 10: *The Area Under the Curve (AUC), Standard Error (SE) and number (n) for the PCL-SV risk prediction of reconvictions across different follow up periods and offence types.*

Assessment instrument and follow up	LD group			Non-LD group		
	AUC	SE	*n*	AUC	SE	*n*
PCL-SV 5 year follow up (violent reconvictions)	.75**	.10	88	.72***	.03	480
PCL-SV 1 year follow up	.77*	.08	132	.73***	.03	775
PCL-SV 2 year follow up	.76**	.08	132	.73***	.02	775
PCL-SV 5 year follow up	.76**	.07	100	.70***	.02	566
PCL-SV Part 1. 5 year follow up (violent reconvictions)	.68*	.10	81	.64***	.03	413
PCL-SV Part 1. 1 year follow up	.66	.08	124	.62***	.04	667
PCL-SV Part 1. 2 year follow up	.67*	.08	124	.63***	.03	667
PCL-SV Part 1. 5 year follow up	.68*	.08	93	.61***	.03	488
PCL-SV Part 2. 5 year follow up (violent reconvictions)	.65	.10	86	.75***	.03	471
PCL-SV Part 2. 1 year follow up	.68	.09	129	.77***	.03	762
PCL-SV Part 2. 2 year follow up	.70*	.09	129	.76***	.02	762
PCL-SV Part 2. 5 year follow up	.68*	.07	97	.74***	.02	554

Note. None of the AUCs significantly differed across the two groups. Figure differs from chance (0.5) at *p <.05, ** p <.01, *** p <.001

The PCL-SV was a good predictor of both violent and general reconvictions in

the LD group yielding large effect sizes across one, two and five year follow up

periods (Rice & Harris, 2005). The AUCs for the LD group did not differ

significantly from those in the non-LD group. The PCL-SV part 1 produced medium

effect sizes across all follow up periods, and when predicting both violent and general

recidivism in both groups (Rice & Harris, 2005). The PCL-SV part 2 produced

medium effect sizes in the LD group and large effect sizes in the non-LD group across

all follow up periods and offending outcomes (Rice & Harris, 2005). The predictive

abilities of the PCL-SV did not significantly decrease as time in the community

increased. These findings suggest that the PCL-SV can predict re-convictions as well

in the LD group as the non-LD group. Indeed, the AUCs were consistently higher in

the LD group (though not significantly so).

3.3.1.3 History, Clinical, Risk Management-20

The two groups were also compared for HCR-20 total, history, clinical and

risk management subscale scores. The associated AUCs for each of the HCR-20

scores are displayed in Table 11.

Table 11: *The Area Under the Curve (AUC), Standard Error (SE) and number (n) for the HCR-20 risk prediction of reconvictions across different follow up periods and offence types*

Assessment instrument and follow up period	LD group			Non-LD group		
	AUC	SE	*n*	AUC	SE	*n*
HCR-20 5 year follow up (violent reconvictions)	.82**	.07	94	.71***	.03	567
HCR-20 1 year follow up[b]	.87***	.04	139	.72***	.03	898
HCR-20 2 year follow up	.80***	.06	139	.71***	.02	897
HCR-20 5 year follow up	.81***	.05	107	.68***	.02	670
HCR-20 History. 5 year follow up (violent reconvictions)	.84***	.07	93	.72***	.03	563
HCR-20 History. 1 year follow up[b]	.89***	.04	139	.72***	.03	887
HCR-20 History. 2 year follow up	.77**	.07	139	.71***	.02	887
HCR-20 History. 5 year follow up	.80***	.06	106	.71***	.02	666

Assessment instrument and follow up period	LD group			Non-LD group		
	AUC	SE	*n*	AUC	SE	*n*
HCR-20 Clinical. 5 year follow up[a] (violent reconvictions)	.73*	.08	93	.54	.03	564
HCR-20 Clinical. 1 year follow up	.70	.10	139	.55	.03	892
HCR-20 Clinical. 2 year follow up[a]	.69*	.08	139	.53	.02	892
HCR-20 Clinical. 5 year follow up[a]	.68**	.07	106	.51	.02	665
HCR-20 Risk 5 year follow up (violent reconvictions)	.67	.10	93	.65***	.03	565
HCR-20 Risk 1 year follow up	.77**	.06	138	.69***	.03	893
HCR-20 Risk 2 year follow up	.75**	.07	138	.66***	.02	893
HCR-20 Risk 5 year follow up	.73**	.07	106	.63***	.02	667

[a] AUCs differ between groups $p < .05$ (Hanley & McNeil, 1992), [b] AUCs differ between groups $p < .01$ (Hanley & McNeil, 1992)

Figure differs from chance (0.5) at *$p < .05$, ** $p < .01$, *** $p < .001$.

In the LD group the total HCR-20 score and each of the subscales, by and large, predicted future recidivism significantly above chance levels (with two exceptions: the clinical subscale at one year follow up where $p = 0.59$ and the risk

management subscale at five year follow up of violent re-convictions where it is

possible that a lack of statistical power led to the non-significant result). The

magnitude of all these effects should be regarded as 'large' (again, except for the

clinical subscale at one and two year follow up periods and the risk management

subscale at five year follow up of violent re-convictions which are 'medium' effects;

Rice & Harris, 2005). Indeed, the HCR-20 total score performed particularly well

producing very large effect sizes. The non-significant result for the risk management

subscale (in the LD group) is likely due to a loss of statistical power, as the AUCs for

the risk management subscale are consistently greater than for the non-LD group (but

the LD group was much smaller than the non-LD group). The magnitude of these

effects did not significantly decrease as follow up time increased for the history and

clinical subscales but did reduced from a large effect size to a medium effect size for

the risk-management subscale.

In the non-LD group the HCR-20 predicted general and violent re-convictions

with large effect sizes at one and two years post-discharge but not at five years post-

discharge (at this follow up period the HCR-20 produced a medium effect size; Rice

& Harris, 2005). In the non-LD group the history subscale produced large effect sizes

across all follow up periods, the clinical subscale small effects across all follow up

periods and the risk-management subscale medium effects across all follow up

periods (Rice & Harris, 2005).

The AUCs were all larger in the LD group compared to the non-LD group,

suggesting that the HCR-20 is better able to predict the offenders who will be re-

convicted post-discharge for offenders in the LD group compared to the non-LD

control group. The AUCs for the HCR-20 total score were significantly different for

the two groups at one year follow up ($p < .01$), as was the history subscale at one year

follow up (p <.01) and the clinical subscale at two (p <.05) and five year (p <.05) follow up (for both violent and general re-convictions).

3.3.2 Which risk assessment instrument?

A secondary analysis was completed to ascertain if any one of the risk assessment instruments was significantly better than the others at predicting violent and/or general reconvictions within the LD group. The aim of this analysis was to inform if any of the risk assessment instruments could be best recommended for use with offenders with LD. However, a series of paired z-score comparisons revealed no significant differences in the predictive accuracy of the VRAG, the PCL-SV or the HCR-20 within the LD group. For the sake of completeness, the same comparisons were completed for the non-LD group and again no significant differences were found between the predictive accuracies of the risk assessment instruments in the non-LD group. The comparable predictive efficacy of the risk assessment instruments in mentally disordered offenders without LD has been previously reported (Cooke, Michie & Ryan, 2002; as cited in Lindsay & Beail, 2004).

3.4 Discussion

3.4.1 Summary of findings

The aim of the present study was to test the efficacy of the risk assessment instruments, the VRAG, the PCL-SV and the HCR-20, to predict violent and general re-convictions in mentally disordered offenders with a diagnosis of LD compared to a control group of other mentally disordered offenders without a diagnosis of LD. All of the instruments were able to predict violent and general re-convictions over a five year period with large effect sizes in the LD group. The efficacy of all of the instruments was at least as good (VRAG), if not better (PCL-SV, HCR-20), in the LD

group as it was in the control group of mentally disordered offenders without a

diagnosis of LD, where the efficacy of these instruments is well established.

3.4.2   Relation of present study to existing literature

The findings of the present study are in broad agreement with the small

number of studies that have examined these risk assessment instruments in those with

LD (Lindsay et al., 2008, Morrissey et al., 2005; Morrissey et al., 2007a; Quinsey et

al., 2004). In addition, the findings of the present study replicate the existing

literature, that the VRAG, the PCL-SV and the HCR-20 have good predictive efficacy

in mentally disordered offenders without LD. As the focus of the present study was

the predictive efficacy of these risk assessment instruments in offenders with LD, this

literature will not be reviewed here.

Quinsey et al. (2004) in a sample of those with LD (residing in the

community) all with a history of anti-social behaviour, found that the VRAG had an

AUC of 0.69 for predicting violent incidents in community accommodation (over a 16

month follow up period). The present study improved upon this. The VRAG was

able to predict re-convictions one year post-discharge with an AUC of 0.85 and two

years post-discharge with an AUC of 0.77 (the VRAG also predicted violent and

general re-convictions at five years post-discharge with large effect sizes). The

findings of the present study are especially encouraging considering that the outcome

measure of convictions is likely to have less statistical power than the outcome

measure of the incidents of violence reported by staff in the Quinsey et al. (2004)

study. As discussed in section 1.2.3 and 2.5.4 convictions only represent the 'tip of

the iceberg' of offences committed and incidents reported by staff are likely to be a

more accurate indication of actual violence perpetrated. Quinsey et al. (2004) noted a

positive correlation between VRAG score and subsequent supervision by staff and so

it is possible that those at higher risk of being violent (based on the VRAG score)

were prevented from behaving in a violent manner, confounding the ability of the

VRAG to predict violent incidents. It is also possible that the modification of the

VRAG (scoring the PCL-R item using the CAT) by Quinsey et al. (2004) reduced the

predictive efficacy of the VRAG. The PCL-R item was scored in its original form in

the present study (which found a larger AUC than Quinsey et al., 2004) and given that

the PCL-R is given the heaviest weighting in the VRAG this suggests that the PCL-R

item could have an impact on the predictive efficacy of the tool.

Morrissey et al. (2005) found a small relationship between a modified PCL-R

score and in-patient violence in a group of mentally disordered offenders with LD

(recruited from across three levels of security; a community sample, low/medium

security and high security) over a six month period. Morrissey et al. (2007a) also

reported that the relationship between a modified PCL-R score and institutional

violence was a small effect size and did not significantly predict institutional violence

in a subgroup of the original 2005 sample, those residing in high security. The

findings of the present study improve upon this as the PCL-SV was able to predict re-

convictions at one, two and five years, and violent re-convictions at five years,

consistently with large or medium effect sizes. Part 1 and part 2 of the PCL-SV were

equally able to predict recidivism in the LD group (producing medium effect sizes).

Morrissey et al. (2005) reported that factor 2 of the PCL-R was better able to predict

institutional violence than factor 1 (this is consistent with previous studies in mentally

disordered offenders without LD (for example, Walters, 2003)). It is unclear why the

same pattern of results was not found in the present study. It is difficult to compare

studies as Morrissey et al. (2007a) employed institutional violence as the outcome

measure and the present study employed re-convictions. The spread of part 1 scores

was greater in the present study (SD = 3.06; equivalent to a standard deviation of 5.1

if scored on the PCL-R) than the spread of factor 1 scores reported by Morrissey et al.

(2005; SD = 3.4). Perhaps this greater variance improved the predictive abilities of

the part 1 score. The present study included a small number of female patients,

whereas the Morrissey et al. (2005; Morrissey et al., 2007a) samples were all male

which may have also affected the results. It was not possible to conduct gender

specific analyses as the number of females was too small to enable a separate analysis

that would accurately represent females in medium secure units.

Given that the PCL-SV in its original form appears to predict with at least the

same degree of accuracy in this LD population as in the non-LD population, efforts to

change the PCL-R so as to take account of the perceived differences between those

with and without LD may be unnecessary (Morrissey, 2003) when considering the use

of the PCL to predict re-convictions. Similarly, completing the VRAG in its original

form improved upon the findings of Quinsey et al. (2004) who modified the PCL-R

item. It seems that the predictive validity of the VRAG and PCL are maintained in

offenders with LD when completing the risk assessment instruments in their original

format.

Indeed, Lindsay et al. (2008) completed both the VRAG and the HCR-20 in a

sample of offenders with LD (across a community sample, low/medium security and

high security) and did not report that they modified the risk assessment instruments.

They found that both instruments had good predictive validity (AUC = 0.71 and 0.72

respectively), producing large effect sizes, with efficacy that is in agreement with the

present study. For the HCR-20 this was also supported by Morrissey et al. (2007a)

who reported the HCR-20 predicted institutional violence with large effect sizes (it is

not stated by Morrissey et al., 2007a, if the PCL-R item of the HCR-20 was

completed using the guidelines produced by Morrissey, 2003). Predicting physical

aggression the HCR-20 produced an AUC of 0.68 (a medium effect size) and

aggression to property/verbal aggression an AUC of 0.77 (a large effect size). In

addition, Morrissey et al. (2007b) report that the HCR-20 was significantly inversely

related to a move to conditions of lesser security.

The predictive efficacy of the HCR-20 was extended in the present study to

predicting re-convictions across a number of follow up periods. The HCR-20 was an

excellent predictor of future re-convictions and although was not significantly better

than the VRAG or the PCL-SV, the HCR-20 consistently produced very large AUCs

(over 0.80) in the LD group. The HCR-20 had significantly larger AUCs predicting

recidivism at one year post-discharge in the LD group compared to the non-LD group.

The history subscale replicated the total score and consistently produced large effect

sizes across all follow up periods in the LD group, being significantly higher than the

non-LD group at one year post-discharge.

The clinical subscale of the HCR-20 performed very well in the LD group

producing medium-large effect sizes, whereas the clinical subscale was performing at

chance level in the non-LD group. The HCR-20 clinical subscale was significantly

better able to predict offending at two and five years post-discharge in the LD group

compared to the non-LD group. The poor predictive efficacy of the clinical subscale

in mentally disordered offenders without a diagnosis of LD has been reported

previously by Gray et al. (2004; Gray et al., 2008) who hypothesised that the clinical

characteristics of mentally disordered offenders are dynamic and so are unlikely to

predict long-term re-offending (as they will change over time). The findings of the

present study are in accordance with Lindsay et al. (2008) who report similar AUCs

for the history, clinical and risk-management subscales of the HCR-20 (0.68, 0.67 and

0.62) in offenders with LD, without a 'dip' in abilities for the clinical subscale.

Unfortunately Morrissey et al. (2007a) did not report the relationship between the

subscales of the HCR-20 and institutional violence to enable a comparison.

Examination of the individual item scores of the HCR-20 would help inform upon

reasons for differences across the groups.

The risk management subscale of the HCR-20 also produced large effect sizes

predicting re-convictions at one, two and five years post-discharge in the LD group

compared to medium effect sizes in the non-LD group. The risk-management

subscale produced medium effect sizes in both groups predicting violent re-

convictions at five years post-discharge. Again, the performance of the risk-

management subscale was an improvement upon previous research. Lindsay et al.

(2008) report an AUC of 0.62 for the risk-management subscale.

Thus, the findings of the present study support the small literature that has

examined the ability to predict institutional violence using established risk assessment

instruments, the VRAG, the PCL-R (and its variants) and the HCR-20, in offenders

with LD. The findings of the present study have also extended this literature and

show despite differences in follow-up period and level of security for the patients,

these risk assessment instruments are effective predictors of violent and general re-

convictions in patients with a diagnosis of LD.

3.4.3 Limitations of the present study

A survival analysis revealed that the LD group had a different base rate of

convictions compared to the non-LD group. In addition, the average number of

previous convictions (prior to admission) was less in the LD group. Despite being

convicted at a lower rate before the time of the risk assessment, the LD group had

significantly higher scores on all of the risk assessment instruments. It is possible that

the risk assessment instruments are over-predicting risk in this population. The present study is not unique in this finding. Lindsay et al. (2008) provide average VRAG and HCR-20 scores (separately for each level of security) and the scores for those in low/medium security are comparable to those reported in the present study. The average VRAG score reported by Lindsay et al. (2008) was 7.03 (compared to 6.95 in the present study) and the average HCR-20 history subscale score was 13.75 (compared to 12.43 in the present study). The average clinical subscale score was 4.84 (compared to 5.86 in the present study) and the average risk-management subscale score was 2.63 (compared to 4.09 in the present study). Further investigation into the predictive accuracies of the individual items (risk factors) that comprise each of the risk assessment instruments could help to clarify why the LD group had higher scores than the non-LD group. Despite this difference in mean scores, the ROC analyses indicate that the instruments perform very well at indicating the relative risk of recidivism within offenders with LD. That is, the risk assessment instruments can highlight who from within a population of offenders with LD are more (or less) likely to be re-convicted in the future. Perhaps the risk factors for offending are more easily identified in people with LD, leading to more accurate risk assessments in this group and, in turn, better risk prediction.

3.4.4   Future directions

It may be beneficial to investigate any differences in predictive accuracy across diagnostic sub-groups of those with LD to establish if the risk factors that predict re-convictions are similar in those with a diagnosis of LD alone compared to those with an additional diagnosis of another mental disorder. Sixty-six percent of the LD group had a co-morbid diagnosis of mental disorder, however, it was not possible to separately analyse these diagnostic subgroups in the present study as the group

sizes were not statistically powerful enough. These limitations result from the small

number of offenders with LD who went on to be re-convicted. Needless to say, the

same methodological drawbacks that applied to the risk factor study (see section

1.5.4) also apply to the present study: the small number of offenders with LD who

went on to be re-convicted resulted in a lack of statistical power when trying to

predict such events. Despite this, it was felt necessary to evaluate the ability of the

risk assessment instruments to predict re-convictions over the long-term as this is a

requirement of mental health professionals in practice and was a significant gap in the

research literature (no studies to date had evaluated the ability of these established

risk assessment instruments to predict long-term risk of re-convictions in offenders

with LD). It is not felt that this is a limitation unique to the present study (see Section

2.5.4). Studying the ability of risk assessment instruments to predict institutional

violence (in medium secure units) would increase the statistical power of the outcome

measure and may enable more detailed analyses to be conducted. The outcome

measure of institutional violence is a much more accurate measure of violence as

most violence perpetrated by offenders within medium secure units is recorded in

nursing observations. In addition, the ability to predict institutional violence is of

interest in itself as such violence directly impacts upon the resources of the

organisation. This is discussed in further detail in Chapter 4.

3.4.5 Conclusion

The VRAG, the PCL-SV and the HCR-20 were all significant predictors of

future violent and general re-convictions for those with a diagnosis of LD, with

similar accuracy (or in some cases even better accuracy) than for a control group of

mentally disordered offenders without a diagnosis of LD. These instruments can be

used in offenders with LD without the need for any modification of the items or

scoring procedures to accommodate the diagnostic features of LD.

Chapter 4

Predicting institutional violence in offenders with learning disabilities: The predictive efficacy of the VRAG, PCL-R and the HCR-20[11].

4.1   Introduction

The re-conviction study provided evidence of the ability of the VRAG, the

PCL-SV and the HCR-20 to predict long-term future re-convictions in offenders with

LD. Indeed, the risk assessment instruments performed at a level comparable to other

mentally disordered offender samples for whom the predictive efficacy of these risk

assessment instruments is well established (see section 1.4). These promising

findings may even be an under-estimation of the predictive efficacy of these risk

assessment instruments in offenders with LD. The re-conviction study employed a

pseudo-prospective research design; consequently the risk assessment instruments

were completed from file review only as it was not possible to interview the patients.

This may have reduced the validity and reliability of the PCL-R and the HCR-20 (as

the manuals for these risk assessment instruments recommend interviewing the patient

in order to complete the risk assessments). In addition, in the re-conviction study

patients were naturally selected from a population of mentally disordered offenders in

medium secure units and thus the LD group was considerably smaller than the non-

LD group. Consequently there was reduced statistical power in the analyses in the

LD group compared to the non-LD group.

One of the main limitations of the re-conviction study was the use of re-

convictions as a measure of offending behaviour. Employing re-convictions as the

outcome measure may have been an under-estimation of actual offences committed

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The short title of this study is the 'institutional aggression study' and this is how it will be referred to in subsequent chapters.

and so resulted in reduced statistical power in the analyses. As previously discussed (section 1.2.3; 2.5.4), in order to receive a conviction for a violent offence it is necessary for an offender to act in a violent way, to be caught acting violently, for there to be sufficient evidence of the violence to be charged, then tried and convicted by a jury. Consequently, the legal process from the point of committing an offence through to receiving a conviction for that offence is lengthy and also cases can get thrown out of the criminal justice system prior to going to court. Also previously discussed (section 1.2.3; 2.5.4), the outcome measure of re-convictions may have additional limitations in offenders with LD as it is reported that offenders with LD receive convictions less often (compared to other mentally disordered offenders) for offending behaviour (for example, Johnston, 2002; Turner, 2000) or are diverted from the criminal justice system into the mental health system (Green, Gray & Wilner, 2002).

In a research design aiming to evaluate the predictive efficacy of risk assessment instruments, employing the outcome measure of institutional violence rather than re-convictions can provide increased statistical power. Institutional violence is a more accurate measure of actual violence perpetrated by a population of mentally disordered offenders as most violence perpetrated by offenders within medium secure units is recorded in nursing observations. Thus, institutional violence is a good alternative outcome measure when testing the predictive efficacy of risk assessment instruments as it is statistically more powerful to predict a reliably recorded, more frequently occurring behaviour than it is to predict a rarer event that occurs over a longer period of time[12].

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Predicting re-convictions remains a valuable research design as professionals working with mentally disordered offenders (with and without a learning disability) are required to do this in practice.

In addition, the ability to predict institutional violence is of interest in itself as such violence directly impacts upon the resources of the organisation. If a patient is violent then more nursing staff are required to manage that patient (and possibly other patients who are affected by the violence). A number of qualitative research studies have established that violence is an accepted occupational hazard of staff working with those with LD (Turner, 2000; Kiely & Pankhurst, 1998; Strand et al., 2004; though see Skirrow & Hatton, 2007 who conducted a meta-analysis of the literature and report that 'burnout' (distress of staff) working with those with LD has decreased.). Institutional violence could be stressful for staff and so could lead to a high turn over of staff and recruitment difficulties, all of which can exhaust resources (see Hastings, 2002, and Lowe, Felce, Perry, Baxter & Jones, 1998, for reviews in non-forensic LD populations). The rate and severity of institutional violence in offenders with LD compared to other mentally disordered offenders in medium secure units has not been directly compared. It is reported that those with LD do not move though the system at the same rate as other mentally disordered offenders, but rather tend to get 'stuck' in the system (Lindsay & Taylor, 2005; Puri et al., 2000). Therefore the risk of institutional violence needs to be accurately assessed in this population so that it can be adequately managed.

There are a small number of research studies that have evaluated the ability of the VRAG, the PCL-R and the HCR-20 to predict institutional violence in offenders with LD (Quinsey et al., 2004[13]; Lindsay et al., 2008; Morrissey et al., 2005; Morrissey et al., 2007a) which provide preliminary evidence to support the ability of these risk assessment instruments to predict institutional violence in offenders with

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[13]

Quinsey et al. (2004) evaluated the ability of the VRAG to predict violence in a community sample of offenders with LD, though the violence recorded in the study was only against other clients and staff in their community accommodation and therefore is felt to be akin to institutional violence.

LD. Section 1.5 highlighted the methodological drawbacks of these studies, most

importantly that some of these studies modified the risk assessment instrument being

studied (Quinsey et al., 2004[14]; Morrissey et al., 2005, Morrissey et al., 2007a) and

that none of the studies employed a control group to enable comparison of the

predictive efficacy of the risk assessment instruments to a population for which the

predictive efficacy is well established. Each of these studies attempted to maximise

the reliability and validity of the risk assessment scores by reviewing the individual's

clinical records and in addition interviewing a member of staff to provide additional

information. However, none of the studies interviewed the patient, which is

recommended by the scoring manuals for the HCR-20 and the PCL-R. Furthermore,

there were some drawbacks with the methods employed to record institutional

violence in these studies that could also be improved upon.

Quinsey et al. (2004) measured institutional violence by staff recording

specific incidents of violence or sexually inappropriate behaviour every month for the

purposes of the study. Recalling incidents over a month may have resulted in

retrospective bias or staff forgetting events or not recalling them accurately. Quinsey

et al. (2004) also note a positive correlation between the VRAG score and level of

subsequent professional support and suggest that increased supervision of those with a

high VRAG score may have lowered subsequent violence. This implies a

confounding factor of enhanced risk management strategies being applied to the

higher risk patients. This would have worked against the ability of the VRAG to

predict institutional violence.

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There is some evidence that replacing the PCL-R item of the VRAG with the CAT does not affect its
predictive efficacy (Quinsey et al., 2006) and further research that directly compares the predictive
efficacy of the VRAG using the PCL-R as a measure of psychopathy compared to the CAT as a
measure of psychopathy would be beneficial. Replacing the PCL-R item of the VRAG with the CAT
could be of great benefit as it is less technical and easier to score and could make scoring the VRAG
much quicker and easier.

Morrissey et al. (2005) did not control for the timing of the PCL-R assessment

and the authors note that the PCL-R could have been completed within the six month

period that the outcome measure of institutional violence was taken from. Therefore

it is possible that some of the outcome measure also influenced PCL-R scores (the

authors do not specify if the PCL-R assessors had access to this information collected

at outcome). Morrissey et al. (2007a) measured institutional violence through formal

incident reports. For an official incident form to be completed by nursing or other

clinical staff it is necessary for the incident to be deemed severe enough. This

requires a subjective judgement by the member of staff. Incident forms are therefore

unlikely to reflect all incidents of violence perpetrated and may under-estimate the

actual number of incidents of violence that occurred during the follow up period and

so add additional error to the outcome measure. Lindsay et al. (2008) address these

issues in their study and completed the risk assessment instruments (the VRAG and

the HCR-20) in their entirety and employed incidents of violence noted in nursing

observations as a measure of institutional violence. Unfortunately Lindsay et al.

(2008) did not employ a control group in order to compare the predictive efficacy of

the risk assessment instruments to other non-LD offenders.

4.1.1   Aim of chapter 4

The aim of the present study was to develop upon the existing evidence base

for the use of the VRAG, the PCL-R and the HCR-20 in offenders with LD. Further,

to build upon the findings of the re-conviction study, by employing institutional

violence as opposed to re-convictions as the outcome measure, in a prospective design

(thus leading to a more statistically powerful research design). In addition, as the

present study was prospective, it allowed the patients included in the study to be

interviewed (on top of reviewing their clinical records) thus possibly improving the

validity and reliability of the data available to score the risk assessment instruments.

The present study attempted to recruit as many offenders with LD as possible in order

to increase the power of the relationship in the LD group relative to the control group

(and thus make the power across the groups more equal).

The present study aimed to develop upon the existing literature by testing the

efficacy of the risk assessment instruments in their original (unmodified) form and

comparing the predictive efficacy of the risk assessment instruments to a control

group of mentally disordered offenders without LD. The present study also aimed to

improve the accuracy of the measurement of institutional violence. Incidents of

violence were taken directly from the nursing observations routinely made by nursing

staff to maximise the accuracy of the data (such notes are made in continuous care

records and so are recorded immediately following any incidents involving patients in

medium secure units).

4.2   Method

4.2.1   Design

The study was a prospective analysis of patients residing in four medium

secure units in the UK. The predictor variables were the risk assessment instrument

scores, and the outcome measure was institutional violence: specifically verbal

aggression, damage to property and physical aggression. The predictive efficacy of

the risk assessment instruments in offenders with LD (LD group) were compared to

other mentally disordered offenders without a diagnosis of LD (control group).

4.2.2   Sample

A total of 74 patients were recruited from four medium secure units in the UK

(Two independent sector medium secure units and two NHS medium secure units).

One patient was excluded due to a lack of clarity regarding diagnosis. A further three

patients consented to take part but withdrew from participation prior to the clinical

records being read or the interview being completed. Therefore the final sample

consisted of 70 patients. Patients were admitted to hospital on the basis of having a

major mental illness, psychopathic disorder or mental impairment and either having

been convicted of a criminal offence (n = 60) or having exhibited behaviour that

might have led to a conviction in different circumstances or which conferred

significant risk of such behaviour (i.e. they were deemed to be a high enough risk of

offending to warrant detention in a secure unit, or did not receive a conviction for an

offence, but were detained as a result of that offence (n = 10)).

4.2.2.1 Diagnoses

Diagnoses were made by a consultant psychiatrist on admission to the medium

secure unit using ICD-10 (WHO, 1992). The specific frequency and percentage of

patients with different diagnoses (grouped according to ICD-10 categories) are

outlined in Table 12. The sample was divided into two groups, the LD group (n = 25)

and the control group (n = 45). Those in the LD group all had a diagnosis of Mental

Impairment (MI) as defined by ICD-10 (codes F70-F79). For a diagnosis of MI the

person should have a Full Scale IQ of less than 70 and impaired adaptive functioning.

Thus these diagnoses are synonymous with that of mental retardation as defined by

DSM-IV-TR (APA, 2004). The LD group consisted of 21 patients with Mild MI

(ICD-10 code F70), three patients with Moderate MI (ICD-10 code F71), and one

patient with Unspecified MI (ICD-10 code F79). In the LD group five patients had a

diagnosis of MI alone and 20 patients had a diagnosis of MI and a co-morbid

diagnosis of another mental disorder. The control group consisted of all the other

patients, all of whom had some combination of mental disorder(s) but without MI[15].

The co-morbid diagnoses for those in the LD group and the control group are outlined

in Table 13. In the LD group the diagnoses outlined in Table 13 are all in addition to

a diagnosis of MI.

Table 12: *Frequency of diagnoses across the entire sample (n = 70)*

Diagnosis	Number (%)
Organic, including symptomatic, mental disorders	4 (2.7)
Mental and behavioural disorders due to psychoactive substance use	23 (15.3)
Schizophrenia, schizotypal and delusional disorders	37 (24.7)
Affective disorders	8 (5.3)
Neurotic, stress-related and somatoform disorders	4 (2.7)
Behavioural syndromes associated with physiological disturbances and physical factors	0 (0.0)
Disorders of adult personality and behaviour	45 (30.0)
Mental impairment	25 (16.7)
Disorders of psychological development	3 (2.0)
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	1 (0.7)

Note. For one patient diagnosis was unknown as they had been admitted for assessment of mental illness/personality disorder.

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[15]

A borderline group were identified through the data collection process. The borderline group consisted of patients with a Full Scale IQ score in the borderline or LD range (less than 80) but with no diagnosis of MI. Due to the low IQ scores this borderline group was compared to the control group to examine if they represented a distinct group or were similar to the control group. This borderline group did not significantly differ to the control group on any descriptive statistics (predictor variables and outcome variables) or any other statistical analyses (AUCs) and so were included in the control group.

Table 13: *Frequency of co-morbid diagnoses in patients in the LD group (n = 25) and the control group (n = 45)*

Diagnoses	LD n (%)	Control n (%)
LD (no co-morbid diagnosis)	5 (20.0)	
Mental illness[a]	1 (4.0)	16 (35.6)
Personality disorder[b]	7 (28.0)	4 (8.9)
Other diagnosis[c]	4 (16.0)	0 (0.0)
Mental illness and personality disorder	3 (12.0)	10 (22.2)
Mental illness and other diagnosis	2 (8.0)	4 (8.9)
Personality disorder and other diagnosis	3 (12.0)	2 (4.4)
Mental illness, personality disorder and other diagnoses	0 (0.0)	8 (17.8)

Note. For one patient (2.2%) diagnosis was unknown as they had been admitted for assessment of mental illness/personality disorder. There was no question that the individual might have LD or a low IQ and so they were placed in the control group

[a] A diagnosis of mental illness includes schizophrenia, schizotypal and delusional disorders, affective disorders and neurotic, stress-related and somatoform disorders. [b] Personality disorders are any disorders of adult personality and behaviour. [c] Other 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.

Table 13 highlights that the majority (52%) of the LD group have a diagnosis

of personality disorder (in combination with other mental disorders and MI). This is

very similar to the prevalence in the control group (53%). In the LD group 24% had a

mental illness (in combination with other mental disorders and MI) and 84.5% of the

control group had a diagnosis of mental illness.

The mean Full Scale IQ score for the LD group was 64.59 (SD = 6.48) and in

the control group it was 80.30 (SD = 13.67). IQ data was taken from the clinical

records and was available for 22/25 of the LD group (the entire LD group had a

diagnosis of MI made by a consultant psychiatrist even if a Full Scale IQ score was

not available in the clinical records). IQ data was available for 20/45 of the control

cases. It is felt that this data was not available for the majority of the control group as

it is not routine practice to administer an IQ assessment unless it is clinically relevant.

4.2.2.2 Demographic data

In the LD group there were 23 (92.0%) men and two (8.0%) women with a

mean age of 29.77 years (SD = 10.29). In the control group there were 32 (71.1%)

men and 13 (28.9%) women. It is noteworthy that two (6.25%) individuals in the

process of gender re-assignment, who were biologically male but living as females.

For the purpose of the study these two individuals were treated as female (as they

were in the medium secure unit). The mean age of the control group was 38.16 years

(SD = 13.73). The LD group significantly differed to the control group on gender (χ^2

= 4.17, df = 1, p <.05)[16]. The LD group also significantly differed to the control

group on age (t (68) = -2.66, p < .01).

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[16]

For the purposes of these analyses the two transsexual individuals were treated as females not as
'other' gender.

In the LD group 24 (96.0%) patients were of White ethnic origin and one

(4.0%) patient was of Mixed Race ethnic origin. In the control group 41 (91.1%)

patients were of White ethnic origin, two (4.4%) were of Mixed Race ethnic origin,

one (2.2%) patient was of Black ethnic origin and one (2.2%) patient was of Asian

ethnic origin. The LD group did not significantly differ to the control group on

ethnicity (χ^2 = 1.12, df = 3, p >.05; Cramer's V = 0.13[17]).

4.2.2.3 Psychiatric information

Table 14 presents data on the places patients were admitted from. The LD

group did not significantly differ to the control group on place admitted from (χ^2 =

10.07, df = 6, p = .10; Cramer's V = 0.39[16]).

The average length of admission for those in the LD group was 1235 days (SD

= 1332) and in the control group it was 987 days (SD = 911). The LD group did not

significantly differ to the control group on length of admission (t (36.74) = 0.83, p =

.41).

Twenty-four (96.0%) of the patients in the LD group were detained under a

section of the mental health act (1983) and one (4.0%) patient was informally

admitted. All in the control group were detained under a section of the mental health

act (1983). See Table 15 for the break down of mental health sections in each of the

groups and see Appendix D for definitions of the mental health sections.

17

The expected cell count for some groups was less than five and the χ^2 was greater than 2x2, therefore the Cramer's V was used to assess the strength of association (Field, 2000).

Table 14: *Place admitted from of patients across groups*

Place admitted from	LD[a] n (%)	Control[b] n (%)
Community	4 (16.0)	3 (6.7)
Psychiatric hospital	4 (16.0)	2 (4.4)
Low secure hospital	3 (12.0)	1 (2.2)
Medium secure hospital	1 (4.0)	6 (13.3)
High secure hospital	2 (8.0)	7 (15.6)
Prison	8 (32.0)	23 (51.1)
Court	3 (12.0)	3 (6.7)

[a] $n = 25$ [b] $n = 45$

Thirteen (52.0%) of the LD group were on a restriction order and 11 (44.0%) were unrestricted. Thirty-four (75.6%) of the control group were on a restriction order and 11 (24.4%) were not. The LD group significantly differed to the control group on the mental health section that they were placed under ($\chi^2 = 15.37$, df $= 10$, p <.05; Cramer's $V = 0.48$[18]) with the control group being detained on a wider range of mental health sections compared to the LD group. The LD group also significantly differed to the control group on if the section was a restriction order or not ($\chi^2 = 4.04$, df $= 1$, p <.05) with a greater percentage of the control group being restricted compared to the LD group.

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[18]

The expected cell count for some groups was less than 5 and the χ^2 was greater than 2x2, therefore the Cramer's V was used to assess the strength of association (Field, 2000).

Table 15: *Mental Health Section that patients were admitted on across groups*

Mental Health Section	LD[a] *n* (%)	Control[b] *n* (%)
Section 3	6 (25.0)	5 (11.1)
Section 37	4 (16.7)	3 (6.7)
Section 37 / 41[c]	11 (45.8)	24 (53.3)
Section 35	-	1 (2.2)
Section 38	1 (4.2)	1 (2.2)
Section 47	-	1 (2.2)
Section 47 / 49	1 (4.2)	9 (20.0)
Section 48 / 49	-	1 (2.2)
Probation order	1 (4.2)	-

Note. For definitions of the mental health act sections please see Appendix D. One (4.2%) of the LD group was informally admitted to the medium secure unit. ' - ' = no cases admitted under this section of the mental health act.

[a] $n = 24$, [b] $n = 45$, [c] Two patients were on a section Cp1A = treated as a section 37/41.

In the LD group 12 (48.0%) had a history of alcohol abuse and 13 (52.0%) did not have a history of alcohol abuse. Ten (40.0%) of the LD group had a history of drug abuse and 15 (60.0%) did not. In the control group 23 (51.1%) had a history of alcohol abuse and 22 (48.9%) did not. Thirty one (68.9%) had a history of drug abuse and 14 (31.1%) did not. The LD group did not significantly differ to the control group on a history of alcohol abuse ($\chi^2 = 0.62$, df = 1, $p = .80$) but did significantly

differ on a history of drug abuse (χ^2 = 5.23, df = 1, p <.05), with a greater percentage

of the control group having a history of drug abuse.

4.2.2.4 Criminal history

In the LD group the average number of previous convictions was 6.68 (SD =

11.36, median = 2.00) and in the control group it was 11.44 (SD = 14.50, median =

5.00). The LD group did not significantly differ to the control group on number of

previous convictions (U = 412.50, N_1 = 25, N_2 = 45, p = .06). The frequency of index

offences and the mean number of previous convictions (classified according to the

Home Office Offenders Index, 2000) are outlined in Table 16 and Table 17

respectively.

The LD group significantly differed to the control group on category of index

offence (χ^2 = 13.09, df = 6, p <.05; Cramer's V = 0.44[19]) with the highest proportion

of the LD group committing an index offence classified as a sexual offence (closely

followed by a violent offence) and most of the control group committing a violent

offence. For many of the patients detail regarding offending history that did not result

in a criminal conviction but for which there was evidence of guilt and police

involvement (such as an arrest, charge or a caution) was available. This offending

history is detailed in Appendix E.

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[19]

The expected cell count for some groups was less than five and the χ^2 was greater than 2x2, therefore
the Cramer's V was used to assess the strength of association (Field, 2000).

Table 16: *Index offences for the LD group and the control group*

Index offence	LD group[a] n (%)	Control group[b] n (%)
Violent	8 (32.0)	26 (57.8)
Sexual	10 (40.0)	3 (6.7)
Acquisitive	2 (8.0)	3 (6.7)
Fraud	-	-
Criminal damage	4 (16.0)	10 (22.2)
Drugs	-	1 (2.2)
Motor	-	-
Breach	-	1 (2.2)
Other	1 (4.0)	1 (2.2)

Note. For 10 cases the index offence did not result in a conviction (7 violent, 1 sexual, 1 criminal damage and 1 other), however they have been included in the figures under the home office offenders index category to illustrate the spread of index offences. '- ' = no index offences of this type

[a] $n = 25$, [b] $n = 45$

Table 17: *Previous convictions displayed across group*

Previous convictions	LD group[a] Mean (*SD*)	Control group[b] Mean (*SD*)
Violent	2.50 (2.17)	3.14 (2.74)
Sexual	4.50 (7.15)	2.00 (1.00)
Acquisitive	5.50 (5.29)	6.68 (8.76)
Fraud	-	2.86 (2.56)
Criminal damage	2.88 (3.44)	3.83 (2.79)
Drugs	2.00 (1.00)	3.00 (2.49)
Motor	3.00 (-)	3.13 (1.89)
Breach	2.43 (1.13)	2.150 (1.82)
Other	2.44 (3.97)	2.94 (2.46)

Note. '- ' = no previous convictions of this type. "(-)" = only one observation and therefore it was not

possible to calculate the *SD*.

[a] $n = 25$, [b] $n = 45$

4.2.3 Measures

The risk assessment instruments employed in the present study were the

VRAG (Harris et al., 1993), the PCL-R (Hare, 1991; 2003) and the HCR-20 (Webster

et al., 1997). The VRAG and the HCR-20 were described in detail in the re-

conviction study (section 3.2.3). To avoid repetition please refer to this section for

information on the VRAG and the HCR-20. In addition to scoring the HCR-20 and

making a prediction of risk of violence based purely on adding the item scores (i.e.

using the HCR-20 as an actuarial tool), the authors of the HCR-20 (Webster et al.,

1997) advocate using the HCR-20 structure to make a clinical judgement of risk of

violence. Most often in research designs the numerical judgement of risk is used to

predict the outcome measure of violence, however in practice clinician's are

encouraged to (and more often do) use the HCR-20 to formulate the risk of violence

and to inform risk management strategies; in practice the use of the HCR-20 is not

limited to predicting risk of future violence based on the score derived. Therefore in

addition to using the HCR-20 total score as a predictor variable, a clinical judgment

based on completion of the HCR-20 was made. The risk factors measured by the

HCR-20 were used to formulate the risk of violence (as defined by the HCR-20[20]) and

from this formulation a judgement of risk of violence was made. This clinical

judgement was based on a five point scale (very low, low, medium, high, and very

high). For similar studies in mentally disordered offenders without LD see Douglas et

al. (2003) and deVogel and deRuitter (2006).

The PCL-R was used in the present study as it was felt beneficial to assess the

predictive efficacy of the full PCL-R construct in addition to the shorter PCL-SV,

which was designed to screen for psychopathy in offender populations and was

assessed in the re-conviction study (Chapter 3). In addition it was possible to

interview participants in the present study which aided the scoring of the items of the

PCL-R. The PCL-R has 20 items each scored from 0 - 2 (range of scores 0 - 40). If it

was not possible to score an item due to insufficient information then the item was

pro-rated as per the scoring manual (Hare, 1991; 2003). The PCL-R has two factor

scores and four facet scores. Factor 1 measures selfish and callous personality and

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[20]

The clinical judgement of risk of violence was based upon the HCR-20 definition of violence so as to
assess the ability of the HCR-20 to do what it was designed to do. See Appendix H for the HCR-20
definition of violence.

relates mainly to interpersonal and affective traits. Factor 2 measures socially deviant behaviour and past criminality. Facet 1 measures interpersonal variables, Facet 2, affective variables, Facet 3, lifestyle variables and Facet 4, antisocial behaviour variables. See Appendix F for the items of the PCL-R. The researcher has been trained to score the PCL-R by the author of the tool. The rater's ICC at this training was PCL-R total $ICC = 0.91$, factor 1 $ICC = 0.78$ and factor 2 $ICC = 0.86$.

The PCL-R was most commonly rated first as it was most reliant on the interview information and further is a component of both the HCR-20 and the VRAG. However, when reading the clinical records information for all three risk assessment instruments were collected simultaneously and so a working knowledge of the likely scoring of each of the risk assessment instruments was apparent throughout the data collection process. It is noted that as the instruments were all rated by the same rater there may have been some contamination of one assessment with that of another. However, in clinical practice this is also likely to be the case.

The outcome measure was institutional violence: if the individual was noted by nursing or other clinical staff to behave violently in the continuous care records. Records were reviewed for the six months following the date the risk assessment was completed (or until the patient was discharged). Any aggressive behaviour recorded in the continuous care records was logged using the Aggression Vulnerability Scale (AVS; Gray et al., 2003). The AVS categorises aggression into verbal aggression, damage to property, physical aggression, aggression with a weapon and sexual aggression. Each incident of aggression is given a frequency score of one (i.e. that it occurred). There are no upper limits to the AVS frequency score, if the person is not aggressive in the given period the AVS score will be zero. Each incident is also given a severity score, based on a sliding scale of severity. For example, there are 10

incidents classified as physical aggression in the AVS physical aggression subscale and so the AVS physical aggression severity score ranges from 0 - 10 (the verbal aggression subscale ranges from 0 - 5 and the damage to property subscale 0 - 6). Each act of aggression is given a severity score and at the end of the given follow-up period the AVS severity score is the score for the most severe act of aggression within the given period (for each subscale of the AVS). The subcategories of aggression are totalled to give an AVS aggression frequency subscale score and an AVS aggression severity subscale score[21]. See Appendix G for the AVS subscales which provide the definitions of aggression and the accompanying severity scores.

The AVS was completed by the researcher for each of the cases and a subsection of AVS scores (a random sample, $n = 10$) were compared to those of a research assistant to provide inter-rater reliability on the measure. The ICC for the AVS aggression frequency was 0.98; for AVS aggression severity it was 0.99; for verbal aggression frequency it was 0.99; for verbal aggression severity it was 0.99; for damage to property frequency it was 0.79; for damage to property severity it was 0.85; for physical aggression frequency it was 0.92; for physical aggression severity it was 0.92. There were no incidents of aggression with a weapon or sexual aggression in the cases included in the inter-rater reliability analysis and so these two subcategories of the AVS were not included in the ICC analyses. The aggression with a weapon and sexual aggression subscales were not included in the main analyses either.

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The AVS also quantifies any incidents of self-harm or sexual vulnerability that combine to provide a vulnerability frequency and severity total. The prediction of self-harm and sexual vulnerability was not the aim of the present study and so these subscales were not included in the analyses. The vulnerability frequency and severity subscales combine with the aggression frequency and severity subscales to provide the AVS frequency and severity total. As the AVS frequency and severity totals contain vulnerability data the AVS totals were not included in the analyses.

4.2.4 Procedure

Ethical Committee approval was obtained from the NHS Multi-Centre Research Ethics Committee (MREC) and the Ethical Committee of the School of Psychology, Cardiff University. Those who were not deemed to have the capacity to take part in the study (specifically the capacity to give consent to take part and the capacity to be interviewed) by the RMO were excluded from the study. Unfortunately due to data protection laws no information about those excluded were made available. The author (post-graduate researcher) gained informed consent from the patient. The patient provided consent to be interviewed and to provide the researcher with access to their clinical records (consisting background psychiatric and mental health reports, admission and discharge reports, social work and probation information, and nursing records). As stipulated by the procedure approved by MREC, the gaining of informed consent was witnessed by a member of staff to ensure that the patient was not coerced into taking part. The researcher accessed the clinical records to gain background information for completion of the risk assessment instruments and diagnostic information. The researcher also interviewed each patient. Payment of £10.70 was made (based on the minimum wage for a two hour interview) for completion of the interview. For two of the patients it was not possible to complete the interview and therefore the risk assessment instruments were completed from file review only. All risk assessment instruments and the scoring of the AVS were completed by the researcher. The researcher was fully trained in the administration and scoring of each of the risk assessment instruments and the AVS (by the author of the instrument (PCL-R; AVS) or by trainers who have considerable experience of training on these instruments and who train other professionals on these instruments (HCR-20; VRAG)). Risk assessment instruments were completed on the day of the interview

for all participants and all participants were followed up (i.e. the AVS scored) for the

six months immediately following this date, unless they were discharged prior to this

time, in which case the files were reviewed until the date of discharge.

4.3   Results

4.3.1   Descriptive statistics: risk assessment scores

The descriptive statistics for the LD group and the control group on the

VRAG, PCL-R and HCR-20 are outlined in Table 18.

Table 18: *Descriptive statistics of the VRAG, PCL-R and HCR-20 across groups*

Risk assessment scale	LD group[a]		Control group[b]	
	Mean (*SD*)	Range	Mean (*SD*)	Range
VRAG score	14.60 (7.23)	0 - +28	6.38 (10.90)**	-15 - +23
PCL-R Total	19.12 (5.10)	9 - 29	18.27 (6.36)	6 - 31
PCL-R Factor 1	7.20 (3.24)	1 - 12	7.62 (3.21)	1 - 14
PCL-R Factor 2	10.58 (3.23)	4 - 16	9.58 (3.82)	2 - 17
Total HCR-20	26.60 (4.54)	18 - 33	23.71 (5.98)*	9 - 36
History subscale	14.92 (2.18)	11 - 19	14.29 (3.55)	5 - 19
Clinical subscale	7.28 (1.99)	4 - 10	5.60 (2.45)*	0 - 10
Risk subscale	4.36 (1.80)	1 - 7	3.89 (2.19)	1 - 9
HCR-20 clinical judgement	3.08 (1.47)	1 - 5	2.13 (1.08)	1 - 5

[a] $n = 25$, except for PCL-R Factor 2, $n = 24$, [b] $n = 45$

The two groups significantly differed on VRAG total score (t (65.78) = 3.78, p

< .01). It can be seen from Table 17 that the LD group had higher VRAG total scores

in this sample. The two groups did not significantly differ on PCL-R total score (t

(68) = 0.58, p = .57), factor 1 score (t (68) = -0.53, p =.60) or factor 2 score (t (67) =

1.10, p = .28). The LD group significantly differed to the control group on the HCR-

20 total score (t (68) = 2.10, p <.05) but not the history subscale score (t (67.22) =

0.92, p = .36). The LD group had significantly higher clinical subscale scores (t (68)

= 2.93, p = .051). The LD group did not significantly differ to the control group on

risk-management subscale scores (t (68) = 0.92, p = .36). The mean HCR-20 clinical

judgement of risk of violence was 'medium risk' in the LD group and was 'low risk'

in the control group.

4.3.2   Descriptive statistics: aggression vulnerability scale (AVS)

The AVS provides a frequency and a severity score (most severe incident) for

the aggression subscales: verbal aggression, damage to property, physical aggression,

aggression with a weapon, sexual aggression and total aggression. There was only

one incident of aggression with a weapon and one incident of sexual aggression

across the whole sample (both in the control group) and so these subscales of the AVS

were not considered separately in the analyses. In addition, total aggression simply

reflects the sum of the subscales and so it was felt redundant to report statistics for the

total aggression subscale in addition to the individual subscale scores.

At the end of the six month follow up period, all participants in the LD group

had at least one incident of verbal aggression and in the control group 82.2% (37/45)

had at least one incident of verbal aggression. Sixty-four percent (16/25) of the LD

group had at least one incident of damage to property and 48.9% (22/45) in the

control group had at least one incident of damage to property. Eighty percent (20/25)

of participants in the LD group had at least one incident of physical aggression

compared to 40.0% (18/45) in the control group.

The aim of the study was to score the AVS for the six months following the

date of completion of the risk assessment instruments. In two LD cases and seven

control cases it was not possible to collect outcome data for the entire follow up

period due to the patient being discharged prior to the six month cut-off. The average

length of follow up for the LD group was 172.60 days (SD = 36.10, median = 182.00)

and in the control group it was 171.67 days (SD = 35.61, median = 183.00). The

length of follow up was significantly different across the two groups (U = 405.50, N_1

= 25, N_2 = 45, p <.05). To take into account the different follow up periods an

individual 'rate of aggression' (the AVS frequency of incidents / number of days

followed) was calculated for each subscale of the AVS. The rates of aggression

produced very small numbers and so were multiplied by 100 to give the 'rates' per

100 days to enable them to be more easily interpreted.

The descriptive statistics for the mean rate of aggression per 100 days at three

months and at six months for the AVS verbal aggression, damage to property and

physical aggression subscales are outlined in Table 19. The rates were calculated at

three months and at six months to establish if there was any difference in the rate of

aggression in the short and the medium term.

Table 19: *Rate of aggression for the LD group and control group at 6 and 3 months post risk assessment*

	LD group[a]		Control group[b]	
AVS subscale 6 months	Mean rate (*SD*)	Range	Mean rate (*SD*)	Range
VB frequency	19.26 (18.98)	0.55 - 55.74	5.66 (9.84)***	0.00 - 54.64
PR frequency	2.88 (4.24)	0.00 -14.75	1.17 (2.81)*	0.00 - 16.39
PHY frequency	3.45 (6.28)	0.00 - 30.77	0.92 (2.42)***	0.00 - 15.30
AVS subscale 3 months	Mean rate (*SD*)	Range	Mean rate (*SD*)	Range
VB frequency	19.18 (20.37)	0.00 - 68.89	6.43 (12.66)***	0.00 - 75.56
PR frequency	2.58 (4.09)	0.00 - 16.67	1.06 (2.52)	0.00 -15.56
PHY frequency	3.05 (6.40)	0.00 - 30.77	1.09 (3.51)**	0.00 - 22.22

Note. VB = verbal aggression, PR = damage to property, PHY = physical aggression

[a] $n = 20$, [b] $n = 45$

* $p < .05$, ** $p < .01$, *** $p < .001$

At six months follow up the LD group had significantly higher rates of verbal aggression than the control group ($U = 228.50$, $N_1 = 25$, $N_2 = 45$, $p < .001$); higher rates of damage to property ($U = 400.50$, $N_1 = 25$, $N_2 = 45$, $p < .05$) and higher rates of physical aggression ($U = 219.00$, $N_1 = 25$, $N_2 = 45$, $p < .001$). The pattern of significant differences across the two groups was the same at three months as at six

months (see Table 19; though frequency of damage to property did not reach statistical significance at three months).

It is noteworthy that the rate of aggression at three months was approximately the same as the rate of aggression at six months. As the rates of aggression were broadly the same at three months and at six months it was felt redundant to evaluate the efficacy of the risk assessment instruments at both time points and therefore the outcome measure of institutional aggression at six months was employed in all future analyses (as this provided the most data).

4.3.2.1 Severity of aggression

In both the LD group and the control group the AVS frequency subscale scores were highly positively correlated with the AVS severity subscale scores[22]. The LD group verbal aggression $rho = 0.74$, $N = 25$, $p < .01$, two-tailed; the control group verbal aggression $rho = 0.77$, $N = 45$, $p < .01$, two-tailed. The LD group damage to property $rho = 0.91$, $N = 25$, $p < .01$, two-tailed and the control group damage to property $rho = 0.88$, $N = 45$, $p < .01$, two-tailed. The LD group physical aggression $rho = 0.88$, $N = 25$, $p < .01$, two-tailed; the control group physical aggression $rho = 0.92$, $N = 45$, $p < .01$, two-tailed. These positive correlations suggest that those who were more frequently aggressive were also more severely aggressive. These correlations are possibly due to a lack of more severe incidents occurring within the follow up period. The most severe incident of physical aggression in both groups was scored 3 /10 (hitting another patient or a nurse; see Appendix G for more detail). It is possible that this level of physical aggression is fairly frequent but more severe, near fatal physical aggression, such as stabbing someone, is less frequent in a medium

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[22] Only those that were followed for the entire six month period were included in these analyses.

secure unit where there is little opportunity to act in such an aggressive way. As the

AVS frequency and severity scores were highly correlated it was felt redundant to

repeat all analyses for both the frequency and severity subscale scores. Therefore the

AVS frequency scores will be focussed on.

4.3.2.2 Base rate of aggression across the medium secure units

It was felt prudent to compare the base rate of frequency of physical

aggression across the medium secure units, as it was possible that different services

differed in the base rate of aggressive incidents or in the management of incidents of

aggression (which may impact on the frequency of incidents) or the reporting of

incidents of aggression (for example).

Twenty-one patients were recruited from Llanarth Court (Independent sector

medium secure service; South Wales), 22 from Caswell Clinic (South Wales Forensic

Psychiatric service (NHS)), 13 from Ty Llywelyn (North Wales Forensic Psychiatric

service (NHS)) and 14 from St Johns House/Lombard House (Independent sector

medium secure learning disability service; Norfolk). Different diagnostic groups

were recruited from different medium secure units (due to specialist services for those

with LD); therefore the rate of physical aggression is displayed within the LD group

and within the control group in Table 20.

Table 20: *Mean rate of physical aggression (per 100 days) within diagnostic group*

and medium secure unit

MSU	LD group	Control group
	Rate of physical aggression	
	M (*SD*)	
Llanarth Court[a]	1.66 (1.49)	0.61 (0.61)
St John's /Lombard House[b]	4.85 (8.15)	-
Caswell Clinic[c]	-	1.23 (3.33)
Ty Llywelyn[d]	-	0.63 (1.21)

Note. MSU = medium secure unit
[a] *n* = 11 in LD group, *n* = 10 in control group, [b] *n* = 14, [c] *n* = 22, [d] *n* = 13

As can be seen from Table 20 the rate of physical aggression differs across the

medium secure units and in the LD group the outcome measure of physical aggression

is likely being driven by incidents in St John's House/Lombard House and in the

control group incidents are likely being driven by incidents in Caswell Clinic. It is

not possible to identify why any differences in the base rate of physical aggression

exists. It is noteworthy that the incidents of physical aggression are consistent with

the above comparisons by diagnostic group. That is, there are more incidents of

physical aggression in the least aggressive LD group compared to the most aggressive

control group.

4.3.3   Relationship between risk assessment scores and institutional aggression

In order to maintain the continuous nature of both the risk assessment scores

and the AVS subscale scores (and so maximise statistical power) a simple correlation

for each of the subscales of the VRAG, the PCL-R and the HCR-20 with 'rate of

aggression' (as defined in section 4.3.2: frequency of aggression / number of days

followed x 100) for each of the AVS subscales was calculated. The correlations

between risk assessment scores and AVS rates of aggression are presented in Table 21

for the LD group and Table 22 for the control group. As the outcome measure of

institutional aggression (the frequency score on the AVS subscales) were not

normally distributed non-parametric statistics were employed (Spearman's *rho*). The

statistics for the correlations between each of the risk assessment instruments and the

AVS subscale rates of aggression are presented in Table 21 and 22 and so will not be

repeated here.

When comparing the correlations across the LD and the control group note

that *rho* = 0.10 is a small effect size, *rho* = 0.30 is a medium effect size and *rho* =

0.50 is a large effect size (Cohen, 1992).

Table 21: *Correlation (rho) between the risk assessment instruments and the*

subscales of the AVS in the LD group (n = 25)

Risk scale	Verbal aggression	Damage to property	Physical aggression
VRAG	0.37	0.49*	0.53**
PCL-R	0.03	0.06	0.25
Factor 1	-0.07	-0.05	-0.06
Factor 2	-0.08	0.02	0.22
HCR-20	0.38	0.55**	0.61**
History subscale	0.29	0.40*	0.49*
Clinical subscale	0.23	0.33	0.32
Risk subscale	0.49*	0.59**	0.60**
HCR-20 clinical judgement	0.76**	0.72**	0.74**

*$p < .05$, ** $p < .01$, *** $p < .001$

Table 22: *Correlations (rho) between the risk assessment instruments and subscales*

of the AVS in the control group (n = 45)

Risk scale	Verbal aggression	Damage to property	Physical aggression
VRAG	0.35*	0.23	0.24
PCL-R	0.25	0.13	0.03
Factor 1	0.22	0.11	0.02
Factor 2	0.34*	0.16	0.05
HCR-20	0.40**	0.33*	0.24
History subscale	0.02	0.04	-0.06
Clinical subscale	0.44**	0.47**	0.36*
Risk subscale	0.44**	0.30*	0.28
HCR-20 clinical judgement	0.63**	0.34*	0.30*

*$p < .05$, ** $p < .01$, *** $p < .001$

4.3.3.1 Violence Risk Appraisal Guide

In the LD group the VRAG significantly correlated with physical aggression with a large effect size. In the control group the relationship between the VRAG and physical aggression was a small-medium effect size (non-significant).

4.3.3.2 Psychopathy Checklist-Revised

In the LD group the PCL-R was (not significantly) correlated with physical aggression with a small-medium effect size. In the control group the PCL-R was not correlated with physical aggression. In the LD group PCL-R factor 1 did not correlate with physical aggression, PCL-R factor 2 was (not significantly) related to physical aggression with a small-medium effect size. In the control group neither of the PCL-R factor scores were correlated with physical aggression.

4.3.3.3 History, Clinical, Risk-Management-20

In the LD group the HCR-20 significantly correlated with physical aggression with a large effect size. In the control group the HCR-20 was (not significantly) correlated with physical aggression with a small-medium effect size. In the LD group the history subscale of the HCR-20 was significantly correlated with physical aggression with a large effect size. In the control group there was no correlation between the history subscale and physical aggression. In the LD group the clinical subscale of the HCR-20 was (not significantly) correlated with physical aggression with a medium effect size. In the control group the clinical subscale was significantly correlated with physical aggression with a medium effect size. In the LD group the risk-management subscale of the HCR-20 was significantly correlated with physical aggression with a large effect size. In the control group the risk-management subscale was (not significantly) correlated with physical aggression with a small-medium effect size.

The HCR-20 clinical judgement outperformed the HCR-20 total score when predicting each subscale of the AVS in both groups. The HCR-20 clinical judgement performed especially well in the LD group and significantly predicted verbal aggression, damage to property and physical aggression with (very) large effect sizes

(with all correlations being above 0.72). In the control group the HCR-20 clinical judgement again significantly predicted all types of institutional aggression with medium-large effect sizes that were superior to the HCR-20 total score.

Overall, in the LD group the risk assessment instruments had the largest correlations with physical aggression and in the control group the largest correlations were with verbal aggression.

4.3.4   Signal detection theory (SDT)

The AVS physical aggression subscale is of key interest to the present study as it is felt that physical aggression has the most negative impact on staff and patients and the ward environment in a medium secure unit (compared to the other subscales of the AVS; verbal aggression and damage to property). Therefore the ability of the risk assessment instruments to predict if someone was physically aggressive (AVS frequency of physical aggression categorised into physically aggressive or not) across the six month follow up period was evaluated using SDT[23]. For a full description of SDT see section 3.3.1.

As previously stated the AVS severity score (most severe incident) was highly correlated with the AVS frequency score for each of the subscales of the AVS. It was felt that this was due to a restricted range of severity of incidents in the follow up period (most likely due to the restrictions enforced in a medium secure unit). The most severe incident recorded on the physical aggression subscale was physical assault causing mild injury (scored as a 3 / 10 on the AVS. See Appendix G for the scoring of the AVS physical aggression subscale). In comparison to all possible types of physical aggression measured by the AVS physical aggression subscale this is not

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Only those that were followed for the entire six month period were included in the ROC analyses.

the 'most severe'. However, within a medium secure unit such aggression still has an

impact on the victim, the ward environment, staff and resources and it was felt

necessary to assess the ability of the risk assessment instruments to predict the

severity of physical aggression (as well as simply if the person would be physically

aggressive or not). For the purposes of the SDT analysis, it was decided to compare

those who exhibited the most severe type of physical aggression within the follow up

period (i.e. scored 3 / 10 on the AVS physical aggression severity subscale) to those

who did not exhibit the most severe type of physical aggression (i.e. scored below

three on the physical aggression severity subscale).

The ROC analyses for predicting if someone was physically aggressive (any

physical aggression) and severe physical aggression are displayed in Table 23 and

Table 24 respectively. Using standard conventions Area Under the Curve's (AUCs)

of 0.50 is chance level, > 0.56 can be regarded as small effects, AUCs > 0.64 as

medium effects and AUCs > 0.71 as large effects (Rice & Harris, 2005). As

previously, AUCs were compared to see if they differed statistically from each other

using the methods described by Hanley and McNeil (1992).

4.3.4.1 Violence Risk Appraisal Guide

In the LD group the VRAG was able to significantly predict any physical

aggression very well (with a large effect size). Predicting severe physical aggression

the VRAG again produced a significant large effect size. In the control group the

VRAG was able to predict physical aggression with a small-medium effect size and

was able to (not significantly) predict severe physical aggression with a medium

effect size (Rice & Harris, 2005).

Table 23: *The Area Under the Curve (AUC) for the risk assessment instruments*

predicting any physical aggression

Risk scale	LD group[a]		Control group[b]	
	AUC	SE	AUC	SE
VRAG[c]	0.87*	0.08	0.60	0.10
PCL-R	0.71	0.12	0.53	0.10
Factor 1	0.53	0.14	0.49	0.10
Factor 2	0.65	0.17	0.56	0.09
HCR-20	0.77	0.10	0.58	0.09
History subscale[c]	0.77	0.10	0.42	0.09
Clinical subscale	0.66	0.14	0.67	0.09
Risk subscale	0.73	0.11	0.63	0.09
HCR-20 clinical judgement[c]	0.88**	0.08	0.62	0.09

[a] $n = 23$, except for PCL-R Factor 2, $n = 24$ [b] $n = 38$. [c] AUCs differ between groups $p < .05$ (Hanley & McNeil, 1992).

$*p < .05$, $**p < .01$, $***p < .001$(Figure differs from chance, AUC = 0.5)

Table 24:   *The Area Under the Curve (AUC) for the risk assessment instruments*

predicting severe physical aggression

Risk Scale	LD group[a]		Control group[b]	
	AUC	SE	AUC	SE
VRAG	0.78*	0.10	0.66	0.14
PCL-R	0.54	0.13	0.57	0.12
Factor 1	0.42	0.13	0.49	0.13
Factor 2	0.57	0.13	0.63	0.11
HCR-20	0.79*	0.10	0.73	0.09
History subscale	0.70	0.12	0.62	0.14
Clinical subscale	0.64	0.12	0.72	0.11
Risk subscale	0.81*	0.10	0.66	0.14
HCR-20 clinical judgement	0.90**	0.06	0.70	0.11

[a] $n = 23$, except for PCL-R Factor 2, $n = 24$ [b] $n = 38$.

*$p < .05$, ** $p < .01$, *** $p < .001$ (Figure differs from chance, AUC = 0.5)

4.3.4.2 Psychopathy Checklist-Revised

The PCL-R produced a large effect size in the LD group but was at chance

levels in the control group (Rice & Harris, 2005) when predicting any physical

aggression. Factor 1 predicted any physical aggression at chance levels in both

groups. Factor 2 produced a medium effect size in the LD group and again just above

chance levels in the control group (Rice & Harris, 2005). Predicting severe physical

aggression the PCL-R performed at chance levels for both groups. This is a noticeable difference in performance for the LD group when predicting severe physical aggression. Factor 1 performed below chance levels in the LD group and at chance levels in the control group. Factor 2 performed just above chance levels in the LD group and produced a small-medium effect size in the control group.

4.3.4.3 History, Clinical, Risk-Management-20

In the LD group the HCR-20 total score significantly predicted any physical aggression with a large effect size. The history and risk-management subscales also predicted any physical aggression with a large effect size and the clinical subscale predicted any physical aggression with a medium effect size (Rice & Harris, 2005). In the control group the HCR-20 total score predicted physical aggression with a small effect size (Rice & Harris, 2005). The history subscale performed just below chance level. The clinical subscale produced the highest AUC and was able to predict physical aggression with a medium-large effect size. The risk-management subscale was able to predict physical aggression with a small-medium effect size (Rice & Harris, 2005). The HCR-20 clinical judgement outperformed the HCR-20 total score predicting any physical aggression in both groups. In the LD group the HCR-20 clinical judgement significantly predicted any aggression with a (very) large effect size and in the control group with a small-medium effect size (not significant).

In the LD group the HCR-20 was able to significantly predict severe physical aggression with a large effect size. The history and clinical subscales produced (not significant) medium effect sizes and the risk-management subscale was able to significantly predict severe physical aggression with a large effect size (Rice & Harris, 2005). In the control group the HCR-20 was able to (not significantly) predict severe physical aggression with a large effect size. The AUC produced by the history

subscale improved somewhat in the control group and was able to predict severe

physical aggression with a medium effect size (not significant). The clinical subscale

was able to predict severe physical aggression with a large effect size and the risk-

management subscale predicted severe physical aggression with a medium effect size

(Rice & Harris, 2005; again, these AUCs were not significantly above chance levels).

Again, the HCR-20 clinical judgement performed very well, significantly predicting

severe physical aggression with a (very) large effect size in the LD group and (not

significantly) predicting severe physical aggression with a medium-large effect size in

the control group.

Overall, predicting any physical aggression, the risk assessment instruments

had greater predictive efficacy in the LD group compared to the control group. The

risk assessment instruments had similar predictive efficacy in both groups predicting

severe physical aggression.

4.3.5 Which risk assessment instrument?

A secondary analysis was completed to ascertain if any one of the risk

assessment instruments was significantly better than the others at predicting any

physical aggression within the LD group. The aim of this analysis was to inform if

any of the risk assessment instruments could be best recommended for use with

offenders with LD to predict institutional aggression. A series of paired z-score

comparisons revealed no significant differences in the ability of the risk assessment

instruments to predict any physical aggression. This largely held true when predicting

severe physical aggression, though the HCR-20 clinical judgement was significantly

better able to predict severe physical aggression compared to the PCL-R in the LD

group. For the sake of completeness, the same comparisons were completed for the

control group and no significant differences were found between the predictive

accuracies of the risk assessment instruments. The comparable predictive efficacy of

the risk assessment instruments in mentally disordered offenders without LD is

supported by Cooke et al. (2002; as cited in Lindsay & Beail, 2004).

4.4   Discussion

4.4.1   Summary of findings

The LD group had higher risk assessment scores than the control group and in

line with this the LD group also had a higher incidence of institutional aggression. In

the LD group the VRAG and the HCR-20 (and the HCR-20 subscales and the clinical

judgement of risk of violence based on the HCR-20) were consistently able to predict

any incident of physical aggression and severe physical aggression with medium -

large effect sizes (Rice & Harris, 2005). However, the findings for the PCL-R were

more mixed. Only the AUC predicting any physical aggression produced a large

effect size. All other results were small – medium effects or were at chance levels.

Factor 1 of the PCL-R did not work well in the LD group, factor 2 worked better

(predicting any physical aggression with a medium effect size and severe physical

aggression with a small effect size). The total PCL-R was likely reduced by the poor

predictive ability of factor 1.

In the control group the VRAG and the HCR-20 were able to predict any

physical aggression with a small – medium effect size and severe physical aggression

with medium-large effect sizes (Rice & Harris, 2005; Aside from the History subscale

of the HCR-20 predicting any physical aggression which was performing below

chance levels.). The PCL-R did not perform well, performing at chance levels for the

majority of analyses (aside from the total score and factor 2 of the PCL-R which

predicted severe physical aggression with a small effect size). The predictive efficacy

of the total PCL-R was again led by factor 2; the predictive efficacy of the PCL-R was

likely brought down by the poor predictive efficacy of factor 1.

Overall the risk assessment instruments produced larger effects in the LD

group compared to the control group. Only a few AUCs were significantly different

to chance; those that were, were in the LD group (the VRAG, the HCR-20 total score

and HCR-20 clinical judgement predicting any physical aggression and severe

physical aggression and the risk-management subscale predicting severe physical

aggression). Although AUCs are immune to base rates, the confidence interval,

which determines if the AUC is significantly different to chance, is not and therefore

the lack of significant results are likely due to the relatively small sample sizes.

Further studies to increase statistical power are needed to see if the (often large)

differences in effect sizes are statistically genuine.

4.4.2   Rate of aggression

It was found that those in the LD group were more frequently aggressive than

those in the control group in the six month follow up period. The incidence of

aggression in the LD group (80.0% of the sample had at least one incident of physical

aggression) was relatively high compared to the existing literature that has

investigated risk assessment of institutional violence in offenders with LD (McMillan

et al., 2004; Morrissey et al., 2005; Morrissey et al., 2007a; Quinsey et al., 2004).

The incidence of physical violence reported in previous studies ranges from 31.0% -

76.7%. It could be speculated that the slightly higher rate of aggression in the present

study resulted from increased accuracy of measurement. As discussed in section 4.1

there were some possible flaws in the methods employed to measure institutional

violence in the existing literature which were taken into account in the design of the

present study. Consequently incidents of aggression were taken directly from

continuous care records, rather than using formal incident reports (Morrissey et al.,

2007a), or staff ratings for the purposes of the study, (Quinsey et al., 2004).

4.4.3   Risk Assessment scores

The LD group had higher risk assessment scores compared to the control

group. In addition, the risk assessment scores were high in both groups compared to

the existing literature (in offenders with LD; Lindsay et al. 2008; Morrissey et al.,

2005; Morrissey et al., 2007a; Quinsey et al., 2004 and in mentally disordered

offenders without LD in medium secure units in the UK; Doyle et al., 2002; Doyle &

Dolan, 2006; Dolan & Davies, 2006; Gray et al., 2003; Gray et al., 2004).

The high risk assessment scores are possibly explained by the high prevalence

of those in the sample with a diagnosis of personality disorder (52.0% in the LD

group and 53.3% in the control group). The prevalence of co-morbid personality

disorder in offenders with LD in medium secure units in the UK in the literature

ranges from 10.0% - 41.0% (Alexander et al., 2006; Crossland, Burns, Leach &

Quinn, 2005; Hogue et al., 2006, Lindsay, Hogue, et al., 2006; Puri et al., 2006) and

averages around 28%. In previous studies with mentally disordered offenders without

LD in medium secure units in the UK (Doyle et al., 2002; Doyle & Dolan, 2006;

Dolan & Davies, 2006; Gray et al., 2003; Gray et al., 2004) the prevalence of

personality disorder ranges from 4.0% - 16.8%. Therefore the prevalence of

personality disorder in both groups in the present study was higher than the existing

literature.

It has been reported that a diagnosis of personality disorder is associated with

increased anti-social behaviour in both offenders with LD (Torr, 2008) and other

mentally disordered offenders (Nestor, 2002). Therefore the high risk assessment

scores may be due to the relatively high percentage with a diagnosis of personality

disorder (compared to the existing literature). Gray, Taylor and Snowden (submitted) report higher VRAG, the PCL-SV and the HCR-20 scores in a sample of mentally disordered offenders with a single diagnosis of personality disorder (PD group) and in mentally disordered offenders with a diagnosis of major mental illness and a co-morbid diagnosis of personality disorder (PD + MI group) compared to mentally disordered offenders with a single diagnosis of major mental illness (MI group). Similarly, Belfrage et al. (2000) in a sample of mentally disordered offenders with personality disorder, report high HCR-20 and PCL-SV scores. Indeed, the mean HCR-20 and PCL-SV scores in the present study were on a par with those reported by Gray et al. (submitted) and Belfrage et al. (2000)[24].

The high prevalence of personality disorder resulting in high mean risk assessment scores effects both groups equally as the prevalence of personality disorder is roughly equal in both groups (being 52.0% in the LD group and 53.3% in the control group). This is fortuitous. If one group had a high prevalence of personality disorder and the other did not then this would have created a confounding factor in all of the results.

4.4.4   History, Clinical, Risk-Management-20

In the LD group the HCR-20 was able to predict any physical aggression and severe physical aggression with a large effect size (AUC = 0.77 and AUC = 0.79 respectively). This compares favourably with both the AUC of 0.72 (a large effect size) predicting physical aggression reported by Lindsay et al. (2008) and the AUC of

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[24]

Gray et al. (submitted) mean PCL-SV score in the PD group = 11.8 (this translates to a mean PCL-R score of 19.59), in the PD + MI group the mean PCL-SV score = 11.3 (this translates to a mean PCL-R score of 18.76). Belfrage et al. (2000) report a median PCL-SV score of 20 (this translates to a PCL-R score of 33.2). The mean PCL-R score in the present study was 19.12 in the LD group and 18.27 in the control group. The mean HCR-20 score in the PD group = 23.9 and in the PD + MI group = 24.4. The mean HCR-20 score reported by Belfrage et al. (2000) was 26 and in the present study was 26.60 in the LD group and 23.71 in the control group.

0.68 (a moderate effect size) reported by Morrissey et al. (2007a). The present study

adds to the research literature of the finding that a HCR-20-informed clinical

judgement is an excellent predictor of institutional violence in offenders with LD,

indeed even outperforming the large effect sizes produced by the HCR-20 total score

predicting any physical aggression and severe physical aggression. This is the first

study to assess the ability of a clinical judgement of violence based upon the HCR-20

to predict institutional violence and so provides a unique contribution to the literature

on offenders with LD. This replicates the small literature in mentally disordered

offenders that report that a clinical judgement of risk based upon the HCR-20 adds

incremental validity to the HCR-20 total score (deVogel & deRuitter, 2006; Douglas

et al. 2003).

The predictive efficacy of the subscales of the HCR-20 followed a different

pattern across the LD and control groups. In the LD group the ability of the history,

clinical and risk-management subscales were on a par with each other. The

comparable ability of the history, clinical and risk-management subscales of the HCR-

20 was also reported by Lindsay et al. (2008) in offenders with LD. The magnitude of

the AUCs for the history, clinical and risk-management subscales were also on a par

with Lindsay et al. (2008).

In the control group the ability of the clinical and risk management subscales

were superior to the history subscale (though the differences were less pronounced

predicting severe physical aggression). The superior ability of the clinical subscale to

predict short-term institutional violence (compared to long-term re-convictions)

replicates the existing literature regarding mentally disordered offenders (Gray et al.,

2003; Gray et al., 2004). Gray et al. (2004) report that the clinical subscale of the

HCR-20 was not able to predict long-term re-convictions (AUC = 0.47 - 0.48) yet

Gray et al. (2003) found in a similar population that the clinical subscale predicted

institutional violence with a large effect size (AUC = 0.77). In the re-conviction

study, in the control group, the clinical subscale was only able to predict long-term re-

convictions at chance levels (AUC = 0.51 – 0.54). In the present study, the clinical

subscale was able to predict physical aggression in the short-term with a medium-

large effect size (AUC = 0.67; severe physical aggression with a large effect size,

AUC = 0.72).

Gray et al. (2004) argue that the clinical subscale of the HCR-20 is better able

to predict violence in the short-term because the clinical presentation / clinical risk

factors identified by the clinical subscale remain relevant during the period when

institutional aggression is being measured. Current clinical presentation is a dynamic

variable in mentally disordered offenders and it could not be expected to measure it at

time one and it still be predictive up to five years later. The clinical presentation of

offenders with LD is more stable compared to other mentally disordered offenders

and so the clinical risk factors identified by the clinical subscale that predict in the

short-term remain relevant over a longer period of time in the LD group.

The poor predictive ability of the history subscale in the control group does

not replicate previous studies with mentally disordered offenders in the UK which

have found the history subscale to predict both in the short-term and the long-term

(Doyle et al., 2002; Gray et al., 2003; Gray et al., 2004). There are, however, other

studies that have reported poor predictive efficacy for the history subscale of the

HCR-20 predicting institutional violence (Belfrage et al., 2000; Strand et al., 1999).

These studies were based in a maximum security facility and so represent a high risk

sample of mentally disordered offenders with personality disorder. It is possible that

the history subscale had reduced predictive efficacy in the control group due to the

high prevalence of personality disorder. Gray et al. (submitted) found that the total HCR-20 and the HCR-20 subscales (and the VRAG and the PCL-SV) had reduced predictive efficacy in mentally disordered offenders with personality disorder and recommended caution in using these risk assessment instruments in a sample of patients with a single diagnosis of personality disorder or a sample of patients with a large majority of patients with a diagnosis of personality disorder. It is difficult to directly compare the findings of the present study to those of Gray et al. (submitted) as Gray et al. (submitted) employed re-convictions as the outcome measure and the present study employed institutional aggression as the outcome measure. The fact that there were similar prevalence rates of co-morbid personality disorder in the LD and control group, and the history subscale still predicted any physical aggression and severity of physical aggression in the LD group, suggests that the prevalence of personality disorder may not be the only relevant factor in explaining this surprise result.

4.4.5   Psychopathy Checklist-Revised

In the LD group, predicting any physical aggression, the PCL-R produced a large effect size (AUC = 0.71) yet all other analyses were at chance levels or a small-medium effect size (the correlation between PCL-R and physical aggression; $r = 0.25$). Morrissey et al. (2005) report that the PCL-R was correlated with institutional aggression in offenders with LD (recruited from across three levels of security) with a small effect size ($r = 0.18$). Morrissey et al. (2007a) in offenders with LD in conditions of high security, report that the PCL-R was not correlated with physical aggression ($r = 0.04$). The findings of the present study, aside from the large effect size predicting any physical aggression, are largely in line with the existing literature on the predictive efficacy of the PCL-R in offenders with LD.

In the present study, in the LD group, factor 1 produced an AUC of 0.53

(chance level) predicting any physical aggression and an AUC of 0.42 predicting

severe physical aggression. The poor predictive ability of factor 1 is in line with

previous studies with offenders with LD. Morrissey et al. (2005) report that factor 1

was not correlated with institutional aggression ($r = 0.05$). Similarly, Morrissey et al.

(2007a) report that factor 1 did not correlate with institutional aggression ($r = -0.03$).

In the present study factor 2 of the PCL-R was found to be better than factor 1

at predicting institutional aggression in the LD group, predicting any physical

aggression with a medium effect size (AUC = 0.65) and severe physical aggression

with a small effect size (AUC = 0.57). In previous studies Morrissey et al. (2005)

report that factor 2 was correlated with institutional aggression with a small-medium

effect size ($r = 0.26$) and Morrissey et al. (2007a) report that factor 2 correlated with

institutional with a small-medium effect size ($r = 0.16$).

Predicting any physical aggression and severe physical aggression factor 1

was performing at chance levels (or below), which suggests that the clinical utility of

factor 1 to predict any physical aggression and severe physical aggression may be

limited. Similarly, factor 2 of the PCL-R predicted severe physical aggression with a

small effect size and may have limited clinical utility when predicting such behaviour.

Factor 2 did predict any physical aggression with a medium effect size and so it seems

that factor 2 of the PCL-R may be driving the ability of the PCL-R total score to

predict any physical aggression in the present study. Factor 2 measures anti-social

behaviour and it may be that it is this more behavioural component, as opposed to any

underlying feature of interpersonal or affective traits of psychopathy that is predicting

institutional aggression. It has been reported (Lindsay et al., 2008; McMillan et al.,

2004; Morrissey et al., 2007a; Quinsey et al., 2004) that a simple measure of recent

(violent) behaviour predicts subsequent institutional violence in offenders with LD.

In the re-conviction study it was found that there was no difference in the

ability of part 1 and part 2 of the PCL-SV to predict long term re-convictions. It

could be speculated that the difference in abilities of the subscales of the PCL-R (and

its variants) is due to the outcome measure of physical aggression employed in the

present study compared to the outcome measure of re-convictions employed in the re-

conviction study. It could be that factor 1 (or part 1) is less able to predict

institutional aggression as the interpersonal traits of psychopathy measured by factor

1 (part 1) are more contained within the context of the medium secure unit compared

to in the community. In addition the PCL-R is a relatively static measure and so it

should be expected that it would be good at predicting long-term measures of violence

or offending behaviour.

In the control group the PCL-R did not perform well, with the total score and

factor scores predicting any physical aggression at chance levels, though the total

score and factor 2 predicted severe physical aggression with a small effect size. This

does not replicate the findings of previous studies in mentally disordered offenders in

medium secure units in the UK (Doyle et al., 2002; Dolan & Davies, 2006; Dolan &

Doyle, 2006; Gray et al., 2003; Gray et al., 2004) where the PCL-R largely predicted

with a medium effect size (Doyle et al., 2002, report a large effect size). Factor 2 was

slightly better at predicting physical aggression than factor 1 was and this replicates

the existing literature in mentally disordered offenders (for a review see Walters,

2003). The poor predictive efficacy of factor 1 in the present study may have reduced

the statistical power of the total PCL-R and so reduced the total scores' predictive

efficacy.

4.4.6   Violence risk Appraisal Guide

The VRAG worked very well at predicting any physical aggression in the LD group, producing a large effect size (AUC = 0.87; severe physical aggression AUC = 0.78). This adds to the previous studies that have found the VRAG to predict institutional aggression with a moderate (Quinsey et al., 2004; AUC = 0.69) to large effect size (Lindsay et al., 2008; AUC = 0.71) in offenders with LD. The improved AUC found in the present study compared to Quinsey et al. (2004) may be due to the VRAG being assessed in its original (unmodified) format. Quinsey et al. (2004) replaced the PCL-R item with the CAT. In addition, the present study aimed to improve upon the accuracy of the outcome measure of institutional aggression (as outlined above in section 4.1). The design of the present study is very similar to that of Lindsay et al. (2008) and thus replicates the large effect size reported by Lindsay et al. (2008).

Considering the differences in the design of the present study to that of the original construction sample of the VRAG (Harris et al., 1993); a different population of offenders, in a different country, with a different outcome measure, it is very impressive that the VRAG has such strong predictive efficacy in the present study. This highlights a strength of the VRAG: the probability of re-offending calculated by the VRAG is independent of context and indicates a base line propensity for offending. It is interesting that both the VRAG and the HCR-20 (which measures the risk of violence in a given context; in this case the medium secure unit) are highly predictive of future violence in offenders with LD.

In the control group the VRAG predicted any physical aggression with a small effect size (an AUC of 0.60; severe physical aggression with a medium effect size, AUC = 0.66); lower than previously reported in mentally disordered offenders in

medium secure units in the UK (Doyle et al., 2002, AUC = 0.71), though still with some predictive utility.

4.4.7 Limitations

The present study, and the majority of the existing literature, pertains to those resident in forensic services and so are a highly selected population of offenders with LD (i.e. those deemed to be a high enough risk to require management in a secure service and the majority of whom have mild LD). At present it is not possible to generalise these findings to those with moderate or severe LD. It would be useful to extend research into this area. It is well documented (for a review see McClintock et al., 2003) that those with LD in community services often have a history of anti-social behaviour and exhibit challenging behaviour, and so it may be beneficial to evaluate the predictive utility of these risk assessment instruments in these non-forensic populations.

The majority of the LD group had a co-morbid diagnosis of another mental disorder but due to the small sample size it was not possible to assess the predictive efficacy of the risk assessment instruments in those with a diagnosis of LD alone and those with a diagnosis of LD and a co-morbid mental disorder. It would have been useful to establish the predictive efficacy of the risk assessment instruments within diagnostic sub-groups of offenders with LD.

4.4.8 Future directions

The findings of the present study (coupled with the findings of the re-conviction study) go some way to inform upon the differential role of the risk factors measured by the risk assessment instruments to predict short-term physical aggression and long-term re-convictions in offenders with LD, compared to other mentally

disordered offenders. However, in order to understand more fully any similarities and

differences across the groups it would be necessary to investigate the ability of the

different items of the risk assessment instruments to predict short-term physical

aggression (coupled with the ability to predict long-term re-convictions). This

remains to be done.

4.4.9 Conclusion

The VRAG and the HCR-20 significantly predicted any physical aggression

with large effect sizes in offenders with LD in medium secure settings in the UK. The

PCL-R also produced a large (but not significant) effect in the LD group. This non

significant effect may be due to the small sample size, as the effect size was very

small and further study with the PCL-R with a larger sample size will help to clarify

the predictive utility of this instrument. The VRAG, the PCL-R and HCR-20 each

had superior ability to predict any physical aggression in the LD group compared to

the control group. The present study is the first to assess and validate the predictive

utility of a clinical judgement of risk of violence based upon the HCR-20 structured

clinical guide (in offenders with LD).

Chapter 5

Screen for risk of violence in learning disability

5.1   Introduction

The re-conviction study provided evidence of the excellent predictive efficacy

of the VRAG, the PCL-SV and the HCR-20 in offenders with LD. These risk

assessment instruments consistently predicted re-convictions in the community with

large effect sizes. In the institutional aggression study the VRAG and the HCR-20

again predicted institutional violence with large effect sizes (though the PCL-R was

performing at chance levels). Indeed, a clinical judgement of risk of violence, based

upon the HCR-20, predicted physical aggression in offenders with LD with an AUC

of 0.90. This is the upper limit of predictive efficacy (Harris & Rice, 2003) and it is

unlikely that this can be improved upon.

Ideally these 'best practice' risk assessment instruments would routinely be

completed for all offenders with LD in medium secure units in the UK. However,

these risk assessment instruments are time consuming and consequently costly for

services to complete. It can take days to complete a PCL-R as it is necessary to

review the patients' clinical records, to interview the patient and to score the PCL-R

(which alone can take a few hours). Furthermore, the PCL-R (for clinical purposes)

can only be completed by trained clinicians who meet rigorous professional standards.

Although the VRAG is very quick to complete, and requires little training, it is still

necessary to review the patients' clinical records and to have a PCL-R score for the

individual in order to complete it. The HCR-20 also requires a PCL-R score and

again the HCR-20 (for clinical purposes) can only be completed by a trained clinician.

A screening tool that quickly and easily identifies those who are more likely to be violent, could complement the best practice risk assessment instruments and identify those who more urgently require a full risk assessment. If it is not financially viable for services to conduct a full risk assessment on all patients within a service such a screening tool could inform services which patients should be targeted for a full risk assessment. To maximise the clinical utility of such a screening tool it should not rely on a full review of the patients' clinical records (as on admission to a medium secure unit a patients' full clinical record may not be available) but rather should be able to be easily scored from a brief interview with the patient. Also, such a screening tool should be able to be scored by any clinician, not only those trained in the use of risk assessment instruments, and so should not require extensive training.

5.1.1   Aim of Chapter 5

The aim of the present study was to try and produce a screening tool to assess risk of violence in offenders with LD that could complement the existing best practice risk assessment instruments and identify those in need of a full risk assessment (of violence). More specifically, the aim was to produce a screening tool that could be scored without the need for a full review of the patients' clinical records, but from a brief interview with the patient and without the need of extensive training on particular risk assessment instruments.

In order to produce such a screening tool, ideally many risk factors for violence would be measured in a sample of offenders with LD and the most statistically significant predictors would be included in the tool. Due to the constraints of conducting this study within the boundaries of a PhD this was not possible. Therefore, the predictive efficacy of each of the items of the best practice risk assessment instruments (known to have predictive value in offenders with LD)

was examined. The sample in the re-conviction study was employed as a construction

sample, as this was a more statistically powerful research design than the institutional

aggression study. The predictive efficacy of the screening tool was then validated on

an independent sample, the sample employed in the institutional aggression study.

5.2   Study 1: Construction sample

5.2.1   Method

5.2.1.1 Design

The study was a pseudo-prospective analysis of the ability of the items of the

VRAG, the PCL-SV and the HCR-20 to predict re-convictions in the community in

offenders with LD discharged from four independent sector medium secure units in

the UK (the scoring of the risk assessment instruments was completed at the point of

discharge and blind to outcome.) The predictor variables were the items of the risk

assessment instruments and the outcome measures were general and violent re-

convictions at five years post-discharge.

5.2.1.2 Sample

The sample employed was a subsection of the sample employed in the re-

conviction study, the LD group. Please refer to section 2.2 for details of the whole

sample. The characteristics of the LD group are relevant here.

5.2.1.3 Measures

The predictor variables were the individual items of the VRAG, the PCL-SV

and the HCR-20. These risk assessment instruments have been described previously

(Section 3.2.3). Please refer to Appendix A for the items of the VRAG, Appendix B

for the items of the PCL-SV and Appendix C for the items of the HCR-20.

The outcome measure was re-convictions at five years post-discharge, both general and violent offences. As per the re-conviction study, post discharge convictions were collated from the Home Office Offenders Index (2000). Violent re-convictions included all offences classified as violence against the person by the Home Office, plus kidnap, criminal damage endangering life, robbery, rape and indecent assault. General re-convictions included any offence post-discharge.

5.2.1.4 Procedure

As per the procedure employed in the re-conviction study, the risk assessment instruments were completed by five psychologists through access to file-based information (all background psychiatric and mental health reports on the patients were obtained as were full criminal record history, admission and discharge psychiatric and psychological reports, social work and probation information, and nursing records). All researchers were trained on the scoring of the risk assessment instruments by a Consultant Clinical and Forensic Psychologist. All convictions were obtained from the Home Office Offenders Index (2000). Risk assessments were completed blind to outcome by the use of 'computer masking' of offences following date of discharge.

5.2.2   Results

The aim of the screening tool was that it would be quick and easy to score, without the need for a full review of the patients' clinical records. Therefore for each of the items of the risk assessment instruments the following judgments were made[25]:

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[25] These judgements were made by the researcher and the supervisors of the project: two professors of Psychology, one of whom is also a Consultant Clinical and Forensic Psychologist.

- Is the item consistently predictive of recidivism (violent and general re-convictions). Using AUCs to inform this judgement.

- Is it possible to score the item from a brief interview with the patient (without a full review of the patients' clinical records)?

- Does it measure a construct independent of the other items already included in the screening tool?

In order to identify the items of the risk assessment instruments that consistently predicted recidivism, each of the items of the risk assessment instruments were subjected to ROC analyses to assess the ability to predict violent re-convictions at five years post-discharge and general re-convictions at five years post-discharge. The AUCs for the LD group for each of the items of the VRAG, the PCL-SV and the HCR-20 predicting violent re-convictions are outlined in Table 25 and the AUCs predicting general re-convictions are outlined in Table 26. In both tables the AUCs are presented in rank order of the most predictive item to the least predictive item. For the ease of presentation only the items that predicted violent or general re-convictions with an AUC greater than 0.60 are displayed here. For the full list of items please refer to Appendix I.

In order to meet the criteria of ease of scoring it was decided that none of the PCL-SV items would be included in the screening tool as these items were deemed too difficult / impossible to score from a brief interview and a brief file review. If an item predicted recidivism well and was easy to score, but was redundant (i.e. it duplicated an item already included in the screening tool), then the item with either: a) the least predictive efficacy; b) that was hardest to score; or c) that provided a narrower description of the construct was removed from the final list of items. For

example, both the VRAG Item 3 (alcohol problems) and the HCR-20 History Item 5

(substance use problems) predicted recidivism (violent re-convictions at AUC = 0.69

and 0.68 respectively; general re-convictions at AUC = 0.60 and 0.72 respectively).

However, the HCR-20 'substance use problems' considers all substance abuse

whereas the VRAG 'alcohol problems' is more restricted and so the HCR-20 item

was included in the screening tool. In order to ensure that the screening tool would be

quick to administer the number of items to be included were kept to a minimum (not

more than 10 items). The items included in the screening tool were:

- HCR-20 Risk-Management 4: Non-compliance with remediation attempts

- HCR-20 History 8: Early maladjustment

- VRAG Item 6: Failure on conditional release

- HCR-20 History 5: Substance use problems

- HCR-20 History 9: Personality disorder[26]

- HCR-20 History 2: Young age at first violent incident

It was decided to name the screening tool the Screen for Risk of Violence in

learning disability (SRV-LD). It was decided that the SRV-LD could only be

completed for those for whom at least 5 / 6 of the items were able to be scored. As

there are only six items in the SRV-LD it was felt that any more than one omitted

item could compromise any predictive abilities of the tool. If an item was missing it

was pro-rated (an average score was taken for the omitted item).

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[26] A diagnosis of personality disorder would only be quick to make if it was readily available in the case notes.

Table 25: *The AUCs for the items of the VRAG, PCL-SV and HCR-20 predicting*

violent re-convictions 5 years post-discharge (rank ordered in terms of their

predictive ability.

Item	AUC	SE	*p*	CI Lower	CI Upper	*n*
HCR-20 Risk 4 Non-compliance with remediation attempts	0.73	0.09	0.02	0.55	0.91	102
HCR-20 History 7 Psychopathy	0.73	0.09	0.02	0.55	0.91	96
HCR-20 History 8 Early maladjustment	0.71	0.07	0.03	0.58	0.84	104
PCL-SV Part 1: 4 Lacks remorse	0.71	0.09	0.03	0.54	0.88	89
VRAG 10 Personality disorder	0.71	0.08	0.03	0.54	0.87	83
HCR-20 History 10 Prior supervision failure	0.70	0.08	0.03	0.54	0.86	106
VRAG 3 History of alcohol problems	0.69	0.10	0.05	0.49	0.88	84
VRAG 6 Failure of conditional release	0.68	0.10	0.05	0.50	0.87	83
HCR-20 History 5 Substance use problems	0.68	0.10	0.06	0.49	0.86	103
HCR-20 Clinical 5 Unresponsive to treatment	0.67	0.10	0.08	0.48	0.85	103
VRAG 12 Psychopathy	0.67	0.10	0.09	0.48	0.85	76
PCL-SV Part 1: 1 Superficial	0.66	0.10	0.09	0.47	0.86	103
PCL-SV Part 2: 9 Lacks goals	0.65	0.08	0.11	0.50	0.81	97

Item	AUC	SE	p	CI Lower	CI Upper	n
HCR-20 Risk 3 Lack of personal support	0.65	0.09	0.10	0.48	0.83	107
HCR-20 History 9 Personality disorder	0.65	0.09	0.10	0.47	0.83	107
PCL-SV Part 1: 2 Grandiose	0.63	0.09	0.15	0.45	0.82	100
HCR-20 Clinical 1 Lack of insight	0.63	0.08	0.16	0.48	0.78	102
HCR-20 Risk 1 Plans lack feasibility	0.63	0.09	0.18	0.45	0.80	107
VRAG 2 Elementary school maladjustment score	0.62	0.08	0.21	0.45	0.78	78
HCR-20 History 2 Young age at first violent incident	0.62	0.08	0.21	0.46	0.77	105
PCL-SV Part 2: 5 Lacks empathy	0.61	0.10	0.23	0.42	0.80	97
HCR-20 Clinical 2 Negative attitudes	0.60	0.11	0.33	0.39	0.81	98
VRAG 5 Total Cormier-Lang score for non-violent offences	0.60	0.09	0.29	0.43	0.77	84
PCL-SV Part 2: 8 Poor behaviour controls	0.60	0.09	0.31	0.42	0.77	104

Table 26: *The AUCs for the items of the VRAG, PCL-SV and HCR-20 predicting*

general re-convictions 5 years post-discharge (rank ordered in terms of their

predictive ability).

Item	AUC	SE	p	CI Lower	CI Upper	n
HCR-20 History 7 Psychopathy	0.77	0.07	0.00	0.64	0.91	96
PCL-SV Part 1: 3 Deceitful	0.76	0.08	0.00	0.61	0.91	84
HCR-20 Risk 4 Non-compliance with remediation attempts	0.75	0.06	0.00	0.63	0.88	102
HCR-20 History 5 Substance use problems	0.72	0.07	0.00	0.59	0.86	103
HCR-20 History 10 Prior supervision failure	0.72	0.06	0.00	0.60	0.84	106
HCR-20 Risk 1 Plans lack feasibility	0.71	0.07	0.00	0.58	0.84	107
VRAG 12 Psychopathy	0.70	0.07	0.00	0.56	0.84	102
PCL-SV Part 2: 6 Doesn't accept responsibility	0.69	0.08	0.02	0.53	0.84	83
HCR-20 Risk 2 Exposure to destabilisers	0.69	0.07	0.01	0.56	0.82	104
HCR-20 Clinical 2 Negative attitudes	0.69	0.07	0.01	0.54	0.83	98
VRAG 11 Schizophrenia	0.68	0.08	0.01	0.53	0.83	102
VRAG 1 Lived with both biological parents to age 16	0.68	0.08	0.02	0.53	0.83	104
VRAG 4 Marital status	0.66	0.07	0.03	0.53	0.80	89

Item	AUC	SE	p	CI Lower	CI Upper	n
PCL-SV Part 2: 10 Irresponsible	0.66	0.08	0.05	0.51	0.81	83
PCL-SV Part 1: 2 Grandiose	0.66	0.07	0.05	0.52	0.79	80
PCL-SV Part 2: 5 Lacks empathy	0.66	0.07	0.05	0.51	0.80	84
HCR-20 History 9 Personality disorder	0.64	0.07	0.04	0.51	0.78	107
HCR-20 Clinical 5 Unresponsive to treatment	0.64	0.07	0.06	0.50	0.77	103
PCL-SV Part 2: 12 Adult anti-social behaviour	0.63	0.08	0.11	0.47	0.80	76
VRAG 9 Any female victim	0.62	0.07	0.11	0.49	0.75	97
HCR-20 History 8 Early maladjustment	0.62	0.07	0.09	0.49	0.76	104
VRAG 5 Total Cormier-Lang score for non-violent offences	0.60	0.07	0.17	0.46	0.75	97
VRAG 3 History of alcohol problems	0.60	0.08	0.20	0.44	0.76	98
PCL-SV Part 2: 7 Impulsive	0.60	0.07	0.20	0.46	0.74	84
VRAG 2 Elementary school maladjustment score	0.60	0.08	0.17	0.45	0.75	99
HCR-20 Clinical 1 Lack of insight	0.60	0.07	0.20	0.46	0.73	102

5.2.2.1 Descriptive statistics

The SRV-LD total score is derived by simply adding the individual items of the tool. The items are each scored as absent (0), possibly present (1) or present (2). Therefore the total score is 12. This scoring criterion is used because this is how the majority of items were scored in the original risk assessment instruments (most of the items in the SRV-LD are from the HCR-20.)[27]. Each item of the HCR-20 is scored as absent (0), possibly present (1) or present (2) based on careful consideration of all of the evidence regarding the presence or absence of the risk factor (for details see Webster et al., 1997). For the purposes of the SRV-LD the clinician should be able to make a judgement of the whether the item is present or absent (or possibly present) from a brief interview with the patient and a brief file review. For an outline of the scoring criteria for each of the items of the SRV-LD see Appendix J.

The SRV-LD can be scored if one of the items is omitted (if there is insufficient information to be able to score an item) by calculating an average score for that item. The score obtained for the completed items is added and divided by the number of items scored (this will always be five as if more than one of the items of the SRV-LD is omitted then it is not possible to pro-rate the total score), this is then multiplied by the total number of items that it is possible to score (this will always be six as there are six items in the SRV-LD).

In this construction sample (n = 145) 108 had all six items of the SRV-LD scored; 30 had five items scored and so were pro-rated. Seven had more than two items omitted and so were excluded from any further analyses. The final sample

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[27] The VRAG Item 6 (failure on conditional release) is scored as 'yes' present, given a score of 2, or 'no' absent given a score of 0. It is not possible to score this item as 'possibly present'. If it is unclear if the individual has previously failed on a conditional release then the authors of the VRAG recommend that the item should be omitted. For the purposes of the SRV-LD if the item is omitted an average score for that item is calculated using pro-rating procedures.

consisted of 138 of the LD group. The mean SRV-LD score was 5.3 (/12; *SD* = 2.83,

range 0 – 12).

5.2.2.2 Predictive efficacy of the SRV-LD

The ability of the SRV-LD to predict violent and general re-convictions in the

construction sample was evaluated using ROC analyses. As the items of the SRV-LD

were chosen based upon their ability to predict violent and general re-convictions in

the construction sample it was expected that the SRV-LD would demonstrate

predictive efficacy in this sample. The AUCs are outlined in Table 28. For

comparison purposes the AUCs for the VRAG, the PCL-SV and the HCR-20

predicting violent and general re-convictions at five years post-discharge are also

included in Table 28.

As can be seen from Table 28 the SRV-LD has excellent predictive efficacy,

significantly predicting violent and general re-convictions in the construction sample

with large effect sizes (Rice & Harris, 2005).

Table 28: *AUCs for the SRV-LD, VRAG, PCL-SV and HCR-20 predicting violent and general re-convictions 5 years post-discharge*

Risk assessment instrument	Violent re-convictions AUC (*SE*)
SRV-LD	0.85 (0.06)***
VRAG	0.75 (0.08)**
PCL-SV	0.75 (0.10)**
HCR-20	0.82 (0.07)**
	General re-convictions
SRV-LD	0.80 (0.06)***
VRAG	0.74 (0.07)**
PCL-SV	0.76 (0.07)**
HCR-20	0.81 (0.05)***

*$p < .05$, **$p < .01$, ***$p < .001$

5.2.3   Discussion

Study 1 provided evidence for the ability of the SRV-LD to predict violent and general re-convictions at five years post-discharge in offenders with LD discharged from medium secure units in the UK. This is unsurprising given that the items of the SRV-LD were chosen (primarily) on their ability to predict these outcome measures,

in this sample. It remains necessary to test the predictive efficacy of the SRV-LD in

an independent sample of offenders with LD in order to validate the tool.

Furthermore, the ability of the SRV-LD to predict institutional aggression remains to

be tested. These needs were addressed in Study 2.

5.3   Study 2: Validation Sample

5.3.1   Introduction

Study 1 employed a construction sample (offenders with LD in the re-

conviction study) and developed a screening tool for violence in offenders with LD:

the SRV-LD. The findings of Study 1, that the SRV-LD predicted recidivism in the

construction sample, suggests that there is promise for the ability of the SRV-LD to

screen for those offenders with LD at risk of violence and identify those in need of a

full risk assessment of violence. It remains necessary to test the predictive efficacy of

the SRV-LD in an independent sample of offenders with LD in medium secure units

in the UK to validate the tool in this population. Study 2 aimed to achieve this. It

was hypothesised that the SRV-LD would be able to predict institutional aggression in

an independent sample of offenders with LD in medium secure units in the UK.

5.3.2   Method

5.3.2.1 Design

Study 2 was a prospective analysis of the ability of the SRV-LD to predict

institutional aggression in a sample of offenders with LD (in medium secure units in

the UK) independent from the construction sample. The predictor variable was the

SRV-LD total score and the outcome measure was physical aggression in the medium

secure unit (as measured by the AVS).

5.3.2.2 Sample

The sample employed was a subsection of the sample employed in the institutional aggression study, the LD group. Please refer to section 4.2.2 for the description of the LD group characteristics. The study constituted a post-hoc analysis of the data already collected for this study.

5.3.2.3 Measures

The predictor variable was the SRV-LD total score. The outcome measure was, as per the institutional aggression study, institutional aggression: if the individual was noted by nursing or clinical staff to be aggressive in the continuous care records quantified by the AVS. For the purposes of the present study only the AVS physical aggression subscale was employed as the outcome measure. The outcome measure was restricted to physical aggression as this was the outcome measure of greatest interest in the institutional aggression study. As in the institutional aggression study, the ability to predict any physical aggression and severe physical aggression (a severity score of 3 / 10 on the AVS physical aggression subscale) was of interest. Please refer to section 4.2.3 for details of the AVS and how it is scored. Records were reviewed for the six months following the date the risk assessments were completed (the VRAG and HCR-20), or until the patient was discharged.

5.3.2.4 Procedure

The risk assessment instruments and the AVS were scored as per the procedure outlined in the institutional aggression study (see section 4.2.4). For the purposes of the present study the items of the risk assessment instruments included in the screening measure were then totalled to give the SRV-LD total score. The SRV-LD was pro-rated for two cases, each of which had one item omitted (when scored for

the original risk assessment instrument). No cases had more than one item missing

and therefore all of the LD group from the institutional aggression study were

included in the analyses ($n = 25$).

5.3.3   Results

5.3.3.1 Predictive utility of the SRV-LD

In this validation sample the mean score on the SRV-LD was 7.91 ($SD = 1.83$,

range 6 – 12). ROC analysis was employed to examine the ability of the SRV-LD to

predict physical aggression and severe physical aggression (as measured by the AVS)

in this validation sample. As it was hypothesised that the SRV-LD would be able to

predict physical aggression and severe physical aggression in this study a one-tailed p

value was applied to test for the significance of the AUCs. The AUCs are displayed

in Table 29 (any physical aggression) and 30 (severe physical aggression). The AUCs

for the VRAG, the PCL-R (and its variants) and the HCR-20 are also presented for the

purposes of comparison.

Table 29: *The AUCs for the SRV-LD, VRAG, PCL-R and HCR-20 predicting any physical aggression.*

Risk assessment instrument	Any physical aggression AUC (*SE*)
SRV-LD	0.76 (0.10)**
VRAG	0.87 (0.08)*
PCL-SV	0.71 (0.12)
HCR-20	0.77 (0.10)*

Note a one-tailed *p* value was applied to the SRV-LD but a two-tailed *p* value was applied to the other risk assessment instruments in previous chapters. *$p < .05$, **$p < .01$, ***$p < .001$

Table 30: *The AUCs for the SRV-LD, VRAG, PCL-R and HCR-20 predicting severe physical aggression.*

Risk assessment instrument	Severe physical aggression AUC (*SE*)
SRV-LD	0.72 (0.11)*
VRAG	0.78 (0.10)*
PCL-SV	0.54 (0.13)
HCR-20	0.79 (0.10)*

Note a one-tailed *p* value was applied to the SRV-LD but a two-tailed *p* value was applied to the other risk assessment instruments in previous chapters.

*$p < .05$, **$p < .01$, ***$p < .001$

The SRV-LD was able to significantly predict any physical aggression and severe physical aggression with a large effect size (Rice & Harris, 2005).

5.3.3.2 Appropriate cut-off score?

In order to use the SRV-LD as a screening tool for risk of violence it is necessary to identify a cut-off score to indicate when it is necessary to complete a full risk assessment of violence. The cut-off score should identify (nearly all) those who are going to be violent whilst correctly identifying those who are not going to be violent (to ensure that those for who no full risk assessment of violence is conducted are not at increased risk of being violent). The suitability of a cut-off score can be analysed using positive predictive value (PPV) and negative predictive value (NPV). PPV is the proportion of patients correctly identified as being violent and NPV is the proportion of patients correctly not identified as being violent. The PPV and NPV are calculated for a given base rate of violence. See Figure 2 for the formula's used to calculate PPV and NPV.

$$PPV = \frac{\text{sensitivity} \times \text{prevalence}}{(\text{sensitivity} \times \text{prevalence}) + (1\text{-specificity} \times 1\text{-prevalence})}$$

$$NPV = \frac{\text{specificity} \times (1 - \text{prevalence})}{(1 - \text{sensitivity} \times \text{prevalence}) + (\text{specificity} \times 1\text{-prevalence})}$$

Figure 2: The formulae used to calculate PPV and NPV.

With this preliminary data using a cut-ff score of 5 did not differentiate between those who were violent and those who were not (the sensitivity and 1-specificity were both 1). A cut-off score of 6 produced a PPV of 0.88 and a NPV of 0.33. So, using 6 as a cut off score, almost 90% were correctly identified as needing a full risk assessment of violence. However, the NPV is low, suggesting that too few cases were correctly rejected. This is likely to be because of the high number of people who were violent in the validation sample (80%) resulting in 'not being violent' being a rare event and thus more difficult to predict (than being violent). Indeed, a base rate of violence of 80% suggests that it might be more effective to simply complete a full risk assessment of violence on everyone. However, predicting any physical aggression does not decipher between low level physical aggression and more severe physical aggression. Severe physical aggression, which had a lower base rate in this validation sample (52%) the PPV was 0.68 and the NPV was 0.77. Thus, the ability to predict those who will be severely physically aggressive is reduced but the ability not to identify those who are not going to be severely aggressive is greatly increased. In this instance it is more beneficial to accept a lower PPV than a lower NPV. A lower NPV represents those correctly identified as not violent and so if this is judgement is incorrect then someone may be violent and it may be missed. Based on the validation sample a cut-off score of 6 may have some utility in identifying those who are more likely to be severely physically aggressive. The validation sample provides preliminary data on the SRV-LD on a sample of offenders with LD with a high base rate of offending. In order to more accurately identify an appropriate cut-off score the PPV and NPV should be calculated on a sample of offenders with LD with a lower base rate of physical aggression.

5.3.4 Discussion

Study 2 found that the SRV-LD significantly predicted physical aggression in an independent sample of offenders with LD in medium secure units in the UK, with a large effect size (Rice & Harris, 2005).

The AUC, though large, was smaller than those produced by the SRV-LD in the construction sample. Some loss of efficacy is to be expected when validating a tool outside of the construction sample (Dawes et al., 1989). The slightly lower AUC may be due to differences in the range of scores on the SRV-LD in the validation sample compared to the construction sample: the range of scores was restricted to the upper half of the scale in the validation sample, which may have reduced the predictive efficacy of the SRV-LD (this was not the case for the construction sample).

The SRV-LD produced an AUC (0.76) predicting physical aggression that improves upon the AUC produced by the PCL-R (0.71) predicting physical aggression. In addition, the SRV-LD was able to significantly predict physical aggression whereas the PCL-R was not. The AUC produced by the SRV-LD was slightly lower than those produced by the VRAG (0.84) and the HCR-20 (0.80) which also significantly predicted physical aggression. All of the AUCs are a large effect size however, and so these differences are small. As stated in section 5.1, the aim of producing the SRV-LD was not to replace the existing best practice risk assessment instruments, but rather to complement them and provide a screening measure to identify those who are more likely to be violent in the future and so to identify those most in need of a full risk assessment of future violence. The finding that the SRV-LD predicts physical aggression at a level comparable to the existing best practice risk assessment instruments suggests that the SRV-LD could be used by services to meet this need.

5.4   General Discussion

Study 1 and study 2 provide evidence for the predictive efficacy of the SRV-LD in offenders with LD in medium secure units in the UK, both in the construction sample (predicting re-convictions in the community) and the validation sample (predicting physical aggression in the medium secure unit). Thus, although the present study was an exploratory analysis of the most predictive risk factors for violence (as measured by the VRAG, the PCL-SV and the HCR-20), there is evidence that the SRV-LD can predict violence in offenders with LD (in medium secure units in the UK) predicting different outcome measures. The aim of these two studies was to develop a screening tool that could complement the best practice risk assessment instruments by identifying quickly and easily those most likely to require a full risk assessment of violence. It is felt that this aim was achieved.

Although the risk assessment instruments predicted institutional aggression with large effect sizes (AUCs of 0.71-0.84), if it was assumed that everyone would be violent (80% of the sample displayed physical aggression in the six month follow up period) then this prediction would have been as accurate as any of the risk assessment instruments. However, the advantage of the risk assessment instruments over simply predicting that everyone will be violent is that the risk assessment instruments can identify the risk factors for offending in individuals. If one presumes that everyone is going to be violent then it is necessary to keep all patients in conditions of security to ensure public safety. Whereas risk assessment instruments can assist clinicians in managing the risk of violence and in turn this allows offenders to be treated and managed in the least restrictive environment possible. So although in some instances risk assessment instruments may not be statistically superior to presuming that all patients will be violent in the future, their use are more ethically and morally sound.

Although study 2 provided evidence for the predictive efficacy of the SRV-LD in an independent sample of offenders with LD, ideally the SRV-LD would now be tested in an independent sample of offenders with LD scoring the items from a brief interview with the patient and a brief file review, rather than from pre-existing VRAG and HCR-20 scores, using the scoring criteria outlined in Appendix J. This would inform if the items are easy to score from a brief interview with the patient. In such a study it would also be valuable to examine if the SRV-LD score correlates with subsequent best practice risk assessments (to test construct validity in an independent sample of offenders with LD) but crucially to test if the SRV-LD predicts subsequent violence.

The findings of these two studies suggest promise for the use of the SRV-LD to predict risk of violence in offenders with LD in medium secure units in the UK. However, the SRV-LD may also be useful to non-forensic services working with those with LD with challenging or anti-social behaviour. Indeed, it is arguable that medium secure services have more information regarding the risk of violence for those being admitted compared to those being supported in the community (as risk of violence or sexual offending is often the reason for admission to a medium secure unit). Therefore it would also be beneficial to test the predictive efficacy of the SRV-LD in such samples.

Chapter 6

General discussion

6.1   Aims of the thesis

The overarching aim of the thesis was to test the predictive efficacy of certain

risk assessment instruments in offenders with LD compared to other mentally

disordered offenders, for whom the predictive efficacy of these risk assessment

instruments was well established. In order to achieve this aim, it was first necessary

to establish if the factors related to offending were the same or different for offenders

with LD compared to other mentally disordered offenders.

6.2   Summary of findings:

6.2.1   Factors associated with re-offending in offenders with LD

The key finding of the risk factor study (Chapter 2) was that the factors related

to re-convictions were similar in offenders with LD compared to other mentally

disordered offenders. Furthermore, the factors that were found to be related to re-

convictions across the whole sample (demographic variables, deviant lifestyle

variables, criminal history variables and some clinical variables) replicated the

existing research literature on mentally disordered offenders (Bonta et al., 1998). The

findings of the risk factor study extends the literature on offenders with LD and

through direct comparison with other mentally disordered offenders indicates that the

factors associated with re-convictions in offenders with LD are no different to the

factors related to re-convictions in other mentally disordered offenders. Therefore,

the risk factor study provided evidence for the criterion validity of the existing 'best

practice' risk assessment instruments to be applied to offenders with LD.

6.2.2 Offending behaviour in offenders with LD

The descriptive statistics from the re-conviction study (Chapter 3) and the institutional aggression study (Chapter 4) revealed that offenders with LD had higher mean risk assessment scores compared to other mentally disordered offenders. Re-conviction rates did not reflect these higher risk assessment scores in the re-conviction study; offenders with LD were found to be re-convicted at a slower rate compared to other mentally disordered offenders. In the institutional aggression study however, offenders with LD were more frequently aggressive within the medium secure unit compared to other mentally disordered offenders. This may imply that offenders with LD are more often diverted out of the criminal justice system, as previous research has found (Green et al., 2002; Johnston, 2002; Turner, 2000).

The increased frequency of institutional aggression in offenders with LD compared to other mentally disordered offenders may be due to features of LD. Diagnostic systems (APA, 2004; WHO, 1992) suggest that communication difficulties often associated with a diagnosis of LD can lead to aggression. It could be hypothesised that a lack of understanding of others communication or a lack of   ·
understanding of the reasons for their admission or for any restrictions on their daily lives may add to this problem (other explanations may also be possible). Furthermore, diagnostic systems suggest that those with LD can be impulsive which may increase the chances that they will act out any feelings of frustration or anger.

6.2.3 Predictive validity of the VRAG, PCL-R and the HCR-20 in offenders with LD

Collectively, the findings of the re-conviction study and the institutional aggression study show that across different follow up periods and outcome measures, the VRAG, the PCL-R (and its variants) and the HCR-20 are robust predictors of

future convictions and institutional violence in offenders with LD, at least in those

discharged from or resident in medium secure units in the UK. The VRAG, the PCL-

R (and its variants) and the HCR-20 predicted both long-term re-convictions and

institutional violence with large effect sizes, either at a level comparable to other

mentally disordered offenders (the VRAG predicting long-term re-convictions) or at a

level superior to other mentally disordered offenders (the VRAG predicting

institutional violence and the PCL-R (and its variants) and the HCR-20 predicting

both long-term re-convictions and institutional violence). The finding that the HCR-

20 clinical judgement surpassed the ability of the HCR-20 total score to predict

institutional violence provides a unique contribution to the research literature on

offenders with LD and supports the burgeoning literature in this area in mentally

disordered offenders without LD (deVogel & deRuitter, 2006; Douglas et al., 2003).

The ability of the risk assessment instruments to predict both long-term re-

convictions and institutional violence in offenders with LD in comparison to other

mentally disordered offenders makes it tempting to conclude that, with respect to the

assessment of risk of violence, offenders with LD are not a specialist group of

mentally disordered offenders and do not need to be treated as such. However, any

risk assessment of violence needs careful interpretation and should place the risk that

an individual poses in the context of the base rate of offending for that offender

population. The base rate of violence enables the risk of violence to be framed within

the likelihood that such violence will occur.

It is interesting that the risk assessment instruments had largely superior

predictive efficacy in offenders with LD compared to other mentally disordered

offenders. Explanation for this may lie in the stability of risk factors for offending in

offenders with LD (compared to other mentally disordered offenders). Hanson and

Harris (2000) 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). The clinical presentation of offenders with LD is more stable than other mentally disordered offenders and it is possible that offenders with LD may have more stable dynamic risk factors than acute dynamic risk factors and thus there is more consistency between risk factors and behaviour over the long-term (as well as the short-term).

Considering the items of the clinical subscale of the HCR-20, the presence of stable dynamic risk factors in those with LD makes intuitive sense. The items of the clinical subscale consider symptoms, insight, impulsivity, negative attitudes and response to treatment. Those with LD are likely to have relatively stable symptoms as a diagnosis of LD is based on developmental traits and not transient behaviours (DSM-IV-TR, APA, 2004). Similarly, any lack of insight and impulsivity or behavioural problems due to a diagnosis of LD may be slow to change. However, this is a generalisation of the clinical presentation of offenders with LD and should be interpreted with caution as offenders with LD are a heterogeneous group (Holland, 2004). When scoring the risk-management subscale 'future' risk factors are being assessed (plans, exposure to destabilisers, personal support, compliance and stress) and it is necessary to identify and take account of the context that the individual will be in. In the re-conviction study patients were followed for a number of years and the predictive efficacy of the risk-management subscale suggests that their behaviour remained stable across contexts or that patients did not change the context that they were in (i.e. they were not moved on very quickly). It has been suggested that offenders with LD do not move through the system at the same rate as other mentally

disordered offenders (Lindsay & Taylor, 2005), again perhaps due to the relative

stability of their difficulties.

6.2.4 Screening for risk of violence in offenders with LD

Chapter 5 examined the predictive efficacy of the items of the VRAG, the

PCL-SV and the HCR-20 and used these analyses to develop a screening tool for the

risk of violence in offenders with LD, the SRV-LD (the sample employed in the re-

conviction study was utilised as a construction sample). The SRV-LD was found to

predict recidivism in the construction sample. Furthermore, the SRV-LD was found

to predict physical aggression in an independent sample; those employed in the

institutional aggression study (validation study).

6.3   Limitations of the research design

The re-conviction study and the institutional aggression study aimed to build

upon the existing evidence base of risk assessment of violence in offenders with LD

with an improved research design. It is felt that this aim was achieved. However, the

VRAG, the PCL-R (and its variants) and the HCR-20 predicted re-convictions in the

community and institutional violence 'against the odds'. In the re-conviction study,

patients would have had an after-care package and were not simply discharged into

the community with no support or supervision. Services would have been working

with these patients to try and prevent offending for part, if not all, of the period that

they were followed in the community. In the institutional aggression study, patients

would have been subjected to risk management strategies to try and manage and

prevent institutional violence.

Hart (1998) argues that clinicians are morally and ethically bound to try and

prove risk assessments wrong. If a risk assessment identifies an individual to be a

high risk of violence then it is the duty of clinicians working with such an individual to try and reduce the risk of violence and prevent any violent behaviour. In the re-conviction study and the institutional aggression study the risk assessment scores were not communicated to staff (to try and reduce the confounding factor of increased supervision of high risk patients). However, it was not possible to control for any indices of risk of violence or risk management strategies identified by services that would have worked against the predictive efficacy of the risk assessment instruments. Therefore the fact that the risk assessment instruments were able to predict such behaviours is even more impressive.

Hart (1998) also describes how a lot of information regarding risk of violence and violent behaviour is lost in a research design that reduces the risk assessment to a score (without consideration of the individual risk factors and risk formulation) and the outcome measure is dichotomised and taken from one measure of offending (such as re-convictions). Therefore innovative research designs that reflect clinical practice without losing the ability to quantify and assess the predictive efficacy of risk assessment instruments are needed. It is felt that examining the ability of a clinical judgement of violence based upon a risk formulation developed from the HCR-20 (institutional aggression study) is an effective research design that attempted to reflect clinical practice as closely as possible.

All diagnoses were taken from the case notes (noted to be present if made by a consultant psychiatrist). Therefore the grouping of patients according to diagnostic categories is limited by the reliability of psychiatric diagnoses. If psychometric classification systems had been employed to measure diagnosis then different diagnostic groupings may have been made. Psychiatric diagnoses were used as this is how patients were being classified in practice by the mental health teams treating

them. This is especially important when considering those diagnosed with LD.

Relying upon psychiatric diagnosis to identify patients with LD rather than measuring

IQ means that it is possible that some of those in the LD group (in all studies) had a

Full Scale IQ above the cut-off for a diagnosis of LD, or that those in the non-LD

group had a Full Scale IQ below the cut-off for a diagnosis of LD. It is not possible to

be certain that those in the LD group(s) had an IQ score that would reflect the

intellectual disability required for a diagnosis of LD. Ideally, Full Scale IQ and a

measure of adaptive functioning would have been completed for all patients to clarify

those with a diagnosis of LD (and those without a diagnosis of LD).

6.4   Implications for clinical practice

The most important implication of this research is the extension of the

evidence base for the predictive validity of the VRAG, the PCL-R (and its variants)

and the HCR-20 in offenders with LD. It is also necessary to add a note of caution.

Although all of the risk assessment instruments produced large effect sizes predicting

recidivism and violence in offenders in LD (though the performance of the PCL-R

was variable), this does not mean that the risk assessment instruments are faultless.

Even if a risk assessment instrument produces a large effect size it still misclassifies

risk of violence in approximately 20% of cases. This translates to the prediction of

risk being incorrect in 1 in 5 cases. This performance is arguably unacceptable when

the consequences of incorrectly predicting violence can be extremely serious (and

even life or death). However, large effect sizes and AUCs of 0.80 and above

(consistently produced by the HCR-20 in offenders with LD in both the re-conviction

study and the institutional aggression study) are about the best that can be expected in

risk prediction (Harris & Rice, 2003) due to the noise in both the independent and

dependent variables. As previously stated (section 5.4), the use of risk assessment

instruments, although imperfect, can assist clinicians in the arduous task of predicting

and managing the risk of violence in mentally disordered offenders.

Risk assessment of violence is required at many stages of a patient's care

(Borum, 1996), such as, suitability for leave, level of care decisions and civil

commitment decisions. This is, arguably, even more important in a forensic

population such as those resident in medium secure units. There have been great

developments in the research literature regarding risk assessments of violence in

mentally disordered offenders (see section 1.4), but such an extensive evidence base is

not yet available for offenders with LD. This places them at a disadvantage compared

to other mentally disordered offenders.

Services working with offenders with LD have responded to the need for risk

assessments by developing their own methods to assess risk of violence. Even if such

a risk assessment was based on a comprehensive review of the research literature and

had high face validity, unless there is evidence that it does what it says it does, (i.e.

predicts future violence), it may be detrimental to use it for this purpose. Risk

estimates produced by service led risk assessments may be meaningful when

communicated within that service but are difficult to communicate across services.

Idiosyncratic risk assessment across services makes it difficult to communicate risk to

other services (Lindsay & Beail, 2004). Indeed, if different services considered

different risk factors to be important for violence then the same offender may be

deemed high risk by one service and low risk by another. The increased ability to

communicate risk to other professionals by using common risk assessment

instruments should increase the ability to manage the risk of violence and to try and

prevent it.

Lindsay et al. (2008) report that there is debate regarding whether the pathways to services for those with LD reflect the characteristics of offenders (i.e. the level of risk) or the ability of services to manage risky patients in conditions of lower security. If all services employed the same risk assessment instruments then the risk of violence posed by offenders across services would be more transparent. Evidence based practice strengthens the ability of professionals to interpret the risk assessment, to defend the risk assessment should it be brought into question and to communicate the risk to other professionals. Extension of the evidence base for well established risk assessment instruments in offenders with LD can therefore contribute to improving services for offenders with LD.

The best practice risk assessment instruments are time consuming and costly to complete and the preliminary evidence for the predictive efficacy of the SRV-LD as a screening tool for risk of violence in offenders with LD is also promising. The SRV-LD could complement the best practice risk assessment instruments and quickly and easily identify those at increased risk of violence and so those who should be targeted for a full risk assessment of violence. It remains necessary to test the predictive efficacy of the SRV-LD in a independent sample of offenders with LD in both forensic and non-forensic settings, scoring the items of the SRV-LD from a brief interview with the patient, by an untrained clinician.

6.5   Future directions

The current 'best practice' in risk prediction studies is provided by the MacArthur Risk Assessment Study (Monahan et al., 2001). Data on risk factors for violence is available for over 1000 civil psychiatric patients in Canada, recruited from across many sites. The outcome measure of violence was assessed using arrest records, collateral sources and self-reports. This promises a (to date) unique

opportunity to develop knowledge of risk assessment of violence in civil psychiatric

populations. This is the ideal that research studies in offenders with LD should be

aiming for. To develop a data source with long-follow up periods that closely

monitors behaviour is very costly, time consuming and difficult to achieve. Currently

the MacArthur Risk Assessment Study (Monahan et al., 2001) is available to be

exploited (the data is available to researchers outside of the MacArthur group to

analyse) and this could be utilised by researchers interested in offenders with LD. For

example, the MacArthur Risk Assessment Study (Monahan et al., 2001) might be able

to inform upon the accuracy of arrest data compared to other reports of offending

behaviour (collateral sources and self-report) in offenders with LD.

Similarly, Lindsay, Smith, Law, et al. (2004) and Lindsay, Steele, et al. (2006)

have conducted large scale studies that provide a unique data set about offending

behaviour in offenders with LD residing in the community. If it is possible it would

be useful to return to this data set and score the VRAG, the PCL-R and the HCR-20

blind to outcome to test the predictive efficacy of these risk assessment instruments

over longer follow up periods and with a more accurate measure of re-offending in the

community than that employed in this thesis (re-convictions study).

The MacArthur Risk Assessment Study (Monahan et al., 2001) may also

provide an opportunity to assess the predictive efficacy of the PCL-SV in female

offenders with LD (unfortunately the VRAG and the HCR-20 were not included in

the MacArthur Risk Assessment Study) and to test a new risk assessment of violence:

the Classification of Violence Risk (Monahan et al., 2001), which assesses the risk of

violence based on a classification tree approach, in both male and female offenders

with LD. There are also other risk assessment instruments in the research literature

that have been shown to have predictive efficacy (predicting inpatient violence) in

offenders with LD: the Short Dynamic Risk Scale (SDRS; Quinsey, 2004) and the

Dynamic Risk Assessment and Management System (DRAMS; Lindsay, Murphy, et

al., 2004). This is an important direction for research to take, as dynamic measures of

risk enable any change in the level or any changes to the profile of risk factors related

to the risk of violence to be measured. The DRAMS measures the immediate risk of

violence in offenders with LD and it would be good to assess the predictive ability of

the SRV-LD compared to the existing DRAMS which has been found to have good

construct and concurrent validity in offenders with LD (Steptoe, Lindsay, Murphy &

Young, 2008).

The sample recruited in the re-conviction study was comprehensive ($n = 145$

offenders with LD and $n = 996$ other mentally disordered offenders) and the sample in

the institutional aggression study was as large as time constraints allowed ($n = 70$).

However, the group sizes did not allow for testing the predictive efficacy of the risk

assessment instruments in subgroups of offenders with LD. Therefore the findings of

the present study generalise to offenders with LD in medium secure units in the UK

(most of who have mild LD; Full Scale IQ 50 - 69), but not to other subgroups of

those with LD (e.g. more severe LD, women, etc.). It would be beneficial to extend

these findings to offenders with LD with moderate (Full Scale IQ 35 - 49) or severe

LD (Full Scale IQ 20 - 34). The research literature pertinent to those with LD in non-

forensic settings reports that 'challenging behaviour' is common (see McClintock et

al., 2003, for a review of this literature), which suggests the need to be able to assess

the risk of violence in this population.

It is not possible to rule out the impact of co-morbid diagnoses on the

predictive efficacy of the risk assessment instruments in offenders with LD in this

thesis, as the majority of the offenders with LD had a co-morbid mental disorder (as is

the reality in practice). It would be beneficial to assess the predictive efficacy of the VRAG, the PCL-R (and its variants) and the HCR-20 in a group of offenders with a diagnosis of LD alone and those with a diagnosis of LD and a co-morbid mental disorder. It would also be interesting to establish the impact of different mental disorders (e.g. personality disorder versus mental illness) upon the predictive efficacy of the risk assessment instruments. The literature in other mentally disordered offenders suggests that these risk assessment instruments work better in offenders with a diagnosis of mental illness compared to those with a diagnosis of personality disorder (Gray et al., submitted). However, the high prevalence of personality disorder in the offenders with LD in the present study did not appear to adversely affect the predictive efficacy of the risk assessment instruments. It would be interesting to try and tease out any differential effects of co-morbid diagnosis on the predictive efficacy of the risk assessment instruments in offenders with LD.

6.6   Conclusion

The VRAG, the PCL-R (and its variants) and the HCR-20 can predict future offending behaviour in offenders with LD discharged from medium secure units in the UK. These risk assessment instruments predicted re-convictions in the community (both general and violent offences) over different follow-up periods (1 – 5 years) consistently and significantly with large effect sizes. The VRAG, the PCL-R and the HCR-20 also predicted institutional violence in offenders with LD residing in medium secure units in the UK. Again, predicting such behaviour consistently with large effect sizes (though the PCL-R was more variable in its performance). This thesis also provides preliminary evidence for the use of the SRV-LD as a screening measure of risk of violence in offenders with LD.

Therefore the research contained within this thesis has extended the evidence

base on risk assessment of violence in offenders with LD and should hopefully serve

to improve evidence based practice and service provision in forensic services for

people with LD, both in the UK and beyond.

References

Alexander, R.T., & Cooray, S. (2003). Diagnosis of personality disorders in learning

   disability. *British Journal of Psychiatry, 182*, 28-33.

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 ed, text revision) (DSM-IV-TR). Washington, DC: American

   Psychiatric Association.

Ammons, R.B., & Ammons, C.H. (1992). The Quick Test: Provisional manual.

   Psychological Reports, 11, 111-161.

Andrews, D.A., & Bonta, J. (1995). *The Level of Service Inventory-Revised.* Toronto,

   Ontario, Canada: Multi-Health Systems.

Bangaree, S., O'Neill-Byrne, K., Exworthy, T., & Parrott, J. (1996). The Belmarsh

   Scheme. A prospective study of the transfer of mentally disordered remand

   prisoners from prison to psychiatric units. *British Journal of Psychiatry, 166*,

   802-805.

Baroff, G.S. (1996). The mentally retarded offender. In J. Jacobson & J. Muick (Eds),

   Manual of Diagnosis and Professional Practice in Mental Retardation (pp. 311-

   321). Washington, DC: American Psychological Association.

Barron, P., Hassiotis, A., & Banes, J. (2004). Offenders with intellectual disability: A prospective comparative study. *Journal of Intellectual Disability Research, 48,* 69-76.

Baxstrom v. Herald (1966). 383 US.107.

Belfrage, H., Fransson, G., & Strand, S. (2000). Prediction of violence using the HCR-20: A prospective study in two maximum security correctional institutions. *The Journal of Forensic Psychiatry, 11,* 167-175.

Belfrage, H., Fransson, G., & Strand, S. (2004). Management of violent behaviour in the correctional system using qualified risk assessments. *Legal and Criminological Psychology, 9,* 11-22.

Bernal, J., & Hollins, S. (1995). Psychiatric illness and learning disability: A dual diagnosis. *Advances in Psychiatric Treatment, 1,* 138-145.

Binder, R.L. (1999). Are the mentally ill dangerous? *Journal of the American Academy of Psychiatry and Law, 27,* 189-201.

Birch, H., Richardson, S.A., Baird, D., Horobin, G., & Illsley, R. (1970). *Mental subnormality in the community: A clinical and epidemiological study.* Cambridge, MA: Harvard University Press.

Birmingham, L., Mason, D., & Grubin, D. (1996). Prevalence of mental disorder in remand prisoners: Consecutive case study. *British Medical Journal, 313,* 1521-1524.

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.

Borum, R. (1996). Improving the clinical practice of violence risk assessment: Technology, guidelines and training. *American Psychologist, 51*, 945-956.

Brace, N., Kemp, R., & Snelgar, R. (2003). *SPSS for Psychologists. A Guide to Data Analysis using SPSS for Windows.* New York: Pelgrave MacMillan.

Bradford, J. & Dimock, J. (1986). A comparative study of adolescents and adults who wilfully set fires. *Psychiatric Review of the University of Ottawa, 11*, 228-234.

Brooke, D. (1998). Patients with learning disability at Kneesworth House Hospital. *Psychiatric Bulletin, 22*, 29-32.

Brooke, D., Taylor, C., Gunn, J., & Maden, A. (1996). Point prevalence of mental disorder in un-convicted male prisoners in England and Wales. *British Medical Journal, 313*, 1524-1528.

Bromberg, W., & Thompson, C.B. (1937). The relation of psychosis, mental deficit and personality types to crime. *Journal of Criminal Law and Criminology, 28*, 70-89.

Brown, B.S., & Courtless, T. (1971). *The mentally retarded offender.* DHEW Pub. No. (HSM) 72-9039. Washington, DC: U.S. Government Printing Office.

Carey, S., Harrold, M., Mulrooney, M., & Murphy, M. (2000). *A survey of the level of learning disability among the prison population in Ireland.* Dublin, Irish Department of Justice, Equality and Law Reform: 1-24.

Cashin, A., Butler, T., Levy, M., & Potter, E. (2006). Intellectual disability in the New South Wales inmate population. *International Journal of Prisoner Health, 2*, 115-120.

Claix, A., & Pham, T.H. (2004). Evaluation of the HCR-20 violence risk assessment scheme in a Belgian forensic population. *L'Encephale, 30*, 447-453.

Clare, I.C.H., & Gudjonsson, G.H. (1993). Interrogative suggestibility, confabulation

and acquiescence in people with mild learning disabilities (mental handicap):

implications for reliability during police interrogations. *British Journal of*

Clinical Psychology, 32, 295-301.

Cleckley, H. (1976). *The mask of sanity* (5th ed). St Louis: Mosby.

Cockram, J. (2005). Careers of offenders with an intellectual disability: the probabilities

of re-arrest. *Journal of Intellectual Disability Research, 49*, 525-536.

Cockram, J., & Underwood, R. (2000). Offenders with an intellectual disability and the

arrest process. *Law in Context, 17*, 101-119.

Cocozza, J., & Steadman, H. (1976). The failure of psychiatric predictions of

dangerousness: Clear and convincing evidence. *Rutgers Law Review, 29*, 1084-

1101.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.

Coid, J.W. (1988). Mentally abnormal prisoners on remand: I - rejected or accepted by

the NHS. *British Medical Journal, 296*, 1779-1782.

Cooke, D.J. (1991). Treatment as an alternative to prosecution: Offenders diverted for

treatment. *British Journal of Psychiatry, 158*, 785-791.

Cooke, D.J., Michie, C., Hart, S.D., & Hare, R.D. (1999). Evaluating the screening

version of the Hare Psychopathy Checklist – Revised (PCL-SV): An item

response theory analysis. *Psychological Assessment, 11*, 3-13.

Corbett, J.A. (1979). Psychiatric morbidity and mental retardation. In: F. James & R.

Snaith (Eds.), *Psychiatric illness and mental handicap* (pp. 11-25). London:

Gaskell Press.

Crossland, S., Burns, M., Leach, C., & Quinn, P. (2005). Needs assessment in forensic learning disability. *Medicine, Science & the Law, 45,* 147-153.

Cullen, C. (1993). The treatment of people with learning disabilities who offend. In: K. Howells & C.R. Hollin (Eds.), *Clinical Approaches to the Mentally Disordered Offender* (pp. 145-164). Chichester: Wylie.

Crocker, A.G., Mercier, C., Allaire, J.F., & Roy, M.E. (2007). Profiles and correlates of aggressive behaviour among adults with intellectual disabilities. *Journal of Intellectual Disability Research, 51,* 786-801.

Dahle, K.P. (2006). Strengths and limitations of actuarial prediction of criminal re-offence in a German prison sample: A comparative study in LSI-R, HCR-20 and PCL-R. *International Journal of Law and Psychiatry, 29,* 431-442.

Dawes, R. M., Faust, D., & Meehl, P. E. (1989). Clinical versus actuarial judgment. *Science, 243,* 1668-1674.

Day, K. (1988). A hospital-based treatment programme for male mentally handicapped offenders. *British Journal of Psychiatry, 153,* 635-644.

Day, K. (1993). Crime and mental retardation: A review. In: K. Howells & C.R. Hollin (Eds.), *Clinical Approaches to the Mentally Disordered Offender* (pp. 111-144). Chichester: Wylie.

Day, K. (1994). Psychiatric services in mental retardation: Generic or specialised provision? In N. Bouras (Ed.), *Mental Health in Mental Retardation* (pp. 328-340), Cambridge: Cambridge University Press.

Denkowski, G.C., & Denkowski, K.M. (1985). The mentally retarded offender in the state prison system: Identification, prevalence, adjustment and rehabilitation. *Criminal Justice and Behavior, 12,* 55-70.

Dernevik, M., Grann, M., & Johansson, S. (2002). Violent behaviour in forensic psychiatric patients: Risk assessment and different risk-management levels using the HCR-20. *Psychology, Crime & Law, 8,* 93-111.

deVogel, V., & deRuitter, C. (2005). The HCR-20 in personality disordered female offenders: A comparison with a matched sample of males. *Clinical Psychology and Psychotherapy, 12,* 226-240.

deVogel, V., & deRuitter, C. (2006). Structured professional judgement of violence risk in forensic clinical practice: A prospective study in the predictive validity of the Dutch HCR-20. *Psychology, Crime & Law, 12,* 321-336.

Dolan, M., & Davies, G. (2006). Psychopathy and institutional outcome in patients with schizophrenia in forensic settings in the UK. *Schizophrenia Research, 81,* 277-281.

Dolan, M., & Doyle, M. (2000). Violence risk prediction. Clinical and actuarial measures and the role of the Psychopathy Checklist. *British Journal of Psychiatry, 117,* 303-311.

Dolan, M., & Khawaja, A. (2004). The HCR-20 and post-discharge outcome in male patients discharged from medium security in the UK. *Aggressive Behavior, 30,* 469-483.

Douglas, K.S. (1996). *Assessing the risk of violence in civil psychiatric outpatients: The predictive validity of the HCR-20 risk assessment scheme.* Unpublished Master's thesis, Simon Fraser University, Burnaby, British Columbia.

Douglas, K.S., Guy, L.S., & Weir, J. (2005). HCR-20 violence risk assessment scheme: Overview and annotated bibliography. [Online]. Retrieved from http://www.violence-risk.com

Douglas, K.S., Klassen, C., Ross, D., Hart, S.D., & Webster, C.D. (1998, August). *Psychometric properties of the HCR–20 violence risk assessment scheme in insanity acquittees.* Paper presented at the 106th Annual Convention of the American Psychological Association, San Francisco, CA.

Douglas, K.S., Ogloff, J.R.P., & Hart, S.D. (2003). Evaluation of a model of violence risk assessment among forensic psychiatric patients. *Psychiatric Services, 54,* 1372-1379.

Douglas, K.S., Ogloff, J.P., & Nicholls, T.L. (1997, August). *Assessing the risk for violence among released civil psychiatric patients: Comparison of the HCR-20 risk assessment scheme and the Psychopathy Checklist: Screening Version.* Paper presented at the 1997 Annual Convention for the American Psychological Association, Chicago.

Douglas, K.S., Ogloff, J.R.P., Nicholls, T.L., & Grant, I. (1999). Assessing risk for violence among psychiatric patients: The HCR-20 violence risk assessment scheme and the Psychopathy Checklist: Screening Version. *Journal of Consulting and Clinical Psychology, 67,* 917-930.

Douglas, K.S., & Webster, C.D. (1999). The HCR-20 violence risk assessment scheme: Concurrent validity in a sample of incarcerated offenders. *Criminal Justice and Behaviour, 26,* 3-19.

Douglas, K.S., Webster, C.D., Eaves, D., Wintrup, A., & Hart, S.D. (1996, March). *A new scheme for the assessment of dangerousness and the prediction of violence.* Paper presented at the biennal meeting of the American Psychology-Law Society, Hilton Head, SC.

Douglas, K.S., Webster, C.D., & Wintrup, A. (1996). *The HCR-20 risk assessment scheme: Psychometric properties in two samples.* Paper presented at the annual conference of the American Psychological Association, Toronto.

Douglas, K.S., Yeomans, M., & Boer, D.P. (2005). Comparative validity analysis of multiple measures of violence risk in a sample of criminal offenders. *Criminal Justice and Behavior, 32,* 479-510.

Dunbar, E., Quinones, J., & Crevecoeur, D.A. (2005). Assessment of hate crime offenders: The role of bias intent in examining violence risk. *Journal of Forensic Psychology Practice, 5,* 1-19.

Doyle, M., Dolan, M., & McGovern, J. (2002). The validity of the North American risk assessment tools in predicting in-patient violent behaviour in England. *Legal and Criminological Psychology, 7,* 141-154.

Edens, J.F., Skeem, J.L., & Douglas, K.S. (2006). Incremental validity analyses of the Violence Risk Appraisal Guide and the Psychopathy Checklist: Screening Version in a civil psychiatric sample. *Assessment, 13,* 368-374.

Egisdottir, S., White, M.J., Spengler, P.M., Maugherman, A.S., Anderson, L.A., Cook, R.S., et al. (2006). The meta-analysis of clinical judgement project: Fifty-six years of accumulated research on clinical versus statistical prediction. *The Counselling Psychologist, 34*, 341-382.

Elbogen, E.B. (2002). The process of violence risk assessment: A review of descriptive research. *Aggression and Violent Behaviour, 7*, 591-604.

Elliott, C.D., Murray, D.J., & Pearson, L.S. (1983). *British Ability Scales.* Windsor, Berks: NFER-Nelson.

Endrass, J., Rossegger, A., Frischknecht, A., Noll, T., & Urbaniok, F. (2008). Using the Violence Risk Appraisal Guide (VRAG) to predict in-prison aggressive behaviour in a Swiss offender population. *International Journal of Offender Therapy and Comparative Criminology, 52*, 81-89.

Enanyan, J., Grann, M., Lubbe, S., & Fazel, S. (2008). Psychiatric morbidity in arsonists referred for forensic psychiatric assessment in Sweden. *The Journal of Forensic Psychiatry & Psychology, 19*, 139-147.

Exworthy, T., & Parrott, J. (1993). Evaluation of a diversion from custody scheme at magistrates' courts. *Journal of Forensic Psychiatry, 4*, 497-505.

Farrington, D.P., Coid, J.W., Harnett, L., Joliffe, D., Soteriou, N., Turner, R., & West, D.J. (2006). *Criminal careers and life success: New findings from the Cambridge Study in delinquent development.* Home Office.

Field, A. (2000). *Discovering Statistics using SPSS for Windows.* London: Sage Publications.

Finn, M.A. (1992). Prison misconduct among mentally retarded inmates. *Criminal Behaviour and Mental Health, 2,* 287-299.

Freese, R., Muller-Isberner, R., & Jockel, D. (1996). Psychopathy and co-morbidity in a German hospital order population. In D. Cooke, A.E. Forth, J.P. Newman, R.D. Hare (Eds.), *International Perspectives on Psychopathy: Issues in Criminological and Legal Psychology* (pp. 45-46). Leicester: British Psychological Society.

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.

Fujii, D.E.M., Tokioka, A.B., Lichton, A.L., & Hishinuma, E. (2005). Ethnic differences in prediction of violence risk with the HCR-20 among psychiatric patients. *Psychiatric Services, 56,* 711-716.

Fuller, J., & Cowan, J. (1999). Risk assessment in a multi-disciplinary forensic setting: Clinical judgement revisited. *The Journal of Forensic Psychiatry, 10,* 276-289.

Gacono, C., Meloy, J., Speth, E., & Roske, A. (1997). A clinical investigation of malingering and psychopathy in hospitalized insanity acquittees. *Bulletin of the American Academy of Psychiatry and Law, 23,* 387-397.

Garb, H.N. (1994). Toward a second generation of statistical prediction rules in psychodiagnosis and personality assessment. *Computers in Human Behavior, 10,* 377-394.

Gardner, W., Lidz, C.W., Mulvey, E.P., & Shaw, E.C. (1996). Clinical versus actuarial

predictors of violence in patients with mental illness. *Journal of Consulting and*

Clinical Psychology, 64, 602-609.

Gendreau, P., Goggin, C., & Smith, P. (2002). Is the PCL-R really the 'unparalleled'

measure of offender risk? A lesson in knowledge cumulation. *Criminal Justice*

and Behavior, 29, 397-426.

Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult

offender recidivism. What works! *Criminology, 34,* 575-607.

Glaser, W., & Deane, K. (1999). Normalisation in an Abnormal World: A Study of

Prisoners with an Intellectual Disability. *International Journal of Offender*

Therapy and Comparative Criminology, 43, 338-356.

Glover, A.J.J., Nicholson, D.E., Henmati, T., Bernfield, G.A., & Quinsey, V.L. (2002).

A comparison of predictors of general and violent recidivism among high-risk

federal offenders. *Criminal Justice and Behavior, 29,* 235-249.

Goldberg, B., Gitta, M.Z., & Puddephatt, A. (1995). Personality and trait disturbances in

an adult mental retardation population: Significance for psychiatric management.

Journal of Intellectual Disability Research, 39, 284-294.

Goncalves, R.D. (1999). Psychopathy and offender types: Results from a Portuguese

prison sample. *International Journal of Law and Psychiatry, 22,* 337-346.

Grann, M., Belfrage, H., & Tengstrom, A. (2000). Actuarial assessment of risk for

violence. *Criminal Justice and Behavior, 27,* 97-114.

Grann, M., Langstrom, N., Tengstrom, A., & Kullgren, G. (2000). Psychopathy (PCL-R) predicts violent recidivism among criminal offenders with personality disorders in Sweden. *Law and Human Behavior, 25,* 205-217.

Gray, N.S., Fitzgerald, S., Taylor, J., & Snowden, R.J. (2007). Predicting future re-convictions in offenders with intellectual disabilities: The predictive efficacy of the VRAG, PCL-SV and the HCR-20. *Psychological Assessment, 19,* 474-479.

Gray, N.S., Hill, C., McGleish, A., Timmons, D., MacCulloch, M.J., & Snowden, R.J. (2003). Prediction of violence and self-harm in mentally disordered offenders: A prospective study of the efficacy of the HCR-20, PCL-R, and psychiatric symptomatology. *Journal of Consulting and Clinical Psychology, 71,* 443-451.

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., Taylor, J., & Snowden, R.J. Predicting violent re-convictions using the HCR-20. *British Journal of Psychiatry* (in press).

Gray, N.S., Taylor, J., & Snowden, R.J. Prediction of recidivism and violent recidivism in patients with a personality disorder. (submitted).

Green, G., Gray, N.S., & Wilner, P. (2002). Factors associated with criminal convictions for sexually inappropriate behaviour in men with learning disabilities. *The Journal of Forensic Psychiatry, 13,* 578-599.

Green, D.M., & Swets, J.A. (1996). *Signal detection theory and psychophysics.*

New York: Wiley.

Grevatt, M., Thomas-Peter, B., & Hughes, G. (2004). Violence, mental disorder and risk

assessment: Can structured clinical assessments predict the short-term risk of

inpatient violence? *The Journal of Forensic Psychology and Psychiatry, 15,* 278-

292.

Grove, W.M., Zald, D.H., Lebow, B.S., Snitz, B.E., & Nelson, C. (2000). Clinical versus

mechanical prediction: A meta-analysis. *Psychological Assessment, 12,* 19-30.

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.

Gunn, J., Maden, A., & Swinton, M. (1991). Treatment needs of prisoners with

psychiatric disorders. *British Medical Journal, 303,* 338-341.

Guy, L.S., Edens, J.F., Anthony, C., & Douglas, K.S. (2005). Does psychopathy predict

institutional misconduct among adults? A meta-analytic investigation. *Journal of*

Consulting and Clinical Psychology, 73, 1056-1064.

Halstead, S.M., Cahill, A., & Fernando, L. (1995). *Eric Shepherd Unit discharges: What*

happens to them? Paper presented at the Royal College of Psychiatrists Mental

Handicap Section Spring Conference.

Hanley, J.A., & McNeil, B.J. (1983). A method of comparing the areas under Receiver

Operating Characteristic curves derived from the same cases. *Radiology, 148,*

839-843.

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, Onatario, Canada:

Multi-Health Systems.

Hare, R.D. (2001). Psychopathy and risk for recidivism and violence. In N. Gray, J.

Laing, & L. Noaks (Eds.), *Criminal Justice, Mental Health and the politics of*

Risk (pp. 27-47). London: Cavendish.

Hare, R.D. (2003). *The Psychopathy Checklist-Revised 2nd Edition.* Toronto, Onatario,

Canada: Multi-Health Systems.

Hare, R.D. (2006). Psychopathy: A clinical and forensic overview. *Psychiatric Clinics*

of North America, 29, 709-724.

Hare, R.D., Clarke, D., Grann, M., & Thornton, D. (2000). Psychopathy and the

predictive validity of the PCL-R: An international perspective. *Behavioural*

Science and the Law, 18, 623-645.

Harris, G.T. & Rice, M.E. (2003). Actuarial assessment of risk among sex offenders. In

R. A. Prentky, E. S. Janus, & M. C. Seto (Eds.), *Understanding and managing*

sexually coercive behavior, Vol. 989 (pp. 198-210). New York: Annals of the

New York Academy of Sciences.

Harris, G.T., & Rice, M.E. (1997). Risk appraisal and management of violent behavior.

Psychiatric Services, 48, 1168-1176.

Harris, G.T., Rice, M.E., & Camilleri, J.A. (2004). Applying a forensic actuarial

assessment (the Violence Risk Appraisal Guide) to non-forensic patients. *Journal*

of Interpersonal Violence, 19, 1063-1074.

Harris, G.T., Rice, M.E., & Cormier, C.A. (1991). Psychopathy and violent recidivism. *Law and Human Behavior, 15,* 625-637.

Harris, G.T., Rice, M.E., & Cormier, C.A. (2002). Prospective replication of the Violence Risk Appraisal Guide in predicting violent recidivism among forensic patients. *Law and Human Behavior, 26,* 377-394.

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.

Harris, G.T., Rice, M.E., & Quinsey V.L. (1994). Psychopathy as a taxon: Evidence that psychopaths are a discreet class. *Journal of Consulting and Clinical Psychology, 62,* 387-397.

Harris, G.T., Rice, M.E., Quinsey, V.L., Lalumiere, M.L., Boer, D., & Lang, C. (2003). A multi-site comparison of actuarial risk assessment instruments for sex offenders. *Psychological Assessment, 15,* 413-425.

Hart, S.D. (1998). Psychopathy and risk for violence. In D.J. Cooke (Eds.), *Psychopathy: Theory, Research and Implications for Society* (pp. 355-373). Netherlands, Kluwer Academic Publishers.

Hart, S.D., & Hare, R.D. (1989). Discriminant validity of the Psychopathy-Checklist in a forensic psychiatric population. *Psychological Assessment, 1,* 211-218.

Hart, S.D., Cox, D.N., & Hare, R.D. (1995). *The Psychopathy Checklist- Screening Version (PCL-SV).* Toronto, Ontario, Canada: Multi-Health Systems.

Hawk, G., Rosenfield, B., & Warren, J. (1993). Prevalence of sexual offences among

mentally retarded criminal defendants. *Hospital and Community Psychiatry, 44,*

784-786.

Hayes, S. (1991). Sex offenders. *Australia and New Zealand Journal of Developmental*

Disabilities, 17, 220-7.

Hayes, S. (1993). Recent research on offenders with learning disabilities. *Tizard*

Learning Disability Review, 1, 7-15

Hayes, S. (1996a). *People with an intellectual disability and the criminal justice system:*

Two rural courts. Research Report, 5, NSW, Law Reform Commission, Sydney.

Hayes, S. (1996b). Alcohol, criminal behaviour and mental abnormality. An overview.

Alcoholism, 32, 97-106.

Hayes, S., Shackell, P., Mottram, P., & Lancaster, R. (2007). The prevalence of

intellectual disability in a major UK prison. *British Journal of Learning*

Disabilities, 35, 162-167.

Heilbrun, K., Hart, S.D., Hare, R.D., Gustafson, D., Nunez, C., & White, A.J. (1998).

Inpatient and post-discharge aggression in mentally disordered offenders: The

role of psychopathy. *Journal of Interpersonal Violence, 13,* 514-528.

Hemphill, J.F., & Hare, R.D. (1998). Psychopathy Checklist factor scores and

recidivism. *Issues in Criminological and Legal Psychology, 24,* 68-73.

Hemphill, J.F., & Hare, R.D. (2004). Some misconceptions about the Hare PCL-R and

risk assessment: A reply to Gendreau, Goggin and Smith. *Criminal Justice and*

Behavior, 31, 203-243.

Hemphill, J. F., Newman, J. P., & Hare, R.D. (2001, April). *Psychopathy and recidivism among Black and White adult male offenders.* Vancouver, Canada: International Association of Forensic Mental Health Services.

Hildebrand, M., de Ruitter, C., & Nijman, H. (2004). PCL-R psychopathy predicts disruptive behaviour among male offenders in a Dutch forensic psychiatric hospital. *Journal of Interpersonal Violence, 19,* 13-29.

Hill, C.D., Rogers, R., & Bickford, M.E. (1996). Predicting aggressive and socially disruptive behaviour in a maximum security forensic psychiatric hospital. *Journal of Forensic Sciences, 41,* 56-59.

Hilton, N.Z., Harris, G.T., & Rice, M.E. (2006). Sixty-six years of research on the clinical versus actuarial prediction of violence. *The Counselling Psychologist, 34,* 400-409.

Ho, T. (1996). Assessment of retardation among mentally retarded criminal offenders: An examination of racial disparity. *Journal of Criminal Justice, 24,* 337-350.

Hodgins, S. (1992). Mental disorder, intellectual deficiency and crime: Evidence from a birth cohort. *Archives of General Psychiatry, 49,* 476-483.

Hodgins, S., Mednick, S.A., Brennan, P.A., Shulsinger, F., & Engberg, M. (1996). Mental disorder and crime. *Archives of General Psychiatry, 53,* 489-496.

Hogue, T., Steptoe, E., Taylor, T.L., Lindsay, W.R., Mooney, P., Pinkney, L., et al. (2006). A comparison of offenders with intellectual disability across three levels of security. *Criminal Behaviour and Mental Health, 16,* 13-28.

Holland, A.J. (2004). Criminal behaviour and developmental disability: An

epidemiological perspective. In W.R. Lindsay, J.L. Taylor, & P. Sturmey (Eds.),

Offenders with Developmental Disabilities (pp. 23-34). Chichester: Wiley

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.

Holland, T.R., Holt, N., Levi, M., & Beckett, G.E. (1983). Comparison and combination

of clinical and statistical predictions of recidivism among adult offenders.

Journal of Applied Psychology, 68, 203-211.

Holloway, J., & Shaw, J. (1992). Providing a forensic psychiatry service to a

magistrates' court. *Journal of Forensic Psychiatry, 3,* 153-159.

Holt, R.R. (1970). Yet another look at clinical and statistical prediction: or, is clinical

psychology worthwhile? *American Psychologist, 25,* 337-349.

Home Office Offenders Index. (2000). [Data file]. London: Home Office:

Research, Development, Statistics.

Huchzermeier, C., Bruss, E., Geiger, F., Godt, N., von Nettelbladt, F., & Aldenhoff, J.

(2006). Psychopathy checklist score predicts negative events during the sentences

of prisoners with Hare psychopathy: A prospective study at a German prison.

Canadian Journal of Psychiatry, 51, 692-697.

Huss, M.T., & Zeiss, R.A. (2004). Clinical assessment of violence from inpatient

    records: A comparison of individual and 'group' decision making across risk

    communication strategies. *International Journal of Forensic Mental Health*

    Services, 3, 37-45.

Irving, B. (1980). *Police interrogation. A case study of current practice.* Royal

    Commission on Criminal Procedure Research Study No. 2, HMSO, London.

Irving, B., & McKenzie, I.K. (1989). *Police interrogation: The effects of the Police and*

    Criminal Evidence At 1984. The police foundation of Great Britain, London.

James, A. (1996). *Life on the edge: Diversion and the mentally disordered offender.*

    London: Mental Health Federation.

Johnston, S. (2002). Risk assessment in offenders with intellectual disability: The

    evidence base. *Journal of Intellectual Disability Research, 46,* 47-56.

Jones, G.P., & Coombes, K. (1990). *The prevalence of intellectual deficit among the*

    Western Australian prisoner population. Perth, Australia: Department for

    Corrective Services.

Joseph, P.L.A., & Potter, M. (1993). Diversion from Custody. I: Psychiatric Assessment

    at the Magistrates' Court. *British Journal of Psychiatry, 162,* 325-330.

Kaufman, A. S., & Kaufman, N. L. (1990). Kaufman Brief Intelligence Test. Circle

    Pines, MN: American Guidance Service.

Kearns, A., & O'Connor, A. (1988). The mentally handicapped criminal offender. A 10

    year study of two hospitals. *British Journal of Psychiatry, 152,* 848-851.

Khan, A., Cowan, C., & Roy, A. (1997). Personality disorders in people with learning

disabilities: a community survey. *Journal of Intellectual Disability Research, 41,*

324-330.

Kiely, J., & Pankhurst, H. (1998). Violence faced by staff in a learning disability service.

Disability and Rehabilitation, 20, 81-89.

Kiernan, C., Dixon, C., & Smith, J. (1995). *People with learning disabilities who have*

offended or are at risk of offending. University of Manchester, Hester Adrian

Research Centre, Manchester.

Kilmecki, M.R., Jenkinson, J., & Wilson, L. (1994). A study of recidivism among

offenders with an intellectual disability. *Australia and New Zealand Journal of*

Developmental Disabilities, 19, 209-219.

Klassen, C. (1996). *Predicting aggression in psychiatric inpatients using ten historical*

risk factors: Validating the "H" of the HCR-20. Unpublished bachelor's

(honours) thesis, Department of Psychology, Simon Fraser University, Burnaby,

British Columbia, Canada.

Kosson, D. S., Steuerwald, B. L., Forth, A. E., & Kirkhart, K. S. (1997). A new method

for assessing the interpersonal behavior of psychopathic individuals: Preliminary

validation studies. *Psychological Assessment, 9,* 89-101.

Kozol, H., Boucher, R., & Garafolo, R. (1972). The diagnosis and treatment of

dangerousness. *Crime and Delinquency, 18,* 371-392.

Kroner, D.G., & Mills, J.F. (2001). The accuracy of five risk appraisal instruments in

predicting institutional misconduct and new convictions. *Criminal Justice and*

Behavior, 28, 471-489.

Kroner, C., Stadtland, C., Eidt, M., & Nedopil, N. (2007). The validity of the Violence Risk Appraisal Guide (VRAG) in predicting criminal recidivism. *Criminal Behaviour and Mental Health, 17,* 89-100.

Kunjukrishnan, R. (1979). 10 year survey of pretrial examinations in Saskatchewan. *Canadian Journal of Psychiatry, 24,* 683-689.

Leong, G.B., & Silva, J.A. (1999). Revisiting arson from an outpatient forensic perspective. *Journal of Forensic Sciences, 44,* 558-563.

Leistico, A.M., Salekin, R.T., DeCoster, J., & Rogers, R. (2008). A large scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior, 32,* 28-45.

Lidz, C.W., Mulvey, E.P., & Gardner, W. (1993). The accuracy of predictions of violence to others. *Journal of the American Medical Association, 269,* 1007-1011.

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., Taylor, J.L., Mooney, P., Steptoe, L., Johnston, S., O'Brien, G., & Smith, A.H.W. (2006). Two studies on the prevalence and validity of personality disorder in three forensic intellectual disability samples. *Journal of Forensic Psychiatry & Psychology, 17,* 485-506.

Lindsay, W.R., Murphy, L., Smith, G., Murphy, D., Edwards, Z., Grieve, A., et al. (2004). The dynamic risk assessment and management system: An assessment of immediate risk of violence for individuals with offending and challenging behaviour. *Journal of Applied Research in Intellectual Disabilities, 17,* 267-274.

Lindsay, W.R., Smith, A.H.W., Law, J., Quinn, K., Anderson, A., Smith, A., Allan, R. (2004). Sexual and non-sexual offenders with intellectual and learning disabilities. *Journal of Interpersonal Violence, 19,* 875-890.

Lindsay, W.R., Smith, A.H.W., Quinn, K., Anderson, A., Smith, A., Allan, R., & Law, J. (2004). Women with intellectual disabilities who have offended: characteristics and outcome. *Journal of Intellectual Disability Research, 48,* 580-590.

Lindsay, W.R., Steele, L., Smith, A.H.W., Quinn, K., & Allan, R. (2006). A community forensic intellectual disability service: Twelve year follow up referrals, analysis of referral patterns and assessment of harm reduction. *Legal and Criminological Psychology, 11,* 113-130.

Lindsay, W.R., & Taylor, J.L. (2005). A selective review of research on offenders with developmental disabilities: Assessment and treatment. *Clinical Psychology and Psychotherapy, 12,* 201-214.

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.

Linhorst, D.M., McCutchen, T.A., & Bennett, L. (2003). Recidivism among offenders with developmental disabilities participating in a case management program. *Research in developmental disabilities, 24,* 210-230.

McNeil, D.E., Gregory, A.L., Lam, J.N., Binder, R.L., & Sullivan, G.R. (1995). Utility

of decision support tools for assessing acute risk of violence. *Journal of*

Consulting and Clinical Psychology, 71, 945-953.

McNulty, C., Kissi-Deborah, R., & Newsom-Davies, I. (1995). Police involvement with

clients having intellectual disabilities: A pilot study in south London. *Mental*

Handicap Research, 8, 129-136.

Meehl, P.E. (1954). *Clinical vs. statistical prediction: A theoretical analysis and a*

review of the evidence. Minneapolis: University of Minnesota Press.

Messinger, E., & Apfelburg, G.B. (1961). A quarter century of court psychiatry. *Crime*

and Delinquency, 7, 343-362.

Mills, J.F., Jones, M.N., & Kroner, D.G. (2005). An examination of the generalisability

of the LSI-R and VRAG probability bins. *Criminal Justice and Behavior, 32*,

565-585.

Molto, J., Poy, R., & Torrubia, R. (2000). Standardization of the Hare Psychopathy

Checklist-Revised in a Spanish prison sample. *Journal of Personality Disorder,*

14, 84-96.

Monahan, J. (1981). *The clinical prediction of violent behaviour.* Washington DC:U.S.

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.

Monahan, J., Steadman, H.J., Silver, E., Appelbaum, P.S., Robbins, P.C., Mulvey, E.P., et al. (2001). *Rethinking risk assessment: The MacArthur study of mental disorder and violence*. USA: Oxford University Press.

Morrissey, C. (2003). *Guidelines for use of the PCL-R in offenders with intellectual disabilities*. Unpublished manuscript.

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., Lindsay, W.R., Taylor, J.L. (2007a). Predictive validity of the PCL-R in offenders with intellectual disability in a high secure hospital setting: Institutional aggression. *The Journal of Forensic Psychiatry and Psychology, 18*, 1-15.

Morrissey, C., Mooney, P., Hogue, T., Lindsay, W.R., & Taylor, J.L. (2007b). Predictive validity of the PCL-R in offenders with intellectual disability in a high security hospital: Treatment progress. *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.

Muller-Isberner, R., Sommer, J., Ozokyay, K., & Freese, R. (1999). Clinical use of the HCR-20 for predicting violence in a German forensic psychiatric hospital. Paper presented at the international conference on risk assessment and management: Implications for prevention of violence, Vancouver, BC, Canada.

Mulvey, E.P., & Lidz, C.W. (1998). Clinical prediction of violence as a conditional

judgement. *Social Psychiatry and Psychiatric Epidemiology, 33,* S107-S113.

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.

Murphy, G., & Mason, J. (1999). People with developmental disabilities who offend. In:

N. Bouras (Ed.), *Psychiatric and Behavioural Disorders in Developmental*

Disabilities and Mental Retardation (pp. 226-245). Cambridge, Cambridge

University Press.

Murrey, G.J., Briggs, D., & Davis, C. (1992). Psychopathic disordered, mentally ill, and

mentally handicapped sex offenders: A comparative study. *Medicine, Science*

and the Law, 32, 331-336.

Nestor, P.G. (2002). Mental disorder and violence: Personality dimensions and clinical

features. *American Journal of Psychiatry, 159,* 1973-1978.

Nicholls, T.L., Ogloff, J.R.P., & Douglas, K.S. (2004). Assessing risk for violence

among male and female civil psychiatric patients: The HCR-20, PCL:SV, and

VSC. *Behavioral Sciences and the Law, 22,* 127-158.

Nicholls, T.L., Vincent, G.M., Whittemore, K.E., & Ogloff, J.R.P. (1999). Assessing risk

of inpatient violence in a sample of forensic psychiatric patients: Comparing the

PCL-SV, HCR-20 and VRAG. Paper presented at the Conference on risk

assessment and risk management: Implications for the prevention of violence,

Vancouver, Canada.

Noble, J.H., & Conley, R.W. (1992). Toward an epidemiology of relevant attributes. In R.W. Conley, R. Luckasson & G.N. Bouthilet (Eds.), *The Criminal Justice System and Mental Retardation* (pp. 17-54), Baltimore, Paul. H. Brookes.

Odeh, M.S., Zeiss, R.A., & Huss, M.T. (2006). Cues they use: Clinicians' endorsement of risk cues in predictions of dangerousness. *Behavioral Sciences and the Law, 24*, 147-156.

Otto, R.K. (1992). Prediction of dangerousness behaviour: A review and analysis of 'second generation' research. *Forensic Reports, 5*, 103-133.

Pham, T.H., Ducro, C., Marghem, B., & Reveillere, C. (2005). Prediction of recidivism among prison inmates and forensic patients in Belgium. *Annales Medico Psychologiques, 163*, 842-845.

Pham, T., Remy, S., Dailliet, A., & Lienard, L. (1998). Psychopathy and assessment of violent behaviors in security hospital. *Encephale-Revue De Psychiatrie Clinique biologique et Therapeutique, 24*, 173-179.

Phillips, H.K., Gray, N.S., MacCulloch, S. I., Taylor, J., Moore, S., Huckle, P., MacCulloch, M.J. (2005). Risk assessment in offenders with mental disorders. *Journal of Interpersonal Violence, 20*, 833-847.

Prins, H. (1980). *Offenders, deviants or patients? An introduction to the study of socio-forensic problems.* London: Tavistock publications.

Prout, H.T., & Stromher, D.C. (1991). *The Emotional Problems Scales.* Odessa, FL: Psychological Assessment Resources.

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. (2004). Risk assessment and management in community settings. In W.R.

Lindsay, J. L. Taylor, and P. Sturmey (Eds.), *Offenders with Developmental*

Disabilities (pp. 131-141). Chichester: Wiley.

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.

Quinsey, V.L., Coleman, G., Jones, B., & Altrows, I.F. (1997). Proximal Antecedents of

Eloping and Reoffending Among Supervised Mentally Disordered Offenders.

Journal of Interpersonal Violence, 12, 794-813.

Quinsey, V.L., Harris, G.T., Rice, M.E., & Cormier, C. (2006). *Violent Offenders:*

Appraising and Managing Risk, Second Edition. Washington, DC: American

Psychological Association.

Quinsey, V.L., Harris, G.T., Rice, M.E., & Cormier, C. (1998). *Violent Offenders:*

Appraising and Managing Risk. Washington, DC: American Psychological

Association.

Rasanen, P., Hakko, H., & Vaisanen, E. (1995). The mental state of arsonists as

determined by forensic psychiatric examinations. *Bulletin of the American*

Academy of Psychiatry and Law, 23, 547-553.

Raven, J., Court, J.H., & Raven, J. (1990). *Manual for Raven's progressive matrices and vocabulary scales. Research supplement no. 3: American and international norms* (2nd ed.), Oxford, Oxford Psychologists Press.

Reid, A.H., Lindsay, W.R., Law, J., & Sturmey, P. (2004). The relationship of offending behaviour and personality disorder in people with developmental disabilities. In W.R. Lindsay, J.L. Taylor, & P. Sturmey (Eds.), *Offenders with Developmental Disabilities* (pp. 289-303). Chichester: Wiley

Reiss, D., Grubin, D., & Meux, C. (1999). Institutional performance of male 'psychopaths' in a high security hospital. *The Journal of Forensic Psychiatry, 10,* 290-299.

Reiss, D., Meux, C., & Grubin, D. (2000). The effect of psychopathy on outcome in high security patients. *Journal of the American Academy of Psychiatry and the Law, 28,* 309-314.

Rice, M.E., & Harris, G.T. (1994). The actuarial prediction of violent recidivism among sex offenders. Paper presented at the Conference on the Assessment and Management of Risk in the Sex Offender, Clarke Institute of Psychiatry, Toronto, Ontario, Canada.

Rice, M.E., & Harris, G.T. (1995). Violent recidivism: Assessing predictive validity. *Journal of Consulting and Clinical Psychology, 63,* 737-748.

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.

Richards, H.J., Casey, J.O., & Lucerte, S.W. (2003). Psychopathy and treatment

    response in incarcerated female substance abusers. *Criminal Justice and*

    Behavior, 30, 251-276.

Robertson, G. (1981). The extent and pattern of crime amongst mentally handicapped

    offenders. *Apex: Journal of the British Institute of Mental Handicap, 9,* 100-103.

Robertson, G., Dell, S., James, K., & Grounds, A. (1994). Psychotic men remanded in

    custody to Brixton prison. *British Journal of Psychiatry, 164,* 55-61.

Rosenthal, R. (1991). *Meta-Analytic Procedures for Social Research. Revised Edition.*

    London: Sage Publications.

Ross, D.J., Hart, S.D., & Webster, C.D. (1998). *Aggression in psychiatric patients:*

    Using the HCR-20 to assess risk for violence in hospital and in the community.

    Unpublished manuscript.

Rowlands, R., Inch, H., Rodger, W., & Soliman, A. (1996). Diverted to where? What

    happens to the diverted mentally disordered offender? *The Journal of Forensic*

    Psychiatry, 7, 284-296.

Salekin, R., Rogers, R., & Sewell, K. (1996). A review and meta-analysis of the

    Psychopathy Checklist and Psychopathy Checklist-Revised: Predictive validity of

    dangerousness. Clinical Psychology: *Science and Practice, 3,* 203-215.

Sansom, D., & Cumella, S. (1995). One hundred admission to a regional secure unit for

    people with a learning disability. *The Journal of Forensic Psychiatry, 6,* 267-276.

Seaward, S., & Rees, C. (2001). Responding to people with a learning disability who

    offend. *Nursing Standard, 15,* 36-39.

Siegel, S., & Castellan, N.J. (1988). *Non-parametric statistics for the behavioural sciences, 2nd Edition.* New York: McGraw-Hill.

Silver, E., Mulvey, E.P., & Monahan, J. (1999). Assessing Violence Risk Among Discharged Psychiatric Patients: Toward an Ecological Approach. *Law and Human Behavior, 23,* 237-255.

Simpson, M. K., & Hogg, J. (2001). Patterns of offending among people with intellectual disability: A systematic review. Part II: predisposing factors. *Journal of Intellectual Disability Research, 45,* 397-406.

Sines, J.O. (1971). Actuarial versus clinical presentation in psychopathology. *British Journal of Psychiatry, 116,* 129-144.

Singleton, N., Meltzer, H., Gatward, R., Coid, J., & Deasy, D. (1998). Psychiatric morbidity among prisoners in England and Wales: A survey carried out in 1997 by the Social Survey Division of ONS on behalf of the Department of Health. London, Her majesty's Stationary Office.

Skeem, J.L., & Mulvey, E.P. (2001). Psychopathy and community violence among civil psychiatric patients: Results from the MacArthur Violence Risk Assessment Study. *Journal of Consulting and Clinical Psychology, 69,* 358-374.

Skirrow, P., & Hatton, C. (2007). 'Burnout' amongst direct care workers in services for adults with intellectual disabilities: A systematic review of research findings and initial normative data. *Journal of Applied Research in Intellectual Disabilities, 20,* 131-144.

Slovic, P. & Monahan, J. (1995). Probability, danger and coercion. *Law and Human Behavior, 19,* 49-65.

Slovic, P., Monahan, J., & McGregor, D.G. (2000). Violence risk assessment and risk communication: The effects of using actual cases, providing information, and employing probability versus frequency formats. *Law and Human Behavior, 24,* 271-296.

Snowden, R. J., Gray, N. S., Taylor, J., & MacCulloch, M. J. (2007). Actuarial prediction of violent recidivism in mentally disordered offenders. *Psychological Medicine,* in press.

Sparrow, S., Balla, D., & Cicchetti, D. (1984). *Vineland Adaptive Behaviour Scales Interview Edition Survey Form manual.* Circle Pines, MN, American Guidance Service.

Steadman, H., & Cocozza, J. (1974). *Careers of the criminally insane.* Lexington, Mass: Lexington Books.

Steadman, H., & Keveles, C. (1972). The community adjustment and criminal activity of the Baxstrom patients: 1966-1970. *American Journal of Psychiatry, 135,* 1218-1220.

Steadman, H.J., Silver, E., Monahan, J., Appelbaum, P.S., Robbins, P.M., Mulvey, E.P., et al. (2000). A classification tree approach to the development of actuarial violence risk assessment tools. *Law and Human Behavior, 24,* 83-100.

Steptoe, L.R., Lindsay, W.R., Murphy, L., & Young, S.J. (2008). Construct validity, reliability and predictive validity of the dynamic risk assessment and management system (DRAMS) in offenders with intellectual disability. *Legal and Criminological Psychology, 13,* 309-321.

Strand, S., & Belfrage, H. (2001). Comparison of HCR-20 scores in violent mentally
disordered men and women: Gender difference and similarities. *Psychology,
Crime and Law, 7,* 71-79.

Strand, S., Belfrage, H., Fransson, G., & Levander, S. (1999). Clinical and risk
management factors in risk prediction of mentally disordered offenders – more
important than historical factors. *Legal and Criminological Psychology, 4,* 67-76.

Shrout, P.E., & Fleiss, J.L. (1979). Intraclass correlations: Uses in assessing rater
reliability. *Psychological Bulletin, 86,* 420-428.

Su, K.P., Yu, J.M., Yang, T.W., Tsai, S.Y., & Chen, C.C. (2000). Characteristics of
mentally retarded criminal offenders in Northern Taiwan. *Journal of Forensic
Sciences, 45,* 1207-1209.

Taylor, P. J., & Gunn, J. (1984). Violence and psychosis. 1. Risk of violence among
psychotic men. *British Medical Journal, 288,* 1945-1949.

Tengstrom, A. (2001). Long-term predictive validity of historical factors in two risk
assessment instruments in a group of violent offenders with schizophrenia.
Nordic Journal of Psychiatry, 55, 213-249.

Thomas, D.H., & Singh, T.H. (1995). Offenders referred to a learning disability service:
A retrospective study from one county. *Mental Handicap, 23,* 24-27.

Thomson, D. (1997). Men with intellectual disabilities who sexually abuse: A review of
the literature. *Journal of Applied Research in Intellectual Disabilities, 10,* 140-
158.

Thornberry, T., & Jacoby, J. (1979). *The criminally insane. A community follow up of
mentally ill offenders.* Chicago: University of Chicago Press.

Torr, J. (2008). Personality disorder and offending in people with learning disabilities. *Advances in Mental Health and Learning Disabilities, 2,* 4-10.

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.

Urbaniok, F., Endrass, J., Rossegger, A., & Noll, T. (2007). Violent and sexual offences: A validation of the predictive quality of the PCL-SV in Switzerland. *Journal of Law and Psychiatry, 30,* 147-152.

Urbaniok, F., Noll, T., Grunewald, S., Steinbach, J., & Endrass, J. (2006). Prediction of violent and sexual offences: A replication study of the VRAG in Switzerland. *The Journal of Forensic Psychiatry and Psychology, 17,* 23-31.

Walker, N., & McCabe, S. (1973). *Crime and insanity in England, Vol. 2.* Edinburgh: Edinburgh University Press.

Walters, G.D. (2003). Predicting institutional adjustment and recidivism with the psychopathy checklist factor scores: A meta-analysis. *Law and Human Behavior, 27,* 541-558.

Warren, J.L., South, S.C., Burnette, M.L., Rogers, A., Friend, R., Bale, R., & Van Patten, I. (2005). Understanding the risk factors for violence and criminality in women: The concurrent validity of the PCL-R and HCR-20. *International Journal of Law and Psychiatry, 28,* 269-289.

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.

Wechsler, D. (1981). The manual for the *Wechsler Adult Intelligence Scale-Revised*.

New York: The Psychological Corporation.

Wechsler, D. (1997). The manual for the *Wechsler Adult Intelligence Scale-Third*

Edition. San Antonio, TX: The Psychological Corporation.

West, D.J., & Farrington, D.P. (1973). *Who becomes delinquent?* London: Heineman

Wiggins, J.S. (1981). Clinical and statistical prediction: Where are we and where do we

go from here? *Clinical Psychology Review, 1,* 3-18.

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.

The British Journal of Developmental Disabilities, 44, 119-131.

World Health Organisation. (1992). ICD-10 Classification of Mental and Behavioural

Disorders. Clinical conditions and Diagnostic Guidelines. Geneva: WHO

Appendix A: Items of the VRAG

Violence Risk Appraisal Guide Scoring Sheet

Name:

Gender:
DoB: (Age:)

Index offence:
GBH/affray

Date of Index Offence: (Age:)

Assessor:
Date of Assessment
List Sources of information: (e.g. medical records etc.)

TOTAL SCORE   =
Items missing   =   (more than 4 invalidates VRAG)
VRAG category   =

Probability of Reconviction (7 years) =

Notes and recommendations:

Score	Category	7 year prob	10 year prob
≤ -21	1	0	8
-21 to -15	2	8	10
-14 to -8	3	12	24
-7 to -1	4	17	31
0 to +6	5	35	48
+7 to +13	6	44	58
+14 to +20	7	55	64
+21 to +27	8	76	82
≥ 27	9	100	100

ITEMS

1. Lived with both biological parents to age 16.
(except for separation caused by death, or for positive reasons (e.g. summer schools, boarding school etc.))

Yes = -2
No = +3

2. Elementary school maladjustment score
(up to and including age 14)

No problem = -1
Minor Discipline/attendance = +2
Frequent disruptive behaviour/expulsion serious suspension = + 5

3. History of Alcohol problems
Parental Alcoholism □   *Teenage Alcohol Problem* □   *Adult alcohol problem* □
Alcohol involved in index offence □   *Alcohol involved in a prior offence* □

0 = -1
1 or 2 = 0
3 = +1
≥4 = +2

4. Marital status
(up to time of index offence; count common law > 6 months; only opposite sex relationships count)

Ever married = -2
Never married = +1

5. Total Cormier-Lang score for Non-violent Offences
(Criminal charges prior to index offence for non-violent offences)

See below.
0 = -2
1 or 2 = 0
≥3 = +3

6. Failure of conditional release.
(charges, parole revocation, probation breach, failure to comply, bail & failure to attend.)

No = 0
Yes = +3

7. Age at Index Offence

≥39= -5

34-38 = -2
28-33 = -1
27 = 0
≤26 = +2

8. Victim injury (FOR INDEX OFFENCE)
(most serious for index offence)

Death = -2
Hospitalised = 0
Treated/released = +1
None of slight = +2

9. Any female victim (FOR INDEX OFFENCE)

Yes = -1
No = +1

10. Personality Disorder
(meets DSM-III criteria)

Yes = +3
No = -2

11. Schizophrenia
(meets DSM-III criteria)

Yes = -3
No = +1

12. Psychopathy
(defined by PCL-R; if PCL-SV scores multiple by 1.66 to get PCL-R score)

0-4 = -5
5-9 = -3
10-14 = -1
15-24 = 0
25-34 = + 4
35-40 = +12

Cormier-Lang Criminal History Scores For Non-Violent Offences

Offence • **Do not include the index offence**	Score	Number of occurrences	Total
Robbery (bank, shop)	7		
Robbery (purse snatching)	3		
Arson, fire starting (buildings)	5		
Arson, fire starting (skips, bins)	1		
Threatening with a weapon	3		
Threatening (uttering threats)	2		
Theft over* include TWOC (Include possession stolen goods)	5		
Mischief to public/ private property over* (also criminal damage over £700)	5		
Burglary/ break and enter	2		
Theft under* (include possession stolen goods and shoplifting)	1		
Mischief to public/ private property under* (also public mischief criminal damage) *Equivalent to larceny v. grand larceny in the U.S. The 1997 critical value of $1000 has been converted to sterling for the purposes of this report i.e. £700 apprx	1		
Breaking and entering with intent	1		
Fraud (extortion/ embezzlement)	5		
Fraud (forged cheque/ impersonation/ obtaining property by deception)	1		
Possession of a weapon	1		
Procuring or living on proceeds of prostitution	1		
Trafficking drugs	1		
Dangerous or drunken driving (including driving while disqualified)	1		
Obstructing policemen/ resisting arrest	1		
Causing a disturbance	1		
Wearing a disguise/ carrying tools with intent to commit a crime	1		
Indecent exposure	2		
Total Criminal History Score			

Appendix B: Items of the PCL-SV

Table B1: *Items of the Psychopathy Checklist-Screening Version*

Item number	Item title
	Part 1 items
1	Superficial
2	Grandiose
3	Deceitful
4	Lacks remorse
5	Lacks empathy
6	Doesn't accept responsibility
	Part 2 items
7	Impulsive
8	Poor behaviour controls
9	Lacks goals
10	Irresponsible
11	Adolescent anti-social behaviour
12	Adult anti-social behaviour

Note. Number of omitted items must be < 2, 1 from each part to pro rate a Total PCL-SV score

Appendix C: Items of the HCR-20

Table C1: *Items of the HCR-20*

Item number	Item title
	History subscale
1	Previous violence
2	Young age at first violent incident
3	Relationship instability
4	Employment problems
5	Substance use problems
6	Major mental illness
7	Psychopathy
8	Early maladjustment
9	Personality disorder
10	Prior supervision failure
	Clinical subscale
11	Lack of insight
12	Negative attitudes
13	Active symptoms of major mental illness
14	Impulsivity
15	Unresponsive to treatment
	Risk-Management subscale
16	Plans lack feasibility
17	Exposure to destabiliser
18	Lack of personal support
19	Non-compliance with remediation attempts
20	Stress

Note. Number of omitted items must be less than 5. Valid history subscale scores must have no more than 2 omitted items, valid clinical subscale and risk-management subscale scores no more than 1 omitted item.

Appendix D: Definitions of the Mental Health Act (1983) sections

Table D1: *Definitions of the Mental Health Act (1983)*

Section	Definition
Section 3	Application for treatment.
Section 35	Remand to hospital for report on accused's mental condition.
Section 37	Powers of courts to order hospital admission or guardianship.
Section 38	Interim hospital orders.
Section 41	Power of higher courts to restrict discharge from hospital.
Section 47	Removal to hospital of persons serving sentences of imprisonment, etc.
Section 48	Removal to hospital of other prisoners.
Section 49	Restriction on discharge of prisoners removed to hospital.

Note. These are only the sections relevant to the sample in the institutional aggression study, not all possible mental health sections.

Appendix E: History of offending for the LD group and the control group in institutional aggression study.

I have noted convictions and any additional offences separately. An offence is an arrest or a caution or a case taken into consideration or if there is unequivocal evidence of an offence but the individual did not receive any police action. All offences listed prior to completion of the risk assessment have been scored as previous offences. If the individual has more than one index offence in the group analyses in section 4.3 in that analysis the most serious offence was categorised as the index offence and the other offences as previous, in this table all of the index offences are noted as index offences.

Table E1: *Criminal history, including index offence, previous convictions and previous offences for those in analyses in institutional aggression study.*

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		LD group (*n* = 25)	
3	Robbery and wounding with intent	3 acquisitive, 1 other	1 acquisitive
4	Attempted rape/abduction of female under 16	1 sexual, 6 acquisitive, 1 criminal damage, 1 drugs offence, 1 other	2 sexual, 1 acquisitive, 1 breach
5	Arson	-	2 acquisitive, 2 criminal damage
8	Armed robbery (female victim) and attempted armed robbery (victims car)	7 violent, 17 acquisitive, 11 criminal damage, 2 breach, 13 other	9 violent, 2 motor, 1 breach,
9	Indecent assault on 17year old male	1 violent, 1 other	2 sexual

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		LD group (*n* = 25)	
10	Indecent assault on male under 16	3 violent, 19 sexual, 2 acquisitive, 2 breach	2 breach, also has a history of fire setting (not endangering life)
11	Arson (endangering life)	-	3 acquisitive, 3 criminal damage, 1 other, also a history of making hoax calls
17	False imprisonment	-	-
58	Arson	-	History of fire setting and stealing
59	Indecent assault of male under 16	1 violent, 3 acquisitive, 2 criminal damage, 2 drugs, 3 motor, 4 breach, 2 other	6 acquisitive
60	Wounding with intent	2 acquisitive, 4 criminal damage, 3 drugs, 4 breach, 1 other	1 criminal damage, 1 drugs, 1 breach
61	Sexual assault (2 counts)	-	6 sexual, history of fire setting and other sexual assaults investigated inconclusively
62	Burglary (2 counts)	4 violent, 5 acquisitive, 1 criminal damage, 2 breach, 1 other	2 violent, 1 criminal damage, 3 breach

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		LD group (*n* = 25)	
63	Challenging behaviour (severe verbal /physical aggression, threats with weapons/sexually targeted vulnerable females)	1 violent	1 violent, 4 sexual, 1 acquisitive, 1 other history of robbery and violence [a]
64	ABH x3 and criminal damage including ABH	1 violent	1 violent, History of infrequent serious violent attacks, sexual assault and frequent thefts
65	Inciting a child (under 13) to engage in sexual activity	-	1 sexual, 3 breach, 1 other, history of sexually inappropriate behaviour
66	Arson (x2; second was endangering life)		1 violent, 2 criminal damage, 1 other, history of theft
67	Challenging behaviour (threats to stab/rape/aggressive outbursts)	-	[a] 1 violent, 5 sexual, history of fire setting
68	Challenging behaviour;	-	[a] 10 violent, 3 acquisitive, 1 criminal damage, 1 breach, 5 other history of assaults and thefts
69	Challenging behaviour (assaults and damage to property)	-	Repeated assaults on staff and peers, absconding [a]
70	Possession of offensive weapon (threatened to stab father) / breach	2 criminal damage	1 violent, 2 criminal damage, 1 breach; fined for repeated offences (not specified)

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		LD group (*n* = 25)	
71	Indecent assault of female (one report = 15 year old 1 = 19 year old)	3 sexual, 3 acquisitive,	1 violent, 2 sexual, 1 breach, further sexual assault and breaches
72	Sexual assault against a child	-	2 sexual
73	Sexual assault and attempted assault whilst in possession of a knife	-	2 violent, 11 sexual, 2 acquisitive, 1 fraud, 2 criminal damage, 3 breach
74	Rape (3 counts against children)	-	1 acquisitive, 1 criminal damage
		Control group (*n* = 45)	
2	Arson (2 counts endangering life)	2 acquisitive, 1 criminal damage endangering life, 1 breach	1 acquisitive
6	Arson (endangering life); theft and criminal damage	3 violent, 1 acquisitive, 2 criminal damage, 1 other	2 violent, 3 motor, 2 breach
7	Arson (x 7; endangering life)	2 acquisitive, 3 criminal damage, 1 drugs	-
12	Aggravated burglary (described as burglary with intent to inflict GBH)	1 violent, 3 criminal damage, 1 other	2 acquisitive, 1 breach

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		Control group (n = 45)	
13	Theft, possession of weapon and breach of bail	1 sexual, 1 acquisitive,	2 violent, 1 acquisitive, 1 criminal damage, 1 breach, self-report thefts; 12-13 frauds/thefts
14	Institutional violence (sexual assault and exposure and threats and physical assault)	-	ª 28 violent, 18 sexual, 2 acquisitive, 1 criminal damage
15	Kidnap of child and false imprisonment	3 violent, 42 acquisitive, 4 criminal damage, 5 drugs, 3 breach, 8 other	-
16	Rape and x 3 indecent assault	-	1 violent, 1 sexual
18	Arson (endangering life); damage to property x2	1 violent, 1 criminal damage, 1 other	1 violent, 2 criminal damage, 2 other
19	Arson	2 criminal damage	1 acquisitive, 2 criminal damage, 1 motor, 2 breach
20	Wounding with intent	2 violent, 2 acquisitive, 2 criminal damage, 6 breach	2 violent, 1 drugs
21	Wounding with intent x 2	-	1 drugs, history of theft
23	Indecency with a child, ABH and burglary	-	1 motor
24	Wounding with intent	2 violent, 1 breach	1 drugs, 1 motor
25	Concern about carrying knives	-	2 violent, 1 criminal damage

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		Control group (*n* = 45)	
26	Attempted robbery and assault	3 violent, 7 acquisitive, 1 fraud, 2 criminal damage, 1 motor	1 fraud, 2 breach, 1 other, also sent threatening letter and thefts
27	Manslaughter	2 violent, 1 criminal damage	1 acquisitive, 1 other
28	Arson (endangering life)	1 acquisitive, 3 criminal damage	3 violent, 2 other
29	Harassment	11 violent, 11 acquisitive, 6 criminal damage, 1 drugs, 4 breach, 5 other	1 violent, 1 breach
30	Conspiracy to supply class A drugs	-	1 drugs
31	Sending malicious mail	1 violent, 1 criminal damage,	1 violent, 3 criminal damage
32	Murder	-	-
33	Attempted robbery, possession of an explosive substance, possession of an imitation fire arm, dispatching a lighted explosive device	4 acquisitive, 4 criminal damage	6 criminal damage, 1 drugs
34	Wounding with intent	1 violent, 3 acquisitive, 1 other	-
35	Common assault, carrying an offensive weapon, TADA	1 violent, 8 acquisitive, 1 criminal damage, 4 motor, 1 breach	1 violent
36	Murder	1 motor	1 violent
38	Robbery, assault and possession of a weapon	6 violent, 2 acquisitive, 3 breach	1 violent
39	Plans to kidnap and kill a baby and care worker	-	1 violent, self report sexual assault on children

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		Control group ($n = 45$)	
40	Arson (endangering life)	1 violent, 2 fraud, 8 criminal damage, 1 breach	1 violent, 1 acquisitive, history of thefts and a history of fire setting
41	Wounding with intent	1 violent	12 violent history of acquisitive, criminal damage, drugs, breach, other
42	Harassment	1 acquisitive, 1 other	3 violent, 1 other
43	Threats to kill x3, threats, threats to damage property and having articles to damage property	4 violent, 8 criminal damage, 4 breach, 1 other	2 violent, 1 criminal damage, 1 drugs, 2 breach
44	Arson endangering life	1 violent, 1 acquisitive, 1 breach, 1 other	2 violent, 3 criminal damage, 1 drugs, 1 motor, 1 breach
45	Wounding with intent	5 violent, 1 acquisitive, 2 criminal damage, 1 other	2 criminal damage, 1 breach
46	Armed robbery (2 counts)	2 violent, 21 acquisitive, 4 fraud, 2 drugs, 3 motor, 7 breach, 5 other	2 violent, 4 acquisitive, 1 criminal damage
47	GBH	6 violent, 8 acquisitive, 8 criminal damage, 7 drugs, 7 motor, 1 breach, 3 other	5 violent, 2 acquisitive, 1 criminal damage, 4 drugs, 1 breach, 4 other
48	Unlawful wounding and ABH	8 violent, 1 sexual, 11 acquisitive, 1 fraud, 5 criminal damage, 2 breach, 7 other	3 breach

P. No.	Index offence	Previous convictions	Previous offences (not convicted)
		Control group ($n = 45$)	
49	Breach of sexual offences prevention order	6 violent, 2 sexual, 4 acquisitive, 3 criminal damage, 3 motor, 3 breach, 6 other	2 violent, 1 sexual, 1 drugs, 2 breach, 1 other history of assaults
51	Unlawful wounding	1 violent, 5 acquisitive, 3 fraud, 3 breach	1 violent, 1 sexual, acquisitive, 1 drugs, 11 other offences: type unknown. History of assaults & thefts
52	Theft x1 and criminal damage x5	5 acquisitive, 5 criminal damage, 2 drugs, 1 breach, 1 other	2 acquisitive, 1 criminal damage, 1 drugs, 2 breach, history of thefts
53	Arson (endangering life)	-	6 acquisitive, history of thefts
54	Rape, indecent assault and assault with intent to ravish	1 violent, 1 sexual, 1 fraud, 3 motor	1 sexual, 2 breach
55	Perverting the course of justice		2 violent, 2 sexual, 1 drugs, 2 breach
56	ABHx5, wounding with intent, possession of a weapon and assault a PC	9 acquisitive, 8 fraud, 1 criminal damage, 3 motor, 2 breach, 2 other	1 violent, 3 acquisitive, 2 breach, 1 other .
57	Murder	8 acquisitive, 2 criminal damage	2 acquisitive, 2 breach

Note. Offences categorised according to the Home Office offence categorises see Section 2.2.3 for definitions of offence types. P.No. = Participant number

Appendix F: Items of the PCL-R

PCL-R Scoresheet
(USE ONLY FOR PCL-R TRAINING WORKSHOPS)

Rater: _____ Date: _____ Case #: _____

Ratings: 0 = no; 1 = maybe; 2 = yes; x = omit

Facet 1	Facet 2	Facet 3	Facet 4	Total Score	
1. ☐				☐	1. Glibness/Superficial Charm
2. ☐				☐	2. Grandiose Sense of Self Worth
3.		☐		☐	3. Need for Stimulation/ Boredom
4. ☐				☐	4. Pathological Lying
5. ☐				☐	5. Conning/Manipulative
6.	☐			☐	6. Lack of Remorse or Guilt
7.	☐			☐	7. Shallow Affect
8.	☐			☐	8. Callous/Lack of Empathy
9.		☐		☐	9. Parasitic Lifestyle
10.			☐	☐	10. Poor Behavioral Controls
11.				☐	11. Promiscuous Sexual Behavior
12.			☐	☐	12. Early Behavioral Problems
13.		☐		☐	13. Lack of Realistic Long-term Goals
14.		☐		☐	14. Impulsivity
15.		☐		☐	15. Irresponsibility
16.	☐			☐	16. Failure to Accept Responsibility
17.				☐	17. Many Marital Relationships
18.			☐	☐	18. Juvenile Delinquency
19.			☐	☐	19. Revocation Conditional Release
20.			☐	☐	20. Criminal Versatility

☐ + ☐ = ☐			☐ + ☐ = ☐			☐	Raw Sum
☐ + ☐ = ☐			☐ + ☐ = ☐			☐	Number of Missing Items
☐ ☐ ☐			☐ ☐ ☐			☐	Pro-rated Sum
Facet 1	Facet 2	Factor 1	Facet 3	Facet 4	Factor 2	Total Score	

Appendix G: The Aggression Vulnerability Scale

Patient Name/Code: _____
Follow-up Period From: _____ **To:** _____
Discharge Date: _____

Rater Name: _____
Date of Completion: _____

AVS SCORING

No. incidents of verbal aggression =

No. incidents of aggression to property =

No. incidents of physical aggression =

Add to obtain   TOTAL AGGRESSIVE NO.

Most severe episode of verbal aggression =

Most severe episode of aggression to property =

Most severe episode of physical aggression =

Add to obtain   TOTAL AGGRESSIVE SEVERITY

No. of incidents of self harm/ suicide =

No. of incidents of self neglect =

No. of incidents of victimisation or exploitation =

No. of incidents of sexual vulnerability =

Add to obtain   TOTAL VULNERABILITY NO.

Most severe episode of self harm/ suicide =

Most severe episode of self neglect =

Most severe episode of victimisation or exploitation =

Most severe episode of sexual vulnerability =

Add to obtain   TOTAL VULNERABILITY SEVERITY

VERBAL AGGRESSION

Patient's Name: _____ Date: _____
Time:_____
Location (ward/garden etc): _____
Brief description of incident (include what happened, where, when, why and to whom):

_____
_____
_____
_____
_____
_____
_____
_____

Outcome (e.g. patient was transferred, given prn medication)

_____
_____
_____
_____
_____
_____
_____

Name of Person Completing Form:

_____

Nature of Incident

		Single	Repetitive (please tick)
No verbal aggression	0		
Insulting remarks or swear words to others		1	☐
Shouting insulting words or swear words		2	☐
Threatening violence to self		3	☐
Threatening violence to others (including sexual violence)		4	☐
Threats to kill		5	☐

*Only rate verbal aggressive behaviour. Aggression is defined as hostile or destructive behaviour intended to cause physical or psychological harm.

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour.
Some clinical judgement required in terms of whether a given incident is classed as a <u>repetitive occurrence</u> (ie: part of the same incident) or as two separate incidents. It is recommended that if an hour has passed during which no behaviour of concern is displayed, it be counted as a separate incident.

AGGRESSION AGAINST PROPERTY

Patient's Name: _____ Date: _____

Time: _____

Location (ward/garden etc): _____

Brief description of incident (include what happened, where, when, why and to whom):

_____

_____

_____

_____

_____

_____

If unsuccessful please specify reason why (e.g. staff intervention, overcome by victim etc)

_____

_____

_____

Outcome (e.g. patient was transferred, given prn medication)

_____

_____

_____

_____

Name of Person Completing Form:

_____

Nature of Incident

		Single	Repetitive (please tick)
No aggression against property	0		
Minor incident, such as banging table, stamping on floor, slamming door, etc		1	☐
Slamming door hard, ripping of clothes, kicking tables/chairs, etc		2	☐
Causing damage to objects, urination onto objects smearing faeces, etc		3	☐
Throwing of objects in a potentially dangerous way		4	☐
Setting fire to objects (minor damage) using objects as a weapon, etc		5	☐
Serious arson attempt		6	☐

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour.
Some clinical judgement required in terms of whether a given incident is classed as a <u>repetitive</u> <u>occurrence</u> (ie: part of the same incident) or as two separate incidents. It is recommended that if an hour has passed during which no behaviour of concern is displayed, it be counted as a separate incident.

PHYSICAL AGGRESSION AGAINST OTHER PEOPLE
(STAFF OR PATIENTS)

Patient's Name: _____ Date: _____

Time: _____

Location (ward/garden etc): _____

Brief description of incident (include what happened, where, when, why and to whom):

_____

_____

_____

If unsuccessful please specify reason why (e.g. staff intervention, overcome by victim etc)

_____

Outcome (e.g. patient was transferred, given prn medication)

_____

Name of Person Completing Form:

_____

Nature of Incident

	Single	Weapon	Repetitive (please tick)
A: No physical aggression to staff or patients — **0**			
Makes menacing, threatening or sexual gesture to staff/ patients	1	☐	☐
Grabs/pushes/pulls people and/or clothing (including in a sexually aggressive way e.g. rubbing up against staff, pulling up someone's skirt)	2	☐	☐
Hits, kicks, scratches, pulls hair etc. of staff/ patients causing mild injury (e.g. minor cuts, bruises, scratches etc)	3	☐	☐
Indecent assault (e.g. digit penetration)	4	☐	☐
Abduct/ keep staff or patient hostage	5	☐	☐
Attacks other in attempt to commit serious sexual assault. Attempt prevented by staff intervention or being overcome by victim	6	☐	☐
Attacks others causing serious injury, loss of teeth, fractures, deep cuts, etc	7	☐	☐
Attacks other in attempt to cause fatal/near fatal injury. Attempt prevented by staff intervention or being overcome by victim	8	☐	☐
Attacks others resulting in serious sexual assault (e.g. rape, buggery)	9	☐	☐
Attacks others resulting in death/ coma etc	10	☐	☐

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour.

Some clinical judgement required in terms of whether a given incident is classed as a <u>repetitive occurrence</u> (ie: part of the same incident) or as two separate incidents. It is recommended that if an hour has passed during which no behaviour of concern is displayed, it be counted as a separate incident.

SELF HARM

Patient's Name: _____ Date: _____
Time:_____
Location (ward/garden etc): _____
Brief description of incident (include what happened, where, when, why and to whom):

_____

_____

_____

If unsuccessful please specify reason why (e.g. staff intervention, overcome by victim etc)

_____

_____

Outcome (e.g. patient was transferred, given prn medication)

_____

_____

Name of Staff Nurse Completing Form:

_____

Nature of Incident

A: No self harm:		Single	Repetitive (please tick)
	0		
Verbally threatening violence to self		1	☐
Hits self with no injury		2	☐
Scratches at self, pulls out hair, throws self onto floor etc with no, or slight, injury		3	☐
Bangs head/ fits on wall, inflicts minor cuts, bruises, burns etc to self		4	☐
Serious injury to oneself without the intention to die, causing large cuts, fractures, head injury etc		6	☐
B: No attempt at suicide	0		
Suicide attempt (attempt unlikely to succeed if undiscovered by staff)		5	☐
Serious suicide attempt (attempt likely to succeed if undiscovered by staff) e.g. overdose, electrocution etc		7	☐
Completed suicide		8	☐

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour.
Some clinical judgement required in terms of whether a given incident is classed as a <u>repetitive</u> <u>occurrence</u> (ie: part of the same incident) or as two separate incidents. It is recommended that if an hour has passed during which no behaviour of concern is displayed, it be counted as a separate incident.

SELF NEGLECT

Patient's Name: _____ Date: _____
Time:_____
Location (ward/ garden etc): _____

Brief description of incident (include what happened, where, when, why and to whom):

_____
_____
_____
_____

If unsuccessful please specify reason why (e.g. staff intervention, overcome by victim etc)

_____
_____
_____

Outcome (e.g. patient was transferred, given prn medication)

_____
_____
_____

Name of Staff Nurse Completing Form:

_____

Nature of Incident

		Single	Repetitive (please tick)
Independent/ self sufficient good standard in all areas	0		
Poor personal hygiene, (e.g. scruffy, dirty, etc)		1	☐
Failure to maintain safe living conditions (e.g. leaving front door open at night, extreme neglect of personal space)		2	☐
Repeated incontinence of urine with staining		3	☐
Inadequate diet with evidence of weight loss (not due to deliberate dieting done healthily)		4	☐
Inadequate fluid intake with evidence of dehydration (e.g. impaired renal function, dry mouth, poor elasticity of skin)		5	☐
Repeated faecal incontinence (in the absence of acute illness)		6	☐

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour.
Some clinical judgement required in terms of whether a given incident is classed as a <u>repetitive occurrence</u> (ie: part of the same incident) or as two separate incidents. It is recommended that if an hour has passed during which no behaviour of concern is displayed, it be counted as a separate incident.

VICTIMISATION OR EXPLOITATION

Patient's Name: _____ Date: _____
Time:_____
Location (ward/garden etc): _____

Brief description of incident (include what happened, where, when, why and to whom):

_____

_____

If unsuccessful please specify reason why (e.g. staff intervention, overcome by victim etc)

_____

_____

Outcome (e.g. patient was transferred, given prn medication)

_____

_____

Name of Staff Nurse Completing Form:

_____

Nature of Incident

No evidence of victimisation   `0`   Single   Repetitive
(please tick)

Description	Single	Repetitive
Acts of omission (e.g. are neglected despite stating they require assistance with day-to-day activities, personal care or medication)	1	☐
Victim of bullying or verbal harassment (e.g. victim of verbal threats, intimidation, minor sexual harassment/ touching, etc)	2	☐
Theft of their property, possessions, medication or money (e.g. taking possessions when person not present)	3	☐
Victim of minor violence (e.g. pushing, scratching, pulling hair, etc)	4	☐
Robbery of their property, possessions, medication or money (e.g. taking by means of intimidation or violence)	5	☐
Victim of moderate violence (e.g. punching, kicking, threats with a weapon)	6	☐
Personal exploitation (e.g. led into criminal activity, such as prostitution or drug dealing, by intimidation or violence)	7	☐
Victim of sexual attack/ rape	8	☐
Victim of major violence (e.g. any use of weapon, repeated punching, kicking)	8	☐

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour
Some clinical judgement required in terms of whether a given incident is classed as a repetitive .
occurrence (ie: part of the same incident) or as two separate incidents. It is recommended that if an
hour has passed during which no behaviour of concern is displayed, it be counted as a separate
incident.

SEXUAL VULNERABLILITY

Patient's Name: _____ Date: _____
Time:_____
Location (ward/garden etc): _____

Brief description of incident (include what happened, where, when, why and to whom):

_____
_____

If unsuccessful please specify reason why (e.g. staff intervention, overcome by victim etc)

_____

Outcome (e.g. patient was transferred, given prn medication)

_____

Name of Staff Nurse Completing Form:

_____

Nature of Incident

		Single	Repetitive
No sexual vulnerability	☐ 0		(please tick)
Lack of clothing or sexually inappropriate dress (e.g. flys undone, shirt/ blouse undone)	☐ 1		☐
Sexually inviting conversation or sexual innuendo (not aggressive verbal comments)	☐ 2		☐
Attempting to kiss other patients or staff/ allowing others to kiss them/ attempting to touch other patients/ staff non-erogenous zones/ allowing others to touch them	☐ 3		☐
Exposure of genitalia/ breasts or stripping of clothing in public (i.e. other than bedroom or bathroom or if door to above is not closed) or walking through public areas in full nudity	☐ 4 ☐ 5		☐ ☐
Inappropriate touching of erogenous zones of other patients/ staff/ allowing others to touch their zones	☐ 6		☐
Masturbating in public	☐ 7		☐
Non-aggressive attempts to have sex (including oral sex, heavy petting, sexual intercourse)	☐ 8		☐

Note: If behaviour is aggressive – it should also be rated under verbal or physical aggression to people. Aggression is defined as hostile or destructive behaviour intended to cause physical or psychological harm.

Please tick only <u>one</u> box on this sheet, specifying the most severe behaviour.
Some clinical judgement required in terms of whether a given incident is classed as a <u>repetitive occurrence</u> (ie: part of the same incident) or as two separate incidents. It is recommended that if an hour has passed during which no behaviour of concern is displayed, it be counted as a separate incident.

Appendix H: HCR-20 definition of violence

'For the purposes of this manual, violence is actual, attempted or threatened harm to person or persons. Threats of harm must be clear and unambiguous (e.g. "I am going to kill you!"), rather than vague statements of hostility. Violence is behaviour which obviously is likely to cause harm to another person or persons. Behaviour which could be fear-inducing to the average person may be counted as violence (e.g., stalking). The resulting damage to a victim is not the defining feature of a violent act. Rather it is the act itself. For example, a person who shoots a gun into a crowd of people but harms no one has committed a violent act'.

Appendix I: Rank order of AUCs of the items of the VRAG, PCL-SV and HCR-20 predicting violent and general re-convictions 5 years post-discharge.

Table I1: *The AUCs for the items of the VRAG, PCL-SV and HCR-20 predicting violent re-convictions 5 years post-discharge (rank ordered in terms of their predictive ability)*

Item	AUC	SE	p	CI Lower	CI Upper	n
HCR-20 Risk-management 4 Non-compliance with remediation attempts	0.73	0.09	0.02	0.55	0.91	102
HCR-20 History 7 Psychopathy	0.73	0.09	0.02	0.55	0.91	96
HCR-20 History 8 Early maladjustment	0.71	0.07	0.03	0.58	0.84	104
PCL-SV Part 1: 4 Lacks remorse	0.71	0.09	0.03	0.54	0.88	89
VRAG 10 Personality disorder	0.71	0.08	0.03	0.54	0.87	83
HCR-20 History 10 Prior supervision failure	0.70	0.08	0.03	0.54	0.86	106
VRAG 3 History of alcohol problems	0.69	0.10	0.05	0.49	0.88	84
VRAG 6 Failure of conditional release	0.68	0.10	0.05	0.50	0.87	83
HCR-20 History 5 Substance use problems	0.68	0.10	0.06	0.49	0.86	103
HCR-20 Clinical 5 Unresponsive to treatment	0.67	0.10	0.08	0.48	0.85	103
VRAG 12 Psychopathy	0.67	0.10	0.09	0.48	0.85	76
PCL-SV Part 1: 1 Superficial	0.66	0.10	0.09	0.47	0.86	103

Item	AUC	SE	p	CI Lower	CI Upper	n
PCL-SV Part 2: 9 Lacks goals	0.65	0.08	0.11	0.50	0.81	97
HCR-20 Risk-management 3 Lack of personal support	0.65	0.09	0.10	0.48	0.83	107
HCR-20 History 9 Personality disorder	0.65	0.09	0.10	0.47	0.83	107
PCL-SV Part 1: 2 Grandiose	0.63	0.09	0.15	0.45	0.82	100
HCR-20 Clinical1 Lack of insight	0.63	0.08	0.16	0.48	0.78	102
HCR-20 Risk-management 1 Plans lack feasibility	0.63	0.09	0.18	0.45	0.80	107
VRAG 2 Elementary school maladjustment score	0.62	0.08	0.21	0.45	0.78	78
HCR-20 History 2 Young age at first violent incident	0.62	0.08	0.21	0.46	0.77	105
PCL-SV Part 2: 5 Lacks empathy	0.61	0.10	0.23	0.42	0.80	97
HCR-20 Clinical 2 Negative attitudes	0.60	0.11	0.33	0.39	0.81	98
VRAG 5 Total Cormier-Lang score for non-violent offences	0.60	0.09	0.29	0.43	0.77	84
PCL-SV Part 2: 8 Poor behaviour controls	0.60	0.09	0.31	0.42	0.77	104
VRAG 7 Age at index offence	0.59	0.09	0.36	0.42	0.76	84
PCL-SV Part 2: 7 Impulsive	0.58	0.10	0.39	0.39	0.78	89
HCR-20 History 4 Employment problems	0.58	0.09	0.37	0.41	0.75	95

Item	AUC	SE	p	CI Lower	CI Upper	n
HCR-20 Risk-management 2 Exposure to destabilisers	0.58	0.10	0.38	0.40	0.77	104
VRAG 8 Victim injury	0.58	0.09	0.40	0.40	0.76	74
HCR-20 History 1 Previous violence	0.58	0.08	0.40	0.42	0.74	107
PCL-SV Part 2: 10 Irresponsible	0.58	0.11	0.49	0.37	0.78	79
PCL-SV Part 2: 11 Adolescent anti-social behaviour	0.56	0.10	0.52	0.37	0.76	102
HCR-20 Clinical 4 Impulsivity	0.56	0.10	0.55	0.37	0.74	107
PCL-SV Part 1: 3 Deceitful	0.55	0.10	0.61	0.35	0.75	98
PCL-SV Part 2: 12 Adult anti-social behaviour	0.55	0.10	0.61	0.36	0.75	102
HCR-20 History 3 Relationship instability	0.52	0.10	0.81	0.33	0.72	99
PCL-SV Part 2: 6 Doesn't accept responsibility	0.51	0.09	0.92	0.33	0.69	84
VRAG 4 Marital status	0.50	0.09	0.97	0.32	0.69	83
HCR-20 History 6 Major mental illness	0.50	0.09	1.00	0.32	0.68	107
HCR-20 Clinical 3 Active symptoms of major mental illness	0.50	0.02	1.00	0.32	0.68	107
VRAG 9 Any female victim	0.49	0.09	0.93	0.31	0.67	73
VRAG 1 Lived with both biological parents to age 16	0.48	0.10	0.80	0.30	0.66	82
VRAG 11 Schizophrenia	0.47	0.10	0.73	0.28	0.66	83
HCR-20 Risk-management 5 Stress	0.31	0.09	0.06	0.13	0.48	95

Table I2: *The AUCs for the items of the VRAG, PCL-SV and HCR-20 predicting general re-convictions 5 years post-discharge (rank ordered in terms of their predictive ability)*

Item	AUC	SE	p	CI Lower	CI Upper	n
HCR-20 History 7 Psychopathy	0.77	0.07	0.00	0.64	0.91	96
PCL-SV Part 1: 3 Deceitful	0.76	0.08	0.00	0.61	0.91	84
HCR-20 Risk-management 4 Non-compliance with remediation attempts	0.75	0.06	0.00	0.63	0.88	102
HCR-20 History 5 Substance use problems	0.72	0.07	0.00	0.59	0.86	103
HCR-20 History 10 Prior supervision failure	0.72	0.06	0.00	0.60	0.84	106
HCR-20 Risk-management 1 Plans lack feasibility	0.71	0.07	0.00	0.58	0.84	107
VRAG 12 Psychopathy	0.70	0.07	0.00	0.56	0.84	102
PCL-SV Part 2: 6 Doesn't accept responsibility	0.69	0.08	0.02	0.53	0.84	83
HCR-20 Risk-management 2 Exposure to destabilisers	0.69	0.07	0.01	0.56	0.82	104
HCR-20 Clinical 2 Negative attitudes	0.69	0.07	0.01	0.54	0.83	98
VRAG 11 Schizophrenia	0.68	0.08	0.01	0.53	0.83	102
VRAG 1 Lived with both biological parents to age 16	0.68	0.08	0.02	0.53	0.83	104
VRAG 4 Marital status	0.66	0.07	0.03	0.53	0.80	89

Item	AUC	SE	p	CI Lower	CI Upper	n
PCL-SV Part 2: 10 Irresponsible	0.66	0.08	0.05	0.51	0.81	83
PCL-SV Part 1: 2 Grandiose	0.66	0.07	0.05	0.52	0.79	80
PCL-SV Part 2: 5 Lacks empathy	0.66	0.07	0.05	0.51	0.80	84
HCR-20 History 9 Personality disorder	0.64	0.07	0.04	0.51	0.78	107
HCR-20 Clinical 5 Unresponsive to treatment	0.64	0.07	0.06	0.50	0.77	103
PCL-SV Part 2: 12 Adult anti-social behaviour	0.63	0.08	0.11	0.47	0.80	76
VRAG 9 Any female victim	0.62	0.07	0.11	0.49	0.75	97
HCR-20 History 8 Early maladjustment	0.62	0.07	0.09	0.49	0.76	104
VRAG 5 Total Cormier-Lang score for non-violent offences	0.60	0.07	0.17	0.46	0.75	97
VRAG 3 History of alcohol problems	0.60	0.08	0.20	0.44	0.76	98
PCL-SV Part 2: 7 Impulsive	0.60	0.07	0.20	0.46	0.74	84
VRAG 2 Elementary school maladjustment score	0.60	0.08	0.17	0.45	0.75	99
HCR-20 Clinical 1 Lack of insight	0.60	0.07	0.20	0.46	0.73	102
VRAG 7 Age at index offence	0.59	0.08	0.24	0.43	0.76	89
HCR-20 History 2 Young age at first violent incident	0.58	0.07	0.24	0.45	0.72	105

Item	AUC	SE	p	CI Lower	CI Upper	n
PCL-SV Part 2: 9 Lacks goals	0.58	0.08	0.37	0.42	0.73	73
HCR-20 History 4 Employment problems	0.56	0.07	0.38	0.43	0.70	95
PCL-SV Part 2: 8 Poor behaviour controls	0.56	0.08	0.46	0.40	0.72	74
HCR-20 Risk-management 3 Lack of personal support	0.55	0.07	0.46	0.42	0.69	107
HCR-20 Clinical 4 Impulsivity	0.54	0.07	0.54	0.41	0.68	107
HCR-20 History 1 Previous violence	0.53	0.07	0.71	0.39	0.66	107
VRAG 10 Personality disorder	0.53	0.08	0.76	0.36	0.69	79
PCL-SV Part 1: 4 Lacks remorse	0.52	0.08	0.77	0.37	0.68	83
VRAG 8 Victim injury	0.52	0.07	0.80	0.38	0.66	104
VRAG 6 Failure of conditional release	0.50	0.08	0.98	0.35	0.65	84
HCR-20 History 6 Major mental illness	0.50	0.07	1.00	0.36	0.64	107
HCR-20 Clinical 3 Active symptoms of major mental illness	0.50	0.07	1.00	0.36	0.64	107
HCR-20 History 3 Relationship instability	0.50	0.08	0.96	0.35	0.65	99
PCL-SV Part 2: 11 Adolescent anti-social behaviour	0.45	0.08	0.54	0.29	0.61	83
PCL-SV Part 1: 1 Superficial	0.45	0.08	0.54	0.29	0.61	82
HCR-20 Risk-management 5 Stress	0.42	0.07	0.31	0.28	0.56	95

Appendix J: The items of the screen for risk of violence in LD

	No	Maybe	Yes

- **Non-compliance with remediation attempts**
- Does the individual lack motivation to succeed and willingness to comply with medication and therapy, or refuse to follow rules. This should include both therapeutic and supervision/management realms.

☐ ☐ ☐

- **Early maladjustment**
- Did the individual display behavioural problems or suffer from abuse as a child or adolescent (<17) at home, in school or in the community?

☐ ☐ ☐

- **Failure of conditional release**
- Has the individual any charges whilst under supervision from the criminal justice system, any parole revocations, any breaches of bail, failures to comply / attend? Failure to comply with supervision under mental health services does not apply. Failure to keep the peace if bound over does count as a breach.

☐ ☐ ☐

- **Substance use problems**
- Has the individual any history of abusing alcohol or drugs and has this substance misuse impaired their ability to function (in terms of health, relationships, employment)? If the individual has had alcohol or substance dependence or abuse but no impairment of functioning as a result of this, then score 'maybe' (1).

☐ ☐ ☐

- **Personality disorder**
- Has the individual any diagnoses of personality disorder made by a qualified professional?

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- **Young age at first violent incident**
- Was the individual under the age of 20 at the first known act of violence? If aged over 40 when committed first violent incident score No (0) and if aged between 21- 39 score 'Maybe' (1).

☐ ☐ ☐

Score all 'No's as 0, 'Maybe' as a 1 and 'Yes' as a 2. If it is not possible to score an item then pro-rate the total score:

Add the scored items and divide by the number of items scored (five). Multiply by the total number of items (six).

If it is not possible to score more than one item then do not pro-rate.